

Water Resources Data Puerto Rico and the U.S. Virgin Islands Water Year 1991



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT PR-91-1 Prepared in cooperation with the Commonwealth of Puerto Rico, the Government of the U.S. Virgin Islands, and other agencies

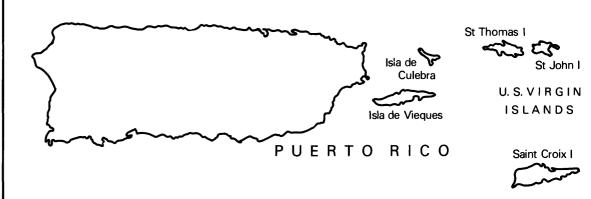
CALENDAR FOR WATER YEAR 1991

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Water Resources Data Puerto Rico and the U.S. Virgin Islands Water Year 1991

by R.E. Curtis, Jr., Z. Aquino, P.L. Diaz, and R.J. Vachier



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT PR-91-1 Prepared in cooperation with the Commonwealth of Puerto Rico, the Government of the U.S. Virgin Islands, and other agencies

U.S. DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., Secretary

U.S. GEOLOGICAL SURVEY
Dallas L. Peck, Director

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PREFACE

This annual hydrologic data report of Puerto Rico and the U.S. Virgin Islands 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, the U.S. Virgin Islands, and the other Trust Territories. 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.

The report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey, Water Resources Division 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 personnel contributed significantly to the collection, processing and tabulations of the data:

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This report was prepared in cooperation with agencies of the Commonwealth of Puerto Rico, the Government of the U.S. Virgin Islands, and with other federal agencies under the general supervision of Allen L. Zack, District Chief, Caribbean District, San Juan, Puerto Rico.

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15. Supplementary Notes

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16. Abstract (Limit: 200 words)

Water resources data for surface-water, quality-of-water, and ground-water records for the 1991 water year for Puerto Rico and the U.S. Virgin Islands, consists of records of discharge, water quality of streams, and water levels of wells. This report contains discharge records for 74 streamflow-gaging stations; daily sediment records for 14 streamflow stations; 112 partial-record or miscellaneous streamflow stations; stage records for 9 reservoirs; 1 crest-stage, partial record streamflow stations; water-quality records for 16 streamflow-gaging stations, 42 ungaged streamsites, 11 lake sites, 2 lagoons, and 1 bay; and water-level records for 86 observation wells. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating local and federal agencies in Puerto Rico and the U.S. Virgin Islands.

17. Document Analysis a. Descriptors

*Surface water, *Water quality, *Ground water, Aquifers, Chemical analysis, Gaging stations, Hydrologic data, Sediments, Streamflow, Water analysis, Water Levels, Lakes.

b. Identifiers/Open-Ended Terms

Puerto Rico, U.S. Virgin Islands, Sampling sites.

c. COSATI Field/Group

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(Letter after station name designates type of data:

- (d) discharge, (c) chemical, (b) biological,
- (s) sediment, (p) pesticide, (e) elevation)

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| | Well 180206066135500 Local number RM-05 | |
| | Well 180104066152300 Local number RM-10 | 474 |
| RIO | INABON TO RIO LOCO BASINS | |
| | Well 180133066503300 Local number 132 | 475 |
| RIO | GUANAJIBO BASIN | |
| | Well 180132067033800 Local number 143 | 476 |
| RIO | CULEBRINAS BASIN | |
| | Well 182018066593200 Local number 83 | |
| | Well 182442067091700 Local number 200 | 478 |
| ST. | CROIX, U.S. VIRGIN ISLANDS | |
| | Well 174225064471900 Local number 1 | |
| | Well 174225064472000 Local number 2 | |
| | Well 174243064475100 Local number 3 | |
| | Well 174245064475800 Local number 4 | |
| | Well 174308064484400 Local number 6 | |
| | Well 174525064460600 Local number 7 | |
| | Well 174527064460100 Local number 8 | |
| | Well 174532064460300 Local number 9 | |
| | Well 174329064454700 Local number 10 | |
| | Well 174303064481100 Local number 11 | |
| | Well 174308064482800 Local number 12 | |
| | Well 174316064480800 Local number 13 | |
| | Well 174319064454401 Local number 15 | |
| | | |
| ST. | THOMAS, U.S. VIRGIN ISLANDS | 400 |
| | Well 182050064580400 Local number 1 | |
| | Well 182138064543100 Local number 2 | |
| | Well 182138064542500 Local number 3 | |
| | Well 182136064541900 Local number 4 | |
| | Well 182029064535200 Local number 5 | |
| | Well 182038064550300 Local number 6 | |
| | weii 182030004343200 Locai number / | . 301 |
| ST. | JOHN, U.S. VIRGIN ISLANDS | |
| | Well 182010064472600 Local number 1 | |
| | Well 182109064460300 Local number 2 | |
| | Well 182116064451000 Local number 3 | |
| | Well 182042064454500 Local number 5 | |
| | Well 182044064454600 Local number 6 | |
| | Well 182044064454800 Local number 7 Well 182044064454900 Local number 8 | |
| | Well 182044064455000 Local number 9 | |
| | Well 182044064455200 Local number 10 | |
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GROUND-WATER WELLS, BY BASIN, FOR WHICH RECORDS ARE PUBLISHED

| | Pag |
|--------------------------------------|-----|
| Well 181956064464500 Local number 11 | 507 |
| Well 182110064430000 Local number 12 | 508 |
| Well 181950064422300 Local number 13 | 509 |
| Well 182048064430400 Local number 14 | 510 |

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INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with local and federal agencies obtains a large amount of data pertaining to the water resources of the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the area. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data for Puerto Rico and the U.S. Virgin Islands, 1991."

This report includes records on both surface and ground water. Specifically, it contains: (1) Discharge records for 74 streamflow-gaging stations, 112 partial-record or miscellaneous streamflow stations, stage records for 9 reservoirs, 1 crest-stage, partial record station, and (2) water-quality records for 16 streamflow-gaging stations, and for 42 ungaged streamsites, 11 lake sites, 2 lagoon, and 1 bay; and (3) water-level records for 86 observation wells.

Water-resources data for Puerto Rico for calendar years 1958-67 were released in a series of reports entitled "Water Records of Puerto Rico". Water-resources data for the U.S. Virgin Islands for the calendar years 1962-69 were released in a report entitled "Water Records of U.S. Virgin Islands." Included were records of streamflow, ground-water levels, and water-quality data for both surface and ground water.

Beginning with the 1968 calendar year, surface-water records for Puerto Rico were released separately on an annual basis. Ground-water level records and water-quality data for surface and ground water were released in companion reports covering periods of several years. Data for the 1973-74 reports were published under separate covers. Water-resources data reports for 1975-76, 1977, 1978, 1979-80, 1981-82, 1983, 1984, 1985, 1986, 1987, 1988, 1989, and 1990 water years consist of one volume each and contain data for streamflow, water quality and ground water.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have 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 PR-91-1". These 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 back of title page or by telephone (809) 749-4346.

COOPERATION

The U.S. Geological Survey has had cooperative agreements with organizations of the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands for the systematic collections of water resources data since 1958. Organizations that supplied data are acknowledged in the station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

Puerto Rico Environmental Quality Board

Puerto Rico Aqueduct and Sewer Authority

Puerto Rico Department of Agriculture

Puerto Rico Industrial Development Company

Puerto Rico Department of Housing

Puerto Rico Highway Authority

Puerto Rico Department of Natural Resources

Puerto Rico Department of Health

Puerto Rico Electric and Power Authority

Puerto Rico Planning Board

Water Resources Research Institute, University of Puerto Rico

Water Resources Research Institute, College of the Virgin Islands

U.S. Virgin Islands Water and Power Authority

U.S. Virgin Islands Energy Office

U.S. Virgin Islands Department of Planning and Natural Resources

Funds were also provided by the Corps of Engineers, U.S. Army, for the collection of records at five gaging stations published in this report.

SUMMARY OF HYDROLOGIC CONDITIONS

Precipitation

Precipitation throughout Puerto Rico during the 1991 water year (October 1990 to September 1991) averaged about 99 percent of normal. However, precipitation was 95 percent of normal in northern Puerto Rico, 102 percent of normal in southern Puerto Rico, 105 percent of normal in eastern Puerto Rico, and 98 percent of normal in western Puerto Rico. Unusually dry conditions prevailed during most of the 1991 water year except for the months of October, December and February. October was the wettest month of the 1991 water year. Monthly average precipitation islandwide for the 1991 water year and for the 30-year reference period 1951-1980 used to define normal rainfall, as reported by the National Oceanic and Atmospheric Administration, are listed in table 1.

Table 1. Islandwide monthly precipitation and annual averages for the 1991 water year and the 30-year reference period, 1951-80

| Month | 1991 Water Year (inches) | 30-year normal (inches) |
|-------|-----------------------------|----------------------------|
| ост | 17.23 | 7.74 |
| NOV | 4.00 | 5.95 |
| DEC | 4.41 | 4.32 |
| JAN | 2.35 | 3.08 |
| FEB | 5.11 | 2.35 |
| MAR | 2.73 | 2.62 |
| APR | 2.92 | 4.63 |
| MAY | 5.40 | 6.48 |
| JUN | 3.01 | 5.58 |
| JUL | 5.27 | 5.48 |
| AUG | 5.05 | 7.28 |
| SEP | 5.34 | 7.78 |
| TOTAL | 62.82 | 63.29 |

Surface Water

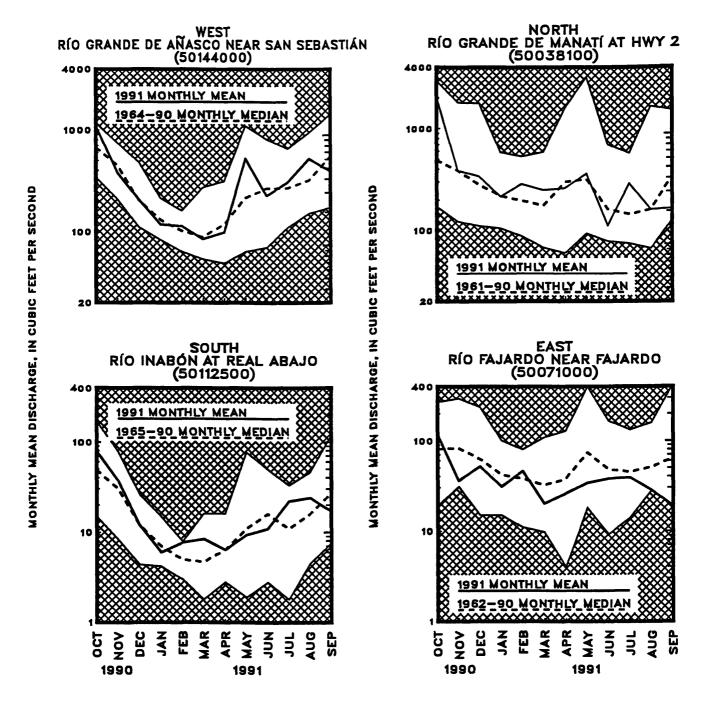
Streamflow in Puerto Rico was normal during the 1991 water year. The 1991 monthly mean flow, the long-term monthly median flow and extreme monthly flows are shown for four index stations in figure 1.

During October 1990, increased streamflow was recorded throughout Puerto Rico. It was the wettest month during the entire 1991 water year, producing flows above the long-term median at the four index stations.

During the rest of the 1991 water year, seasonal streamflow fluctuated within the normal range for most parts of the island. In the northern area, represented by the Río Grande de Manatí Highway 2 index station, streamflow decreased from November to January. During February and March, monthly mean flows were well above the long-term median. For this area streamflows were below normal for the rest of the year, except during July.

Río Inabón at Real Abajo, the index station representing the southern area, recorded the same general streamflow pattern, but was above the long-term median for longer periods. From November through January streamflow declined to slightly below normal. Due to increased rainfall, February and March were well above the long-term median, returning to normal and below normal values from April through June. During July and August an increase in streamflow was recorded, with monthly mean discharges well above normal. Streamflow declined during the month of September.

The eastern area, represented by the Río Fajardo near Fajardo index station, was the driest region of the island. Throughout most of the 1991 water year monthly mean discharges were below the long-term median. The lowest minimum monthly mean discharges ever recorded at this station, since it was established in 1962, were recorded during August and September. October and February were the only months during which monthly mean discharges were slightly above normal during the 1991 water year.



Unshaded area indicates range between highest and lowest monthly mean discharges for the period of record.

Figure 1.--Monthly mean discharge of selected streams in Puerto Rico.

In the western area, the Río Grande de Añasco near San Sebastián index station, recorded normal monthly mean discharges from November to April. From June to September monthly mean discharge values were close to the long-term median. Only during October, May and August were monthly mean discharge values well above the long-term median.

In the U.S. Virgin Islands (St. Thomas, St. Croix, and St. John), precipitation and streamflow patterns were similar to those in Puerto Rico. Rainfall in the U.S. Virgin Islands during the 1991 water year was 81 percent of normal.

Ground-Water Levels

Ground-water levels at representative observation wells in Puerto Rico rose during October 1990 and February 1991 in response to above normal rainfall. Record-high water levels were recorded at several wells in Puerto Rico and the U.S. Virgin Islands (table 2).

In the north coast limestone aquifer, ground-water levels rose during October 1990 and February 1991 in response to above normal rainfall in this region. The water level at the Sabana Hoyos observation well rose 1.20 ft during October 1990, and remained high during November as rainfall continued above normal in the area (fig 2). During February 1991, the water level rose 1.30 ft in response to above normal rainfall. By the end of the 1991 water year, the water level had returned to approximately the same level recorded at the beginning of the water year.

Ground-water levels in the south coast alluvial aquifers generally rose during October 1990. This rising trend was reversed as rainfall decreased and ground-water withdrawals increased during the rest of the water year. At the Alomar observation well, a water level increase of 2.30 ft was recorded during October 1990 (fig 2). Ground-water levels decreased from November 1990 to July 1991 in response to increased water demand for public and industrial uses, although slight rises were recorded during February and March 1991. However, above normal rainfall occurred during mid-July causing ground-water levels to rise 4.30 ft followed by a rapid drop as rainfall diminished.

Ground-water levels in the U.S. Virgin Islands aquifers followed the same pattern as wells in the north coast of Puerto Rico as seasonal rainfall occurred. The water level rose 8.85 ft in observation well 11 at Guinea Gut, St. John during October 1990 (fig 2). During the remainder of the 1991 water year the water level dropped 15.7 ft as rainfall declined below normal levels.

Water Quality

In the 1991 water year the U.S. Geological Survey, in cooperation with local government agencies, completed the seventh year of sampling for the constituents listed in table 3. These constituents were added to the water quality monitoring program in 1985 and are in addition to the major chemical constituents and physical properties monitored in the continuing water quality monitoring program in Puerto Rico. The highest concentration of selected constituents detected during the 1991 water year, along with the stations at which these concentrations were detected, are summarized in table 3.

The presence of high concentrations of fecal coliform (FC) and fecal streptococci (FS) bacteria continued to be the principal surface-water quality problem in Puerto Rico during 1991 water year. Bacteria concentration exceeding one million colonies per hundred milliliters of raw water were observed at two stations during this year. These stations were at Río Piedras (50048800) and Río Bairoa near Caguas (50055400). Both stations are located in the San Juan metropolitan area, which has the highest population concentration in Puerto Rico. In addition to the effluent from the San Juan metropolitan area these stations also receive effluent from the upper basin sewage treatment plants servicing urban and suburban zones. The main sources of contamination in surface-water systems in Puerto Rico are discharges of liquid wastes from industrial and municipal sources. The highest concentration of fecal coliforms and fecal streptococcus bacteria in surface-waters occurred in heavily populated and industrialized areas of the island.

Elevated concentrations of suspended sediment are a common problem in many streams in Puerto Rico, especially in the coastal areas. Suspended sediment concentrations are of concern because the deposition of these sediments rapidly reduces the storage capacities of reservoirs used for water supply. Suspended sediment concentrations were monitored at fourteen sites in Puerto Rico during the 1991 water year as part of the cooperative program between the U.S. Geological Survey and various other Commonwealth and Federal agencies. The sediment stations in operation and the maximum suspended sediments concentrations and loads at each station are shown in table 4.

Table 2. Highest water level recorded during 1991 water year and previous high water level (in feet below land-surface datum) at selected ground-water wells in Puerto Rico and the U.S. Virgin Islands
[PR, Puerto Rico; St.C, St. Croix; St.T, St. Thomas; St.J, St. John; mm-dd-yy, month-day-year]

1991 Previous Period of Local number high water Well Date high Date (mm-dd-yy) Location (mm-dd-yy) record water name 10-05-90 10-07-90 09-30-90 1-82 to 9-91 Saltos 1 165 PR 38.81 38.86 10-08-90 La Esperanza 2 PN-2 PR 8.12 10-22-90 8.26 09-25-89 7-89 to 9-91 +0.78* 06-24-90 10-89 to 9-91 Las Américas 1 PN-10 PR +2.04* 10-22-90 HW-TW-01 PR 19.34 12-18-90 19.82 04-14-88 4-88 to 9-91 HW-TW-03 3-88 to 8-91 PR 15.11 12-09-90 23.68 03-31-88 HW-TW-03C PR 26.29 12-15-90 48.87 01-08-89 12-88 to 9-91 HW-TW-03E PR 31.30 11-10-90 46.05 12-15-88 12-16-88 12-88 to 8-91 HW-TW-07 PR 18.04 12-16-90 23.79 04-01-88 4-88 to 8-91 12-17-90 12-18-90 HW-TW-08 PR 6.23 12-05-90 12.55 04-13-88 4-88 to 8-91 HW-TW-10 PR 13.40 11-19-90 21.39 04-05-88 4-88 to 8-91 HW-TW-11 --PR 55.45 57.00 04-14-88 4-88 to 8-91 01-01-91 HW-TW-11C 12-15-88 12-88 to 8-91 PR 60.19 06-24-91 63.51 HW-TW-13 PR 37.39 10-27-90 44.44 09-24-89 09-25-89 4-88 to 9-91 RM 5 PR 9.39 09-24-89 3-89 to 9-91 8.15 10-26-90 RM 10 3-89 to 9-91 PR 10-26-89 18.00 11-09-90 25.47 10-27-89 Golden Grove 6 3 St.C 12.99 11-10-90 13.73 12-12-88 3-82 to 9-91 Adventure 28 6 St.C 22.80 02-13-91 24.90 03-25-82 3-82 to 9-91 WAPA-02 11 St.C 9.75 10-26-90 15.41 09-30-90 2-90 to 9-91 10-27-90 WAPA-03 09-30-90 2-90 to 9-91 12 St.C 16.13 02-25-91 22.96 WAPA-17 13 St.C 10.21 02-28-90 2-90 to 9-91 4.68 10-14-90 WAPA-21a 2-90 to 9-91 14 St.C 14.19 27.46 03-02-90 11-03-90

2-90 to 9-91

15

St.C

56.84

02-13-91

57.70

03-05-90

WAPA-23a

 ⁺ Above land-surface datum.

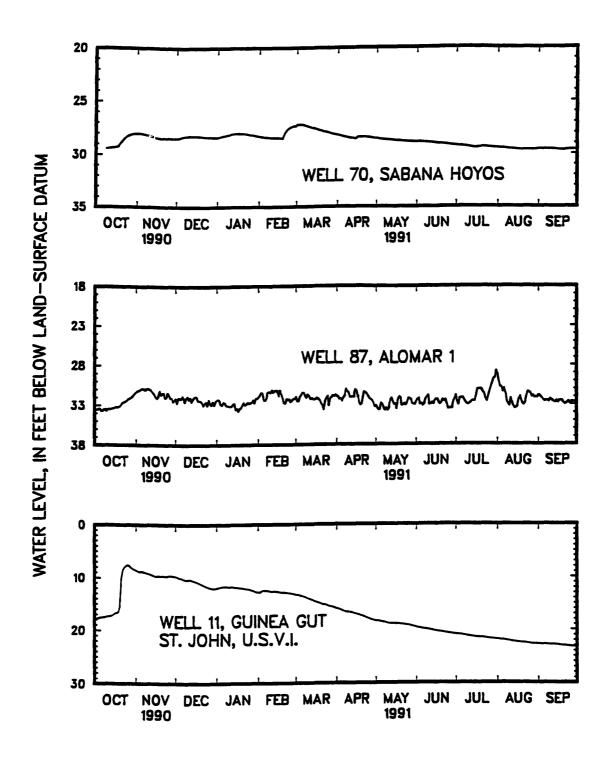


Figure 2.—Ground—water levels at selected wells in Puerto Rico and the U.S, Virgin Islands.

Table 3. Surface-water quality stations in Puerto Rico with highest concentration of selected constituents during the 1991 water year [All constituent concentrations are in milligrams per liter; MBAS, Methylene blue active substance]

| Station number | Station name | Constituent | Concentration |
|-------------------|--------------------------------|-------------|---------------|
| 50129700 | Río Loco at Guánica | Sulfide | 0.6 |
| 50129700 | Río Loco at Guánica | Boron | 1.0 |
| 50057025 | Río Gurabo near Gurabo | Manganese | 0.61 |
| 50055400 | Río Bairoa near Caguas | Iron | 13 |
| 50055250 | Río Caguitas at Highway 30 | Zinc | 0.050 |
| | at Caguas | | |
| 50048800 | Río Piedras near Río Piedras | Cyanide | 0.020 |
| 50138000 | Río Guanajibo near Hormigueros | Phenols | 0.013 |
| 50048800 | Río Piedras near Río Piedras | MBAS | 1.1 |

Table 4. Maximum suspended-sediment concentrations and loads during the 1991 water-year

| Station name | Station number | Maximum suspended- sediment concentration (milligrams per liter) | Maximum suspended- sediment load (tons per day) |
|---|----------------|--|---|
| Río Tanamá near Utuado | 50028000 | 1,900 | 16,500 |
| Río de La Plata at Comerío | 50043800 | 1,300 | 22,600 |
| Río Piedras at El Señorial | 50048770 | 3,920 | 8,310 |
| Río Piedras at Río Piedras | 50049000 | 2,470 | 7,730 |
| Quebrada Blanca at El Jagual | 50051150 | 255 | 277 |
| Quebrada Salva- tierra near San Lorenzo | 50051180 | 669 | 273 |
| Río Grande de Loíza at Caguas | 50055000 | 1,650 | 25,500 |
| Río Gurabo below El Mangó | 50055750 | 1,000 | 5,100 |
| Río Valenciano near Juncos | 50056400 | 555 | 1,960 |
| Río Gurabo at Gurabo | 50057000 | 1,080 | 9,200 |
| Río Cañas at Río Cañas | 50058350 | 1,430 | 4,920 |
| Río Grande de Loíza below Damsite | 50059050 | 274 | 4,920 |
| Río Toa Vaca above Lago Toa Vaca | 50110900 | 2,510 | 6,340 |
| Río Rosario near Hormigueros | 50136400 | 1,150 | 4,420 |

SPECIAL NETWORKS AND PROGRAMS

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites on NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

EXPLANATION OF RECORDS

The surface-water and ground-water records published in this report are for the 1991 water year that began October 1, 1990 and ended September 30, 1991. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 3 to 10. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station, whether streamsite or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells.

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations in first rank, second rank, and other ranks of tributaries.

As an added means of identification, each hydrologic station and partial-record 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 other stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 50028000, which appears just to the left of the station name, includes the 2-digit part number "50" plus the 6-digit downstream order number "028000."

Latitude-Longitude System

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. The numbers shown in the grid correspond to the local numbers assigned to each well as visited in the field. An example is well 16 (fig.11).

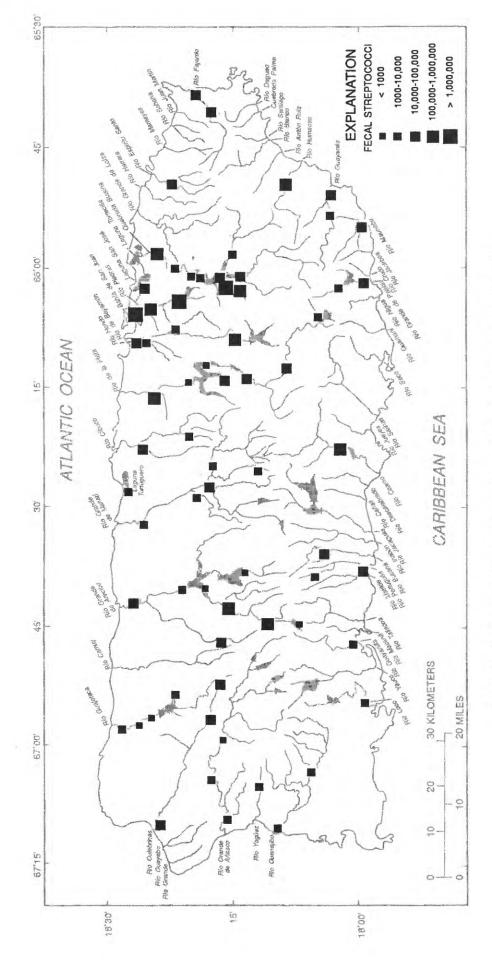


Figure 3.--Location of fecal coliform bacteria concentration at sampled sites.

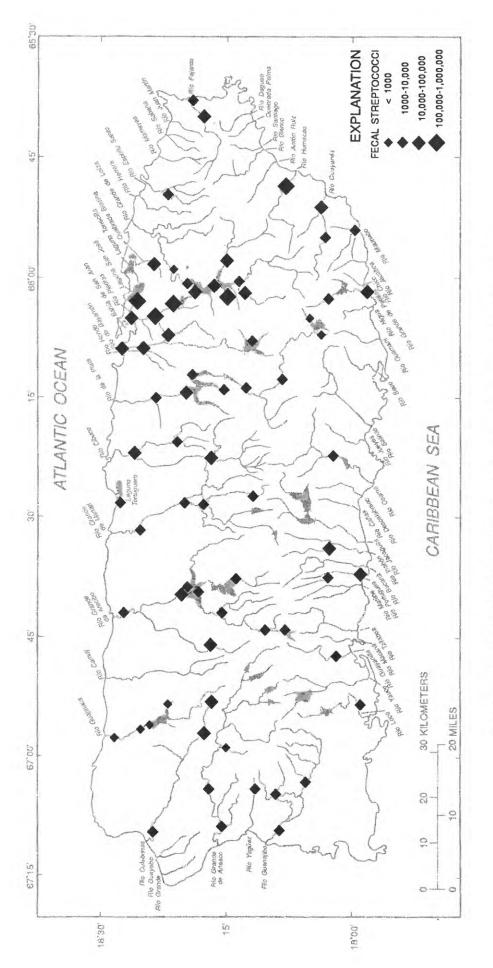


Figure 4.--Location of fecal streptococci bacteria concentration at sampled sites.

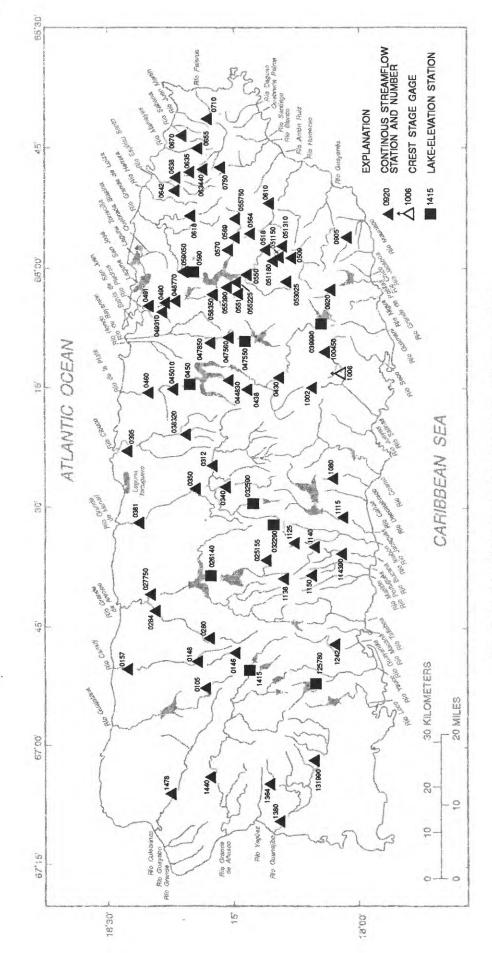


Figure 5.--Location of surface-water stations in Puerto Rico.

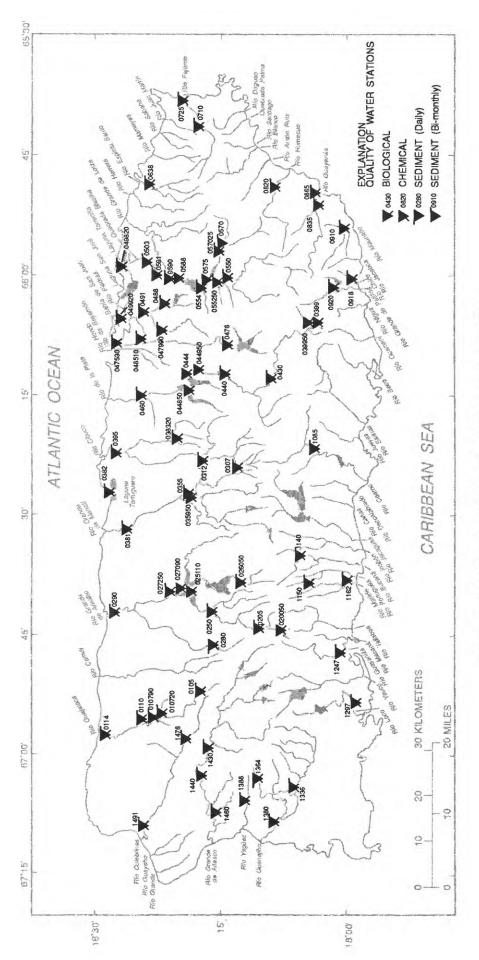


Figure 6.--Location of water-quality stations in Puerto Rico.

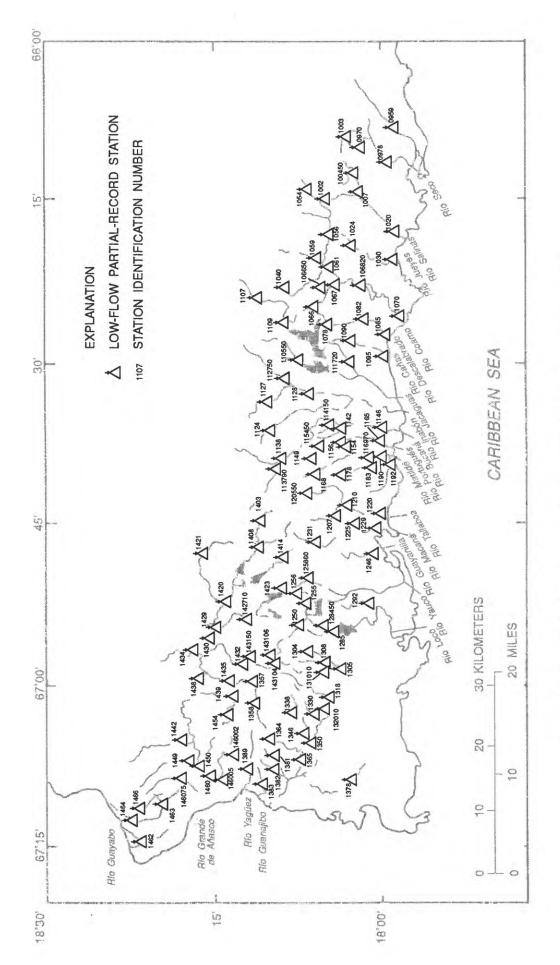


Figure 7.--Location of low-flow partial-record stations in southwest Puerto Rico.

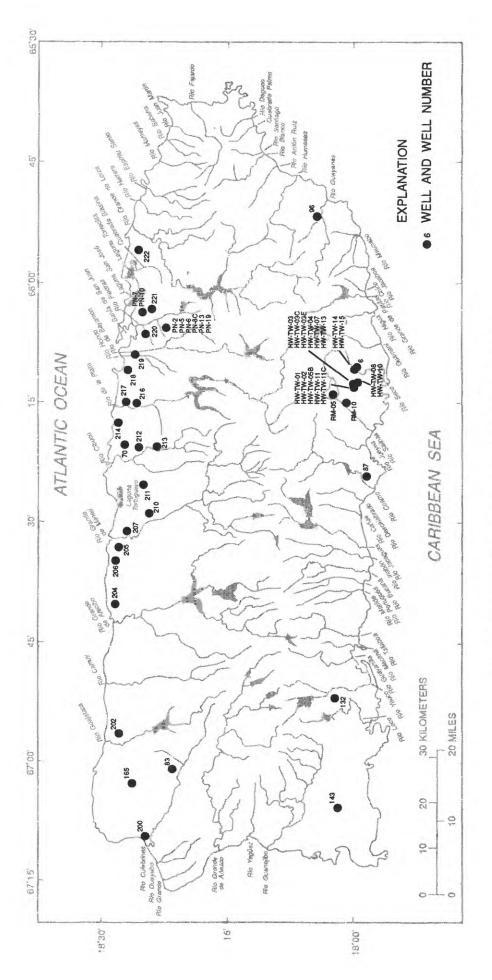


Figure 8.--Location of ground-water stations in Puerto Rico.

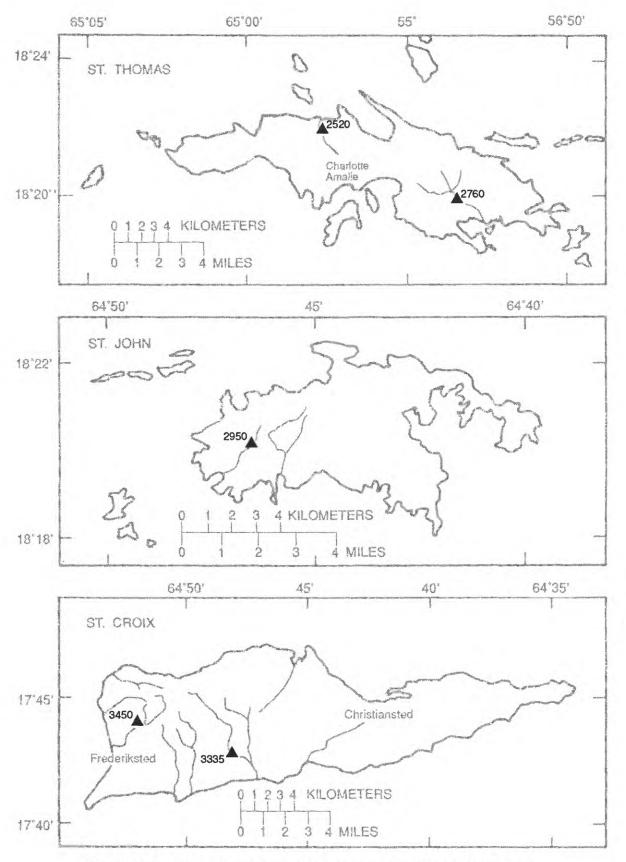


Figure 9.--Location of surface-water stations in the U.S. Virgin Islands.

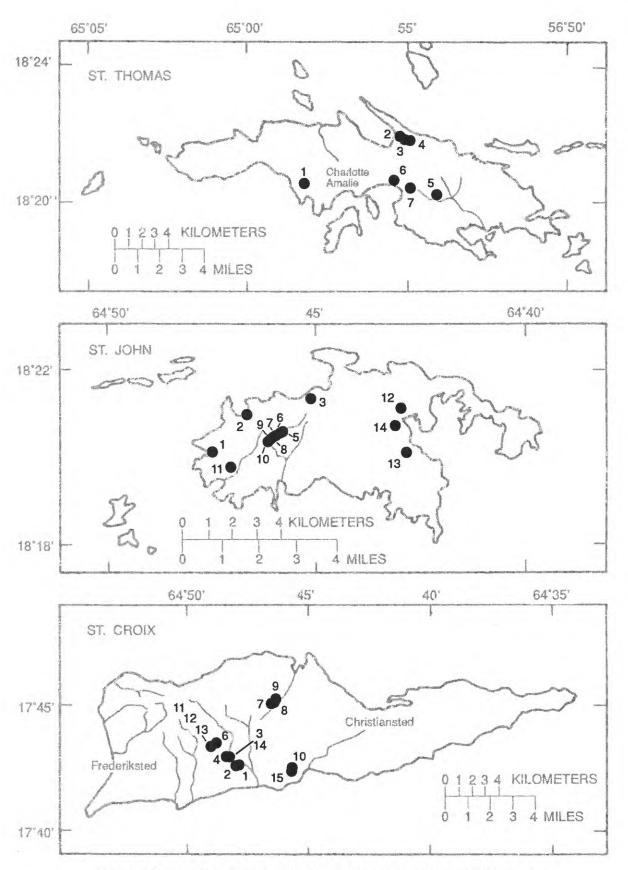


Figure 10.--Location of ground-water stations in the U.S. Virgin Islands.

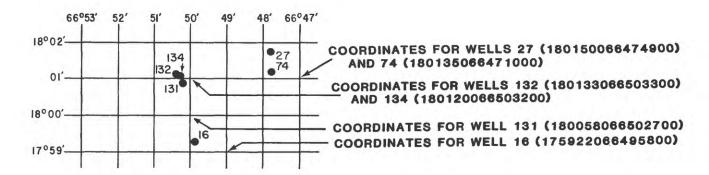


Figure 11.--Grid showing system for numbering wells and miscellaneous sites (latitude and longitude).

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this type of report. Location of all complete-record and crest-stage partial-record stations for which data are given in this report are shown in figures 5 and 8.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consists of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals or electronic satellite data collector platforms that receive stage values at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. 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 determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control.

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.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and contents. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly or yearly changes then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic surveys may be necessary to redefine it. Even when this is done, as time between the last survey increases, the contents computed may increase in error. Discharges over lake or reservoir spillways are computed from stage-discharge relationships much as other stream discharges are computed.

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 compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is loose in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

The records published for each gaging station consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonable be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted 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 discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage, and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computations, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development. The median of yearly mean discharges also is given under this heading for stations having 10 or more water years of record, if the median differs from the average given by more than 10 percent.

EXTREMES FOR PERIOD OF RECORD.-Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

EXTREMES FOR CURRENT YEAR.—Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District office to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

The daily table for stream-gaging stations gives 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 is usually 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 regulations or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years.

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 annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables are identified by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated."

Accuracy of the Records

The accuracy of streamflow records 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 measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned, are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s; to the nearest tenth between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures for more than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables are on file in the Caribbean District office. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the District office.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 6.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurement at miscellaneous sites.

On-site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. Detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District office.

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. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

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. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

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, when available, (hourly values) may be obtained from the U.S.G.S. District office whose address is given on the back of the title page of this report.

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. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal 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. Water temperatures measured at the time of water-discharge measurements are on file in the District office.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating and pumping sediment samplers. Samples usually are obtained at several verticals in the cross section, 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 times 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 discharges 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 and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particlesize distribution of the suspended sediment and bed material are included for some stations.

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratories in Denver, Co. or Ocala, Fla. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratories are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first, and tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence, when these parameters are studied.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION .-- See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.—This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this report:

| RINTED OUTPUT | <u>REMARK</u> |
|---------------|--|
| E | Estimated value |
| > | Actual value is known to be greater than the value shown |
| < | Actual value is known to be less than the value shown |
| K | Results based on colony count outside the acceptance range (non-ideal colony count) |
| L | Biological organism count less than 0.5 percent (organism may be observed rather than counted) |
| D | Biological organism count equal to or greater than 15 percent (dominant) |
| & | Biological organism estimated as dominant |

Records of Ground-Water Levels

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.

Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

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 figure 10.

Water-level records are obtained from direct measurements with a steel tape or from the graph or punched tape of a water-stage recorder. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum 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 day and as an instantaneous observation at noon.

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 of 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 of a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

Data Presentation

Each well record consists of two parts, the station description and the data table of water levels observed during the water year. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings.

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); a landline location designation; the hydrologic-unit number; the distance and direction from a geographic point of reference; and the owner's name.

AQUIFER.--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above mean sea level datum, if available. It is reported with precision depending on the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-survey) observers.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below landsurface datum and all taped measurements of water level are listed. For wells equipped with recorders, daily values tables are published for the instantaneous water-level observation at noon. The highest and lowest water levels of the water year are shown on a line below the table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level.

Records of Ground-Water Quality

Records of ground-water quality in this type of report differ from other types of records in that for most sampling sites they consist of only one set of measurements for the water year. The quality of ground water ordinarily changes only slowly; therefore, for most general purposes one annual sampling, or only a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring for trends in nitrate concentration. In the special cases where the quality of ground water may change more rapidly, more frequent measurements are made to identify the nature of the changes.

Data Collection and Computation

The records of ground-water quality in this report were obtained mostly as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some counties but none are presented for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years.

Most methods for collecting and analyzing water samples are described in the "U.S. Geological Survey Techniques of Water-Resources Investigations" manuals listed on a following page. The values reported in this type of report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. All samples are obtained by trained personnel. The wells sampled are pumped long enough to assure that the water collected comes directly from the aquifer and has not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

Data Presentation

The records of ground-water quality, when available, are published in a section titled QUALITY OF GROUND WATER immediately following the ground-water level records. Data for quality of ground water are listed alphabetically by County, and are identified by well number. The prime identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

ACCESS TO WATSTORE DATA

The U.S. Geological Survey is the principal Federal water-data agency and, as such, collects and disseminates about 70 percent of the water data currently being used by numerous State, local, private, and other Federal agencies to develop and manage our water resources. As part of the U.S. Geological Survey's program of releasing water data to the public, a large-scale computerized system has been developed for the storage and retrieval of water data collected through its activities. The National Water-Data Storage and Retrieval System (WATSTORE) was established in 1972 to provide an effective and efficient means for the processing and maintenance of water data collected through the activities of the U.S. Geological Survey and to facilitate release of the data to the public. A variety of useful products, ranging from data tables to complex statistical analyses such as Log Pearson Type III, can be produced using WATSTORE. The system resides on the central computer facilities of the U.S. Geological Survey at its National Center in Reston, Virginia, and consists of related files and data bases.

- * Station Header File contains descriptive information on over 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.
- * Daily Values Files Contains over 220 million daily values of streamflow, stages, reservoir contents, water temperatures, specific conductances, sediment concentrations, sediment discharges, and ground-water level.
- * Pead Flow File Contains approximately 500,000 maximum (peak) streamflow and gage-height values at surface-water sites.
- * Water-Quality Data Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radio-chemicals characteristics of both surface and ground water.
- * Ground-Water Site Inventory Data Base Contains inventory data for over 900,000 wells, springs, and other sources of ground water. The data includes site location, geohydrologic characteristics, well-construction history, and one-time field measurements such as water temperature.

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requestor will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey National Water Data Exchange 421 USGS National Center Reston, Virginia 22092

In addition to provide direct assess to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division's offices. (See address on the back of the title page.)

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data as used in this report, are defined below. See also the table for converting inch- pound units to the International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present a stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

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.

<u>Bacteria</u> are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while 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 with a golden-green metallic sheen within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines 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 $44.5^{\circ}\text{C} \pm 0.2^{\circ}\text{C}$ on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as Gram-positive, cocci bacteria 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 ± 1.0°C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

<u>Biochemical oxygen demand</u> (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 given time, expressed as the mass 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 grams per cubic meter (g/m³), and periphton and benthic organisms in grams per square meter (g/m²).

Dry mass refers to the mass of residue present after drying in an oven at 105°C for zooplankton and 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 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: See Bed material.

<u>Cells/volume</u> 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 (mL) or liters (L).

<u>Chemical oxygen demand</u> (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

<u>Clorophyll</u> refers to the green pigments of plants. Chlorophyll \underline{a} and \underline{b} are the two most common green pigments in plants.

<u>Color unit</u> 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.

<u>Contents</u> 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.

<u>Control</u> 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.

<u>Control structure</u> 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.

<u>Crest-stage station</u> is a special form of partial-record station that records the highest stage of the stream that occurred between periodic visits to the station. A stage-discharge relation for each gage may be developed from discharge measurements made by indirect methods or by current meter.

<u>Cubic foot per second</u> (cfs) 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.

<u>Cubic foot per second-day</u> (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, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

<u>Cubic feet per second per square mile</u> (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

<u>Discharge</u> 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.

Instantaneous discharge is the discharge at a particular instant of time.

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

<u>Dissolved</u> refers to that material in a representative water sample which passes through a 0.45 um 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.

<u>Dissolved-solids concentration</u> of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculations of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

<u>Diversity index</u> is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\frac{1}{d} = -\sum_{i=1}^{n} \log_2 \frac{n_i}{n}$$

Where "i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

<u>Drainage area</u> of a stream at a specified 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 stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

<u>Drainage basin</u> 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 surface 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.

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

<u>Ground-water station</u> is a well at which observations of ground-water level are made, either continuously by recorder, or periodically by hand. In addition, various chemical or physical parameters may be obtained, usually on a periodic basis.

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 (CaCO₃).

Hydrologic Bench-Mark Network is a network in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

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 eight-digit number.

<u>Land-surface datum</u> (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram (ug/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter (UG/L, ug/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.

Milligrams 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. Conversion of chemical concentrations in Mg/L to milliequivalents per liter can be done by using the factors in table 5.

Table 5. Factors for conversion of chemical constituents in milligrams per liter to milliequivalents per liter.

| <u>Ion</u> | Multiply by | <u>Ion</u> | Multiply by |
|----------------------|-------------|--------------------|-------------|
| Aluminum (Al+3)* | 0.11119 | Iodide (I-1) | 0.00788 |
| Ammonia as NH4+1 | .05544 | Iron (Fe+3) | .05372 |
| Barium (Ba+2) | .01456 | Lead (Pb+2) | .00965 |
| Bicarbonate (HCO3-1) | .01639 | Lithium (Li+1) | .14411 |
| Bromide (Br-1) | .01251 | Magnesium (Mg+2) | .08226 |
| Calcium (Ca+2) | .04990 | Manganese (Mn+2) * | .03640 |
| Carbonate (CO3-2) | .03333 | Nickel (Ni+2) | .03406 |
| Chloride (Cl-1) | .02821 | Nitrate (N03-1) | .01613 |
| Chromium (Cr+6)* | .11539 | Nitrite (NO2-1) | .02174 |
| Cobalt (Co+2) * | .03394 | Phosphate (PO4-3) | .03159 |
| Copper (Cu+2)* | .03148 | Potassium (K+1) | .02557 |
| Cyanide (CN-1) | .03844 | Sodium (NA+1) | .04350 |
| Fluoride (F-1) | .05264 | Strontium (Sr+2) | .02283 |
| Hydrogen (H+1) | .99209 | Sulfate (SO4-2) | .02082 |
| Hydroxide (OH-1) | .05880 | Zinc (Zn+2)* | .03060 |

^{*}Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

<u>National Trends Network</u> (NTN) is a network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per unit area habitat, usually square meters (m²), acres, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

<u>Parameter Code</u> is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

<u>Partial-record station</u> 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.

<u>Particle-size</u> is the diameter, in millimeters (mm), of a particle 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).

<u>Particle-size classification</u> 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 | $0.\overline{00024} - 0.004$ | Sedimentation |
| silt | .004062 | 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 matter 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.

<u>Percent composition</u> 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.

<u>Periphyton</u> is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

<u>Pesticides</u> are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

<u>Picocurie</u> (PC, pCi) is one trillionth (1 X 10^{-12}) of the amount of ratioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

<u>Plankton</u> is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

<u>Phytoplankton</u> is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

<u>Diatoms</u> are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to thos of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

<u>Primary productivity</u> is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/(m².time)] for periphyton and macrophytes and [mg C/(m³.time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg0 / (m².time)] for periphyton and macrophytes and [mg0 /(m³.time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotypes. The streams that are sampled represent major drainage basins in the conterminous United States.

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 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.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

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.

<u>Bed load</u> is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

<u>Suspended sediment</u> 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.

<u>Suspended-sediment concentration</u> 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).

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

<u>Suspended-sediment discharge</u> (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentrations (mg/L) x discharge (ft³/s) x 0.0027.

<u>Suspended-sediment load</u> is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

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

<u>Total-sediment load</u> or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow (7Q10) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

<u>Sodium-adsorption-ratio</u> (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electric 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 micromhos). 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.

<u>Streamflow</u> 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.

Substrate is the physical surface upon which an organism lives.

<u>Natural substrate</u> refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

<u>Surficial bed material</u> is that part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

<u>Suspended</u> (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. It is associated with the 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 representative water-suspended sediment sample that is retained on a 0.45 um 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 are 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) <u>dissolved</u> and (2) <u>total</u> <u>recoverable</u> concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of representative water-suspended sediment sample that is retained on a 0.45 um 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 constituent.

<u>Taxonomy</u> is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchial scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, <u>Hexagenia</u> limbata, is the following:

| Kingdom | Animal |
|---------|-------------------|
| Phylum | Arthopoda |
| Class | Insecta |
| Order | Ephemeroptera |
| Family | Ephemeridae |
| Genus | Hexagenia |
| | Hexagenia limbata |

<u>Thermograph</u> is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table heading and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

<u>Time-weighted average</u> 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 of the constituent, in milligrams per liter by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

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 determined all of the constituent in the sample.)

<u>Total discharge</u> is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

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 are required of all laboratories performing such analyses, because different digestion procedures are likely to produce different analytical results.

<u>Tritium Network</u> is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitations stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

Water year in Geological Survey reports dealing with surface water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1980, is called the "1980 water year."

<u>WDR</u> is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

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 the 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.

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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, Books and Open-File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225 (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-D2. Application of seismic-refraction techniques to hydrologic studies, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.
- 2-E1. Application of borehole geophysics to water-resources investigations, by W. S. Keys and L. M. MaCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-E2. Borehole geophysics applied to ground-water investigations, by W. Scott Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.
- 2-F1. Application of drilling, coring, and sampling techniques to test holes and wells, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 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 idirect 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.
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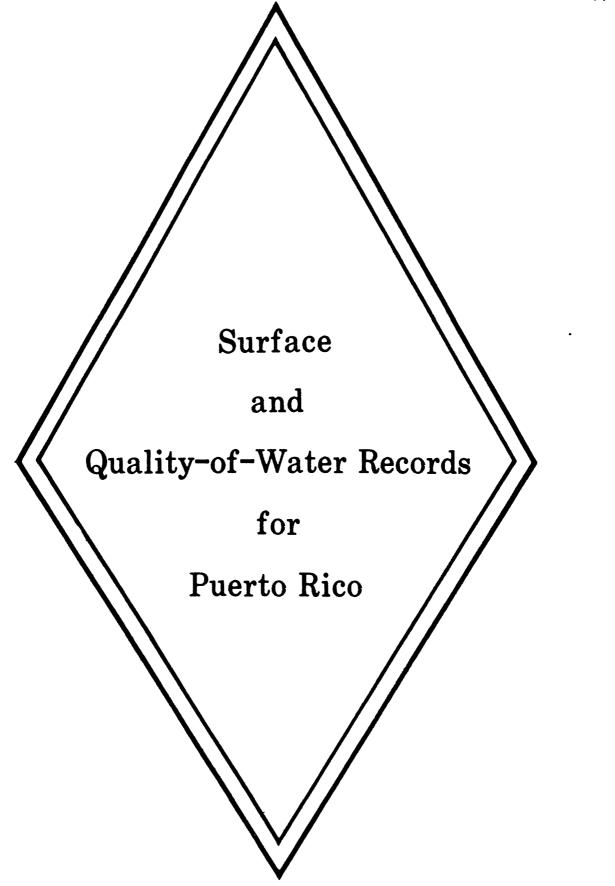
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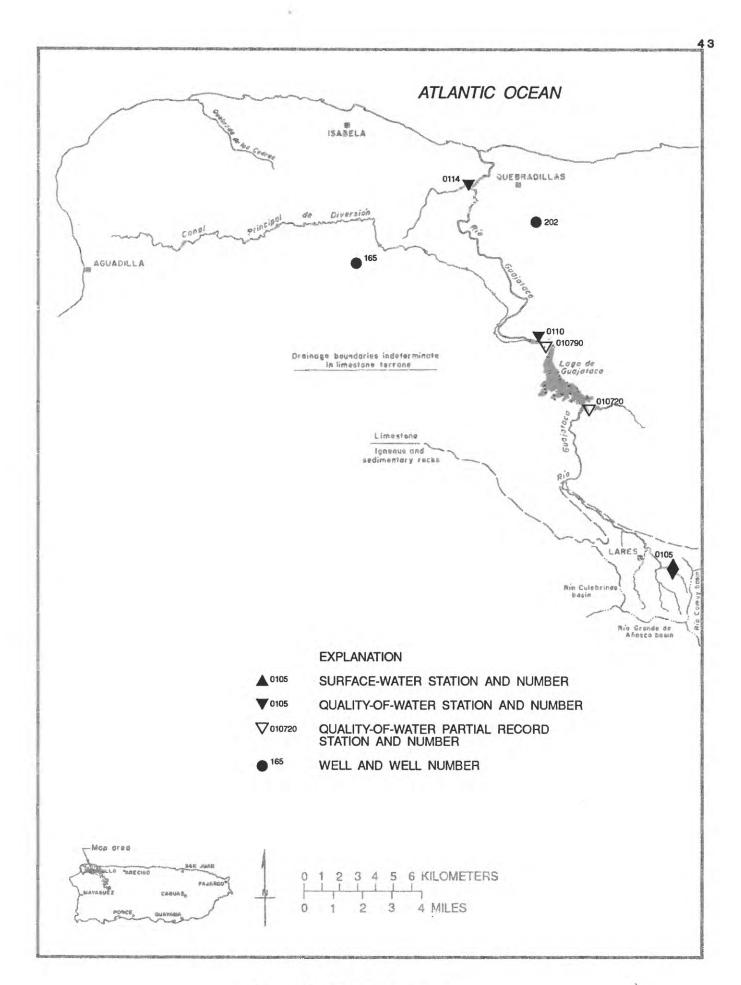


Figure 12.--Río Guajataca basin.

50010500 RIO GUAJATACA AT LARES, PR

LOCATION. -- Lat 18°18'01", long 66°52'24", Hydrologic Unit 21010001 at bridge on Highway 111, 0.1 mi (0.2 km) upstream from Quebrada Anón, and 0.4 mi (0.6 km) east of Lares.

DRAINAGE AREA. -- 3.16 mi2 (8.18 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to February 1962 (annual low-flow measurements only), January 1963 to April 1969 (monthly measurements only), May 1969 to December 1970 (February to May 1971 and March 1974 to November 1989 monthly measurements only), December 1989 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Rlevation of gage is 935 ft (285 m), from topographic map.

REMARKS. -- Records fair. Gage-height and precipitation satellite telemetry at station. Small diversion above station for sewage treatment plant; effluent re-enters stream below station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,300 ft³/s (150 m³/s) Oct. 7, 1990, gage-height 21.30 ft (6.492 m), from rating curve extended above 100 ft³/s (2.83 m³/s) on basis of step-backwater analysis and slope area measurement of peak flow; minimum daily discharge, 0.51 ft³/s (0.014 m³/s), Jan. 17, 1990.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 1,000 ft3/s (28.3 m3/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | Dis | | | height | | | Disc | harge | Gage height | |
|--------|------|---------|---------------------|--------|--------|--------|------|---------|--------|-------------|-------|
| Date | Time | (ft3/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft3/s) | (m³/s) | (ft) | (m) |
| Oct. 1 | 1445 | 1,530 | 43.3 | 14.31 | 4.362 | May 5 | 1720 | 1,300 | 36.8 | 13.68 | 4.170 |
| Oct. 7 | 1830 | *5,300 | 150 | *21.30 | 6.492 | May 20 | 1540 | 1,540 | 43.6 | 14.34 | 4.371 |

Minimum daily discharge, 0.47 ft3/s (0.013 m3/s), Jan. 13.

| | | | | | DAIL | Y MEAN VA | LUES | | | | | | |
|-------|-------|-------|-------|-------|-------|-----------|-------|-------|-------|-------|-------|-------|--|
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | |
| 1 | 127 | 11 | 2.3 | .90 | .80 | 1.4 | 1.1 | 1.9 | 3.7 | 4.3 | 7.7 | 38 | |
| 2 | 33 | 9.9 | 2.1 | .58 | .70 | 1.2 | 2.7 | 5.2 | 3.0 | 3.0 | 8.0 | 12 | |
| 3 | 25 | 9.1 | 2.6 | .52 | 1.6 | 1.2 | 29 | 20 | 2.8 | 2.5 | 5.4 | 8.5 | |
| | 21 | 17 | 2.5 | . 52 | .92 | 1.2 | 35 | 5.3 | 2.8 | 2.6 | 3.8 | 7.1 | |
| 5 | 19 | 14 | 2.1 | .55 | 15 | 1.0 | 5.6 | 58 | 2.3 | 2.2 | 27 | 6.6 | |
| 6 | 17 | 8.2 | 2.2 | .59 | 2.0 | 1.1 | 3.1 | 8.5 | 2.6 | 1.9 | 9.7 | 6.4 | |
| 7 | 216 | 10 | 1.8 | .78 | 1.1 | 1.1 | 2.5 | 3.8 | 2.0 | 8.1 | 6.4 | 19 | |
| 8 | 35 | 7.3 | 1.5 | .72 | .88 | . 94 | 1.9 | 3.1 | 2.1 | 14 | 5.6 | 7.7 | |
| 9 | 66 | 6.3 | 1.5 | . 52 | .78 | .90 | 1.2 | 8.3 | 3.7 | 4.5 | 5.3 | 6.4 | |
| 10 | 23 | 6.0 | 1.5 | . 52 | 1.2 | .86 | 1.4 | 3.5 | 2.1 | 2.7 | 5.0 | 6.3 | |
| 11 | 18 | 7.0 | 1.3 | .53 | 1.2 | 1.2 | 2.4 | 19 | 2.0 | 2.3 | 4.3 | 8.8 | |
| 12 | 15 | 5.8 | 1.3 | .49 | .86 | 1.1 | 1.3 | 6.8 | 1.4 | 2.3 | 12 | 7.0 | |
| 13 | 18 | 5.0 | 2.2 | .47 | .96 | . 93 | 1.3 | 21 | 1.5 | 2.1 | 5.9 | 9.1 | |
| 14 | 13 | 4.8 | 2.0 | .48 | 1.1 | . 92 | 1.4 | 6.6 | 2.2 | 1.9 | 5.2 | 5.3 | |
| 15 | 75 | 5.3 | 1.3 | .57 | 1.4 | .94 | 11 | 5.7 | 4.6 | 2.1 | 4.4 | 5.8 | |
| 16 | 28 | 4.9 | 1.1 | .69 | 1.6 | .84 | 2.6 | 3.9 | 1.9 | 15 | 12 | 8.9 | |
| 17 | 21 | 9.0 | 1.1 | . 54 | 2.4 | . 87 | 1.9 | 8.6 | 1.5 | 3.8 | 5.2 | 5.6 | |
| 18 | 37 | 5.1 | 1.0 | .99 | 3.6 | .97 | 1.9 | 5.7 | 5.7 | 2.9 | 4.4 | 4.6 | |
| 19 | 26 | 4.8 | 1.1 | . 89 | 8.3 | .74 | 2.5 | 3.8 | 2.8 | 2.8 | 3.7 | 4.5 | |
| 20 | 20 | 4.3 | .88 | .77 | 5.9 | .70 | 1.9 | 104 | 3.4 | 2.2 | 24 | 15 | |
| 21 | 32 | 4.0 | 1.0 | .74 | 1.8 | .73 | 1.2 | 18 | 5.4 | 2.4 | 12 | 1.3 | |
| 22 | 20 | 3.7 | 1.1 | .74 | 1.7 | 1.7 | 1.3 | 11 | 4.0 | 2.2 | 28 | 22 | |
| 23 | 18 | 3.2 | .94 | . 69 | 1.4 | 1.0 | 2.7 | 8.1 | 2.4 | 2.1 | 12 | 8.6 | |
| 24 | 18 | 3.1 | 1.0 | . 62 | 2.5 | .76 | 2.0 | 6.7 | 1.7 | 2.2 | 7.3 | 6.3 | |
| 25 | 23 | 11 | .81 | .76 | 2.1 | 1.7 | 40 | 6.4 | 1.6 | 2.0 | 7.8 | 18 | |
| 26 | 19 | 4.3 | .64 | .76 | 1.5 | 7.5 | 4.2 | 5.4 | 1.6 | 1.9 | 6.4 | 7.9 | |
| 27 | 15 | 3.3 | .54 | . 65 | 1.4 | 7.3 | 2.2 | 5.0 | 1.8 | 4.3 | 31 | 58 | |
| 28 | 13 | 2.9 | .62 | .80 | 2.0 | 1.7 | 2.2 | 4.7 | 20 | 41 | 11 | 23 | |
| 29 | 12 | 2.7 | .53 | . 67 | | 1.3 | 4.9 | 4.1 | 23 | 5.3 | 6.9 | 15 | |
| 30 | 11 | 2.4 | .55 | .71 | | 1.1 | 2.2 | 4.0 | 16 | 3.3 | 5.8 | 11 | |
| 31 | 11 | | .88 | . 65 | | 1.2 | | 3.7 | | 5.2 | 13 | | |
| TOTAL | 1045 | 195.4 | 41.99 | 20.41 | 66.70 | 46.10 | 174.6 | 379.8 | 131.6 | 155.1 | 306.2 | 375.4 | |
| MEAN | 33.7 | 6.51 | 1.35 | . 66 | 2.38 | 1.49 | 5.82 | 12.3 | 4.39 | 5.00 | 9.88 | 12.5 | |
| MAX | 216 | 17 | 2.6 | .99 | 15 | 7.5 | 40 | 104 | 23 | 41 | 31 | 58 | |
| MIN | 11 | 2.4 | .53 | .47 | .70 | .70 | 1.1 | 1.9 | 1.4 | 1.9 | 3.7 | 4.5 | |
| AC-FT | 2070 | 388 | 83 | 40 | 132 | 91 | 346 | 753 | 261 | 308 | 607 | 745 | |
| CFSM | 10.7 | 2.06 | .43 | .21 | .75 | .47 | 1.84 | 3.88 | 1.39 | 1.58 | 3.13 | 3.96 | |
| IN. | 12.30 | 2.30 | .49 | .24 | .79 | .54 | 2.06 | 4.47 | 1.55 | 1.83 | 3.60 | 4.42 | |

CAL YR 1990 TOTAL 2762.75 MEAN 7.57 MAX 216 MIN .53 AC-FT 5480 CFSM 2.40 IN. 32.52 WTR YR 1991 TOTAL 2938.30 MEAN 8.05 MAX 216 MIN .47 AC-FT 5830 CFSM 2.55 IN. 34.59

50010500 RIO GUAJATACA AT LARES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'01", long 66°52'24", at bridge on Highway 111 (km 32.9), 0.1 mi (0.2 km) upstream from Quebrada Anon, and 0.4 mi (0.6 km) northeast of Lares plaza.

DRAINAGE AREA. -- 3.16 mi2 (8.18 km2).

PERIOD OF RECORD. -- Water years 1958-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | | WATE | R-QUALITY | DATA, W | TER YEA | R OCTOR | ER 1990 | TO SEP | TEMBER 1 | 991 | | |
|------------------|---------------------------------------|--|--|---|--|--|--|--|---------------------------------|---|---|---|---|
| DATE | TI | ME I | DIS- ARGE, NST. JBIC PER PER SCOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER ATURE WATER (DEG C | BI 17 | D- I | (GEN, DIS- DLVED (G/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 | | | | | | | | | | | | | |
| 25 DBC | 09 | 45 1 | L8 | 205 | 7.8 | 22. | 5 14 | | 8.0 | 94 | <10 | 4000 | 5000 |
| 26 FEB 1991 | 11 | 25 | 0.62 | 275 | 7.7 | 20. | 0 2 | .0 | 53 | 71 | <10 | K70000 | 39000 |
| 19 | 14 | 00 | 5.6 | 249 | 7.9 | 22. | 0 15 | | 7.4 | 85 | 10 | 3200 | 5000 |
| APR 18 JUN | 17 | 00 | 1.6 | 273 | 7.7 | 22. | 5 14 | | 7.3 | 86 | 13 | 5300 | 4100 |
| 13 | 12 | 15 | 1.7 | 285 | 7.8 | 25. | 0 1 | .4 | 6.8 | 83 | 14 | 3900 | 7700 |
| AUG 07 | 15 | 00 | 6.4 | 298 | 7.9 | 24. | 5 4 | .1 | 7.2 | 87 | 38 | 44000 | 6800 |
| DATE | Har Nes Tot (Mg As Cac | D- NE S NOM AL WH /L TOT MG/ | ARD- ISS ICARB WAT FILD LAS | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM DIS- SOLVED (MG/L AS NA | SOR TI RAT | D- 8 P- E ON 80 IO (N | SIUM, DIS- DLVED | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 25 | | 72 | 0 | 21 | 4.8 | 9.8 | | 0.5 | 2.2 | 70 | <0.5 | 5.7 | 12 |
| DEC 26 | _ | | | | | | _ | | | 115 | | | |
| FEB 1991 | | | | | | | _ | _ | | | | | |
| 19 APR | - | - | | | | | - | - | | 93 | | | |
| 18 Jun | | 100 | 0 | 30 | 6.2 | 12 | | 0.5 | 2.6 | 91 | <0.5 | 13 | 13 |
| 13 | - | - | | | | | - | - | | 110 | | | |
| AUG 07 | | 100 | 0 | 32 | 6.0 | 10 | | 0.4 | 2.6 | 95 | | 10 | 11 |
| | | | | | | | | | | | | | |
| | DATE | FLUO- RIDE, DIS- SOLVRI (MG/L AS F) | | ICA, SUM B- CON LVED TUE 3/L D S SO | STI- I NTS, SC IS- (1 LVED I | LIDS, T DIS- A DLVED D PONS | ESIDUE OTAL T 105 EG. C, SUS- ENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | GR | N, G ITE NO2 AL TO /L (M | EN, G +NO3 AMM TAL TO G/L (M | EN, G ONIA ORG TAL TO G/L (M | TRO- IEN, IANIC ITAL IG/L |
| | 19 9 0 | <0.10 |) 29 | • | 126 | 6.11 | 18 | 1.79 | ۵. | 010 1 | .80 0 | . 030 | 0.27 |
| DEC 20 | 5 | | | . - | | | <1 <1 | 1.39 | | | | | 0.66 |
| | 1 9 91 | | | | | | 12 | 0.890 |) 0. | 010 0 | .900 0 | . 020 | 0.28 |
| APR | 3 | 0.20 |) 25 | 5 | 157 | 0.67 | 15 | 0.990 | | | | | 0.28 |
| JUN 13 | 3 | | | | | | <1 | 1.25 | | | .30 0 | .020 | 0.48 |
| AUG | , , | <0.16 |) 29 | 9 | 158 | 2.72 | 4 | 1.79 | | | | | 0.27 |
| • | | | - | | | | - | | | | | | |

K = non-ideal count

50010500 RIO GUAJATACA AT LARES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | MITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| ост 1990 | | | | | | | | | | |
| 25 DEC | 0.30 | 2.1 | 8.9 | 0.070 | <1 | <100 | 30 | <1 | 2 | 10 |
| 26 FRB 1991 | 0.80 | 2.2 | 9.7 | 0.100 | | | | | | |
| 19 APR | 0.30 | 1.2 | 5.3 | 0.040 | | | | | | |
| 18 JUN | 0.30 | 1.3 | 5.8 | 0.080 | 1 | <100 | 10 | <1 | 3 | <10 |
| 13 AUG | 0.50 | 1.8 | 8.0 | 0.090 | | | | | | |
| 07 | 0.30 | 2.1 | 9.3 | 0.070 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- BRABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | MBTHY- LENB BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- BRABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 25 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- BRABLE (UG/L | TOTAL (MG/L | TOTAL | LENE BLUE ACTIVE SUB- STANCE |
| OCT 1990 25 DEC 26 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- BRABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 25 DEC 26 FEB 1991 19 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- BRABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 25 DEC 26 FEB 1991 19 APR 18 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) 10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 25 DEC 26 FEB 1991 19 APR | TOTAL RECOV- ERABLE (UG/L AS FE) 860 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUR ACTIVE SUB- STANCE (MG/L) 0.03 |

50011000 CANAL PRINCIPAL DE DIVERSIONES AT LAGO DE GUAJATACA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'02", long 66°55'27", off Highway 476 at Lago Guajataca outlet, 3.0 mi (4.8 km) southwest of Segunda Unidad Baldorioty de Castro, and 5.3 mi (8.5 km) south of Quebradillas plaza.

DRAINAGE AREA. -- Indeterminate.

PERIOD OF RECORD. -- Water years 1958-64, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE OCT 1990 29 DEC 27 FEB 1991 20 APR 17 JUN | TIME 0930 0950 1300 1415 | DIS- CHARGE, INST. CUBIC FEET PER SECOND 80 75 E115 | SPE- CIFIC CON- DUCT- ANCE (US/CM) 300 313 330 | PH (STAND- ARD UNITS) 7.6 7.8 7.6 | TEMPER- ATURE WATER (DEG C) 25.0 24.5 25.0 26.0 | TUR- BID- ITY (NTU) 3.4 1.3 1.2 | OXYGEN, DIS- SOLVED (MG/L) 0.5 5.7 4.0 | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) 6 69 48 | OXYGEN DEMAND, CHEM- ICAL ICAL LEVEL) (MG/L) 13 13 | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) 74 K20 K19 | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) K21 K82 K22 |
|--|---|--|--|--|--|---|--|---|--|---|--|
| 12 | 1515 | 65 | 317 | 7.3 | 25.5 | 0.60 | 0.5 | · 6 | 14 | K5 | K2 |
| AUG 08 | 1630 | 87 | 353 | 7.2 | 26.0 | 3.5 | 0.5 | 6 | 22 | 110 | 76 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 | | | | | | | | | | | |
| 29 DEC | 150 | 0 | 54 | 3.5 | 5.7 | 0.2 | 2.1 | 140 | <0.5 | 10 | 11 |
| 27 FRB 1991 | | | | | | | | 150 | | | |
| 20 | | | | | | | | 150 | | | |
| APR 17 | 150 | 0 | 53 | 4.0 | 6.3 | 0.2 | 2.1 | 140 | <0.5 | 9.8 | 11 |
| JUN 12 | | | | | | | | 130 | | | |
| AUG | 160 | _ | | | | | | | | | |
| 08 | 160 | 0 | 57 | 3.7 | 5.7 | 0.2 | 2.1 | ,140 | | 9.0 | 9.1 |
| | RI I SC ATB (M | DE, DI DIS- SC DLVED (1 IG/L 1 | LICA, SUM IS- CON DLVED TUE GG/L D AS SO | STI- D NTS, SO OIS- (T OLVED P | IDS, TOTA IS- AT I LVED DEG ONS SU ER PEN | 105 G . C, NIT S- TO DED (M | EN, G RATE NIT TAL TO G/L (M | EN, G RITE NO2 TAL TO G/L (M | HEN, G +NO3 AMM TAL TO IG/L (M | EN, G ONIA ORG TAL TO G/L (M | TRO- EN, ANIC TAL G/L N) |
| OCT 1: | | :0.10 | 7.5 | 178 3 | 8 | 11 0 | .270 0 | .030 0 | .300 0 | .300 | 0.40 |
| | | | - | | | | | | | | - |

| | RIDE, DIS- SOLVED | DIS- SOLVED (MG/L | CONSTI- TUENTS, DIS- | DIS- SOLVED (TONS | AT 105 DEG. C, SUS- | GEN, NITRATE TOTAL | GEN, NITRITE TOTAL | GEN, NO2+NO3 TOTAL | GEN, AMMONIA TOTAL | GEN, ORGANIC TOTAL | |
|----------|-------------------------|-------------------------|----------------------------|-------------------------|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
| DATE | (MG/L AS F) | AS SIO2) | Solved (MG/L) | PER Day) | PENDED (MG/L) | (MG/L AS N) | |
| OCT 1990 | | | | | | | | | | | |
| 29 | <0.10 | 7.5 | 178 | 38 | 11 | 0.270 | 0.030 | 0.300 | 0.300 | 0.40 | |
| DEC | | | | | | | | | | | |
| 27 | | | | | <1 | | <0.010 | <0.100 | 0.010 | 0.49 | |
| FEB 1991 | | | | | | | | | | | |
| 20 | | | | | <1 | | <0.010 | <0.100 | 0.020 | 0.38 | |
| APR | | | | | | | | | | | |
| 17 | 0.20 | 8.6 | 182 | 55 | 4 | | <0.010 | <0.050 | 0.060 | 0.34 | |
| JUN | | | | | | | | | | | |
| 12 | | | | | 1 | | <0.010 | <0.050 | <0.010 | | |
| AUG | | | | | | | | | | | |
| 08 | 0.10 | 7.9 | 179 | 42 | 7 | | <0.010 | <0.050 | 0.120 | 0.38 | |
| | | | | | | | | | | | |

K = non-ideal count
E = estimate

RIO GUAJATACA BASIN

50011000 CANAL PRINCIPAL DE DIVERSIONES AT LAGO DE GUAJATACA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 29 DEC | 0.70 | 1.0 | 4.4 | 0.030 | 1 | <100 | 20 | <1 | 1 | 10 |
| 27 FEB 1991 | 0.50 | | | <0.010 | | | | | | |
| 20 | 0.40 | | ~- | <0.010 | | | | | | |
| 17 JUN | 0.40 | | ~- | 0.010 | 2 | <100 | <10 | <1 | <1 | <10 |
| 12 AUG | 0.40 | | | 0.020 | | | | | | |
| 08 | 0.50 | | ~- | 0.020 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUB ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | LENE BLUE ACTIVE SUB- STANCE |
| OCT 1990 29 DEC 27 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 DEC 27 FRB 1991 20 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUB ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 DEC 27 FRB 1991 20 APR 17 | TOTAL RECOV- ERABLE (UG/L AS FE) 170 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) <1 | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 DEC 27 FEB 1991 20 | TOTAL RECOV- ERABLE (UG/L AS FE) 170 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- REABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) <1 | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.02 |

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1969 to current year.

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECONI | CIFIC CON- DUCT- ANCE | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DRG C) | TUR- BID- ITY (MTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|--|--|--|--|--|---|---|---|---|---|---|
| NOV 1990 06 | 1500 | 52 | 420 | 8.1 | 25.0 | 10 | 4.3 | 51 | <10 | K1000 | 1000 |
| DEC 27 | 1125 | | 515 | 7.5 | 23.0 | 1.1 | 5.3 | 60 | <10 | K110 | 42 |
| FEB 1991 20 | | | 357 | | | | | | | | 590 |
| APR | 1500 | | | 7.9 | 24.0 | 2.8 | 10.2 | 119 | <10 | 110 | |
| 19 Jun | 0805 | | 369 | 7.7 | 23.0 | 0.40 | 5.7 | 65 | 16 | 150 | K1000 |
| 13 AUG | 0845 | | 439 | 7.7 | 24.5 | 8.2 | 5.1 | 60 | 12 | 3200 | 240 |
| 09 | 0900 | 17 | 465 | 7.8 | 25.0 | 1.0 | 4.7 | 56 | <10 | 180 | 210 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3 | TOT FLI | DIS- SOLVED | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS 8) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 06 | 20 | 0 1 | 71 | 4.3 | 9.2 | 0.3 | ` 1.5 | 180 | <0.5 | 11 | 15 |
| DEC 27 | | | | | | | | 210 | | | |
| FEB 1991 20 | | | | | | | | 150 | | | |
| APR 19 | 16 | 0 2 | 58 | 4.8 | 9.5 | 0.3 | 1.7 | 150 | <0.5 | 8.6 | 17 |
| JUN 13 | | | | | | | | 180 | | | |
| AUG 09 | 20 | 0 1 | 70 | 6.5 | 12 | 0.4 | 1.4 | 180 | | 8.1 | 23 |
| | | | | | | | | | | | |
| 1 | DATE | RIDE, I DIS- S SOLVED ((MG/L | ILICA, SUN DIS- CON SOLVED TUE (MG/L I AS SO | ISTI - I INTS, SC DIS- (1 DLVED I | LIDS, TOT DIS- AT DLVED DEG TONS SU PER PEN | 105 G S. C, NIT S- TO DED (M | REN, GRATE NIT | EN, G PRITE NO2 PTAL TO EG/L (M | EN, G +NO3 AMM TAL TO IG/L (M | EN, G KONIA ORG TAL TO KG/L (M | TRO- IEN, IANIC OTAL IG/L IN) |
| NOV : | 1990 | 0.30 | 7.2 | 227 3 | 31.9 | <1 0 | .890 0 |).010 0 | .900 0 | .010 | 0.39 |
| DEC | ••• | | | | | | | | | .020 | 0.28 |
| FEB : | | | | | | | - | | | .010 | 0.29 |
| APR 19 | | 0.20 | 6.7 | | 4.8 | | | | | .030 | |
| JUN 13 | | | | | | | | | | .010 | |
| AUG 09 | | | 7.2 | | | | | | - | | 0.18 |
| | | <0.10 | 7.2 | 430 | 10.5 | 1 1 | .19 0 | .010 1 | 0 | . 020 | U. 10 |

RIO GUAJATACA BASIN

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS, PR--Continued
WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AB N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|--|--|---|---|---|--|--|
| NOV 1990 | | | | | | | | | | |
| 06 DEC | 0.40 | 1.3 | 5.8 | 0.030 | <1 | <100 | <10 | <1 | 3 | <10 |
| 27 FEB 1991 | 0.30 | 2.2 | 9.7 | <0.010 | | | | | | |
| 20 | 0.30 | 0.90 | 4.0 | <0.010 | | | | | | |
| 19 JUN | <0.20 | | | 0.010 | <1 | <100 | <10 | <1 | 2 | <10 |
| 13 | <0.20 | | | 0.010 | | | | | | |
| 09 | 0.20 | 1.4 | 6.2 | <0.010 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LRAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 | TOTAL RECOV- BRABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 06 DBC | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- BRABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- BRABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| NOV 1990 06 | TOTAL RECOV- BRABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 06 DBC 27 FEB 1991 20 | TOTAL RECOV- BRABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 06 DEC 27 FEB 1991 20 APR 19 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) 0.30 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) <1 | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.05 |
| NOV 1990 06 DEC 27 FEB 1991 20 | TOTAL RECOV- ERABLE (UG/L AS FE) 330 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- RRABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) <1 | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.05 |

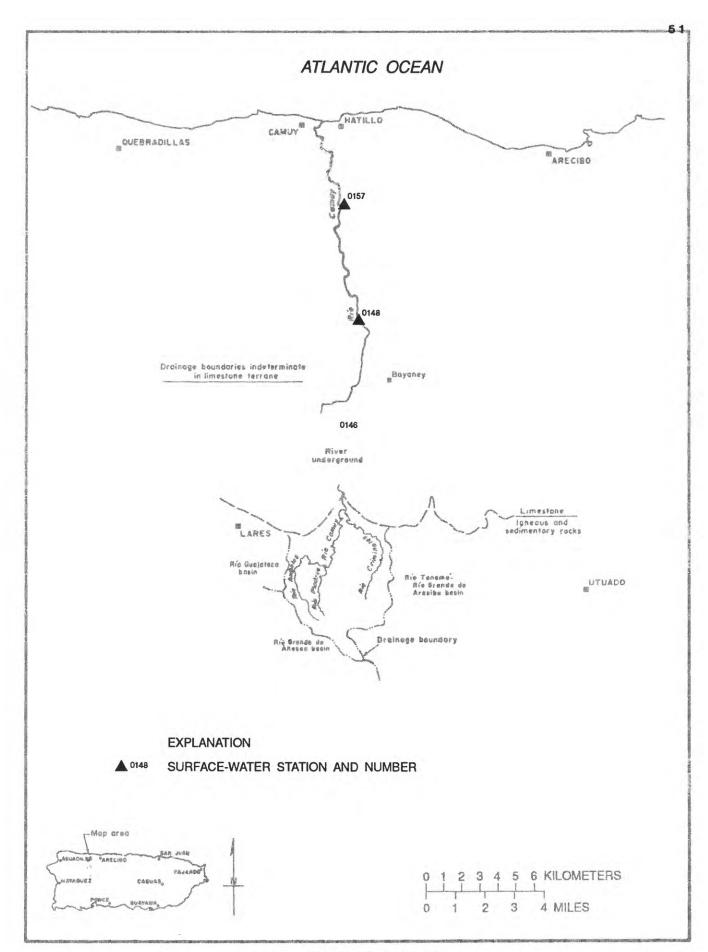


Figure 13.--Río Camuy basin.

RIO CAMUY BASTN

50014600 RIO CAMUY AT TRES PUEBLOS SINKHOLE, PR

LOCATION.--Lat 18°20'42", long 66°49'29", Hydrologic Unit 21010002, at Parque de las Cavernas del Río Camuy, 1.8 mi (2.9 km) southeast from Escuela Segunda Unidad de Santiago Palmer, 4.7 mi (7.6 km) west from Observatorio de Arecibo and 4.8 mi (7.7 km) northeast from Plaza de Lares.

DRAINAGE AREA. -- Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- June 1990 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Datum of gage is 612.21 ft (186.602 m), above mean sea level.

REMARKS .-- Records fair. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD JUNE TO SEPTEMBER 1990 AND WATER YEAR 1991.--Peak discharges greater than base discharge of 1,500 ft³/s (42.5 m²/s) and maximum (*):

| | Discharge | | arge | Gage he | ight | | | Discharge | | Gage height | |
|--------------|-----------|---------|--------|---------|-------|-------------|------|-----------|--------|-------------|-------|
| Date | Time | (ft3/s) | (m³/s) | (ft) | (m) | Date | Time | (ft3/s) | (m²/s) | (ft) | (m) |
| Sept. 9,1990 | 1800 | *583 | 16.5 | *10.10 | 3.078 | Oct. 7,1990 | 2245 | *926 | 26.2 | *11.97 | 3.648 |
| sept. 9,1990 | 1800 | | | | | OCE. 7,1990 | | | 20.2 | -11.97 | 3.040 |

Minimum daily discharge, 16 ft³/s (0.453 m³/s), July 30, 1990; 15 ft³/s (0.425 m³/s), Mar. 16, 17, 24, 25, Apr. 1, 1991.

| | DAILY MEAN VALUES | | | | | | | | | | | |
|-----|-------------------|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | | | | |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

| 1 29 22 42 25 2 30 22 12 121 30 4 3 20 21 21 21 30 5 28 22 19 100 6 6 64 27 18 78 7 64 24 17 57 8 29 25 17 62 9 25 17 62 9 27 25 45 164 10 23 22 40 91 11 22 27 40 91 11 22 27 25 45 164 10 23 22 29 91 11 21 30 40 60 13 34 19 32 61 14 25 19 41 84 15 162 22 29 91 16 71 22 27 80 17 1 22 27 80 17 1 22 27 80 17 1 22 27 80 17 1 22 27 80 17 24 61 23 30 17 24 61 24 30 30 17 24 61 24 30 30 17 24 61 24 25 29 23 54 68 26 27 20 31 61 27 28 29 23 54 68 26 27 20 31 61 27 28 29 23 54 68 26 27 20 31 61 27 28 29 23 54 68 26 27 20 31 61 27 28 23 17 26 55 29 23 54 68 26 27 20 31 61 27 28 23 17 26 55 29 23 54 68 26 27 20 31 61 27 28 23 17 26 55 29 23 16 24 154 30 12 155 61 89 2128 88AN 88AN 38.8 20.7 28.8 70.9 88AX 88AN 38.8 20.7 28.8 70.9 88AX 88AN 38.8 20.7 28.8 70.9 88AX 88AN 88AN 88AN 88AN 88AN 88AN 88AN | DAY | OCT | NOV | DRC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP | |
|--|-------|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|------|--|
| 6 64 27 18 78 7 29 25 17 62 9 27 25 45 164 10 23 22 40 91 11 23 22 40 91 11 23 25 19 41 84 15 25 19 41 84 15 26 22 29 91 16 71 22 27 80 17 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | 1 | | | | | | | | | 29 | 22 | 42 | 25 | |
| 6 64 27 18 78 7 29 25 17 62 9 27 25 45 164 10 23 22 40 91 11 23 22 40 91 11 23 25 19 41 84 15 25 19 41 84 15 26 22 29 91 16 71 22 27 80 17 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | 2 | | | | | | | | | 30 | 22 | | 24 | |
| 6 64 27 18 78 7 29 25 17 62 9 27 25 45 164 10 23 22 40 91 11 23 22 40 91 11 23 25 19 41 84 15 25 19 41 84 15 26 22 29 91 16 71 22 27 80 17 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | 3 | | | | | | | | | | | | | |
| 6 64 27 18 78 7 29 25 17 62 9 27 25 45 164 10 23 22 40 91 11 23 22 40 91 11 23 25 19 41 84 15 25 19 41 84 15 26 22 29 91 16 71 22 27 80 17 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | 4 | | | | | | | | | | | | 39 | |
| 10 23 22 40 91 11 25 21 34 74 12 35 20 40 60 13 34 19 32 61 14 25 19 41 84 15 162 22 29 91 16 71 22 27 80 17 50 20 25 67 18 75 20 26 58 19 45 19 28 74 20 36 18 24 90 21 32 18 23 71 22 30 17 24 61 23 30 17 24 61 24 30 17 24 61 24 30 17 24 61 25 29 23 54 68 26 27 20 3 54 68 26 27 20 3 68 27 28 30 17 24 61 28 30 17 24 61 29 23 54 68 27 20 3 54 68 28 30 30 30 30 30 30 30 30 30 30 30 30 30 | 5 | | | | | | | | | 28 | 22 | | | |
| 10 23 22 40 91 11 25 21 34 74 12 35 20 40 60 13 34 19 32 61 14 25 19 41 84 15 162 22 29 91 16 71 22 27 80 17 50 20 25 67 18 75 20 26 58 19 45 19 28 74 20 36 18 24 90 21 32 18 23 71 22 30 17 24 61 23 30 17 24 61 24 30 17 24 61 24 30 17 24 61 25 29 23 54 68 26 27 20 3 54 68 26 27 20 3 68 27 28 30 17 24 61 28 30 17 24 61 29 23 54 68 27 20 3 54 68 28 30 30 30 30 30 30 30 30 30 30 30 30 30 | 6 | | | | | | | | | 64 | 27 | 18 | 78 | |
| 10 23 22 40 91 11 25 21 34 74 12 35 20 40 60 13 34 19 32 61 14 25 19 41 84 15 162 22 29 91 16 71 22 27 80 17 50 20 25 67 18 75 20 26 58 19 45 19 28 74 20 36 18 24 90 21 32 18 23 71 22 30 17 24 61 23 30 17 24 61 24 30 17 24 61 24 30 17 24 61 25 29 23 54 68 26 27 20 3 54 68 26 27 20 3 68 27 28 30 17 24 61 28 30 17 24 61 29 23 54 68 27 20 3 54 68 28 30 30 30 30 30 30 30 30 30 30 30 30 30 | 7 | | | | | | | | | 64 | 24 | 17 | 57 | |
| 10 23 22 40 91 11 25 21 34 74 12 35 20 40 60 13 34 19 32 61 14 25 19 41 84 15 162 22 29 91 16 71 22 27 80 17 50 20 25 67 18 75 20 26 58 19 45 19 28 74 20 36 18 24 90 21 32 18 23 71 22 30 17 24 61 23 30 17 24 61 24 30 17 24 61 24 30 17 24 61 25 29 23 54 68 26 27 20 3 54 68 26 27 20 3 68 27 28 30 17 24 61 28 30 17 24 61 29 23 54 68 27 20 3 54 68 28 30 30 30 30 30 30 30 30 30 30 30 30 30 | 8 | | | | | | | | | 29 | | | 62 | |
| 10 23 22 40 91 11 25 21 34 74 12 35 20 40 60 13 34 19 32 61 14 25 19 41 84 15 162 22 29 91 16 71 22 27 80 17 50 20 25 67 18 75 20 26 58 19 45 19 28 74 20 36 18 24 90 21 32 18 23 71 22 30 17 24 61 23 30 17 24 61 24 30 17 24 61 24 30 17 24 61 25 29 23 54 68 26 27 20 3 54 68 26 27 20 3 68 27 28 30 17 24 61 28 30 17 24 61 29 23 54 68 27 20 3 54 68 28 30 30 30 30 30 30 30 30 30 30 30 30 30 | 9 | | | | | | | | | 27 | | | | |
| 12 13 14 14 15 162 17 162 17 18 18 18 18 18 18 18 19 18 11 162 18 19 19 10 11 11 11 11 11 11 11 11 11 11 11 11 | 10 | | | | | | | | | | | | 91 | |
| 12 13 14 14 15 162 17 162 17 18 18 18 18 18 18 18 19 18 11 162 18 19 19 10 11 11 11 11 11 11 11 11 11 11 11 11 | 11 | | | | | | | | | 25 | 21 | 34 | | |
| 13 14 14 15 162 25 19 41 84 155 162 22 29 91 16 71 22 27 80 17 50 20 25 67 18 75 20 26 58 19 45 19 28 74 20 21 21 22 27 80 26 58 29 20 26 58 20 26 58 20 21 21 22 22 27 80 26 58 27 20 26 58 24 20 21 22 23 24 24 25 26 26 27 28 28 29 23 26 26 26 27 28 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 20 31 61 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 23 27 28 29 20 21 21 22 23 24 25 26 26 27 28 29 29 20 31 61 27 28 29 20 31 61 27 28 29 20 31 61 27 28 29 20 31 61 27 28 29 20 31 61 27 28 29 20 31 61 27 28 29 20 31 61 20 20 20 20 20 20 20 20 20 20 20 20 20 | 12 | | | | | | | | | 35 | 20 | 40 | 60 | |
| 15 | 13 | | | | | | | | | 34 | 19 | 32 | 61 | |
| 15 | 14 | | | | | | | | | 25 | 19 | | 84 | |
| 17 18 19 20 26 58 75 20 26 58 19 20 36 18 24 90 21 22 30 17 24 61 23 30 17 24 61 24 25 30 17 24 61 24 25 26 27 20 31 68 26 27 20 31 68 26 27 20 31 68 27 20 31 68 27 20 31 68 27 20 31 68 27 28 30 30 30 30 30 30 30 30 30 30 30 30 30 | 15 | | | | | | | | | 162 | 22 | 29 | 91 | |
| 17 18 19 20 26 58 75 20 26 58 19 20 36 18 24 90 21 22 30 17 24 61 23 30 17 24 61 24 25 30 17 24 61 24 25 26 27 20 31 68 26 27 20 31 68 26 27 20 31 68 27 20 31 68 27 20 31 68 27 20 31 68 27 28 30 30 30 30 30 30 30 30 30 30 30 30 30 | 16 | | | | | | | | | 71 | 22 | 27 | 80 | |
| 18 19 20 36 37 21 21 32 18 23 71 22 30 17 24 61 23 30 17 24 61 24 25 30 19 45 78 25 26 27 20 31 61 27 26 27 20 31 61 27 28 29 23 54 68 26 27 20 31 61 27 28 29 23 17 26 55 29 23 17 25 53 30 31 31 31 31 31 31 31 41 41 41 41 41 41 41 41 41 41 41 41 41 | 17 | | | | | | | | | 50 | 20 | | 67 | |
| 20 21 22 23 30 17 24 61 23 24 30 17 24 61 24 25 26 27 20 31 61 27 28 29 23 30 27 20 31 61 27 28 29 23 30 27 20 31 61 27 28 29 23 30 23 30 30 30 30 30 30 30 30 30 30 30 30 30 | 18 | | | | | | | | | 75 | 20 | 26 | 58 | |
| 20 21 22 23 30 17 24 61 23 24 30 17 24 61 24 25 26 27 20 31 61 27 28 29 23 30 27 20 31 61 27 28 29 23 30 27 20 31 61 27 28 29 23 30 23 30 30 30 30 30 30 30 30 30 30 30 30 30 | 19 | | | | | | | | | 45 | 19 | | 74 | |
| 22 30 17 24 61 23 30 17 24 61 24 25 30 19 45 78 25 29 23 54 68 26 27 20 31 61 27 20 31 61 27 26 18 27 57 28 23 17 26 55 29 23 17 25 53 30 23 16 24 154 31 31 38.8 20.7 28.8 70.9 MAX 38.8 20.7 28.8 70.9 MAX 162 28 54 164 164 28 54 164 28 54 164 29 2128 20 2128 21 228 23 24 228 23 24 23 24 25 24 25 25 25 26 27 28.8 26 27 28.8 27 28 28 28 28 28 28 29 29 29 20 20 20 20 20 20 20 20 | 20 | | | | | | | | | | | | | |
| 22 30 17 24 61 23 30 17 24 61 24 25 30 19 45 78 25 29 23 54 68 26 27 20 31 61 27 20 31 61 27 26 18 27 57 28 23 17 26 55 29 23 17 25 53 30 23 16 24 154 31 31 38.8 20.7 28.8 70.9 MAX 38.8 20.7 28.8 70.9 MAX 162 28 54 164 164 28 54 164 28 54 164 29 2128 20 2128 21 228 23 24 228 23 24 23 24 25 24 25 25 25 26 27 28.8 26 27 28.8 27 28 28 28 28 28 28 29 29 29 20 20 20 20 20 20 20 20 | 21 | | | | | | | | | 32 | 18 | 23 | 71 | |
| 30 | 22 | | | | | | | | | 30 | | | 61 | |
| 24 25 26 26 27 20 31 61 27 28 29 23 17 26 55 29 23 17 25 53 30 23 17 25 53 30 23 16 24 154 31 TOTAL MEAN MEAN MAX 162 28 54 164 | 23 | | | | | | | | | | | | | |
| 26 27 20 31 61 27 26 18 27 57 28 23 17 26 55 29 23 17 25 53 30 23 16 24 154 31 28 23 TOTAL 1165 641 892 2128 MRAN 38.8 20.7 28.8 70.9 MAX 162 28 54 164 | 24 | | | | | | | | | | 19 | | 78 | |
| 27 26 18 27 57 28 23 17 26 55 29 23 17 25 53 30 23 16 24 154 31 28 23 TOTAL 1165 641 892 2128 MEAN 38.8 20.7 28.8 70.9 MAX 162 28 54 164 | 25 | | | | | | | | | | | | | |
| 27 26 18 27 57 28 23 17 26 55 29 23 17 25 53 30 23 16 24 154 31 28 23 TOTAL 1165 641 892 2128 MEAN 38.8 20.7 28.8 70.9 MAX 162 28 54 164 | 26 | | | | | | | | | 27 | 20 | 31 | 61 | |
| 29 30 31 23 16 24 154 31 28 23 70TAL 1165 641 892 2128 MEAN 38.8 20.7 28.8 70.9 MAX 162 28 54 164 | 27 | | | | | | | | | 26 | 18 | 27 | 57 | |
| 29 30 31 23 16 24 154 31 28 23 70TAL 1165 641 892 2128 MEAN 38.8 20.7 28.8 70.9 MAX 162 28 54 164 | 28 | | | | | | | | | 23 | 17 | | 55 | |
| 30 23 16 24 154 27 28 23 TOTAL 1165 641 892 2128 MRAN 38.8 20.7 28.8 70.9 MAX 162 28 54 164 | 29 | | | | | | | | | | 17 | | 53 | |
| TOTAL 1165 641 892 2128 MRAN 38.8 20.7 28.8 70.9 MAX 162 28 54 164 | 30 | | | | | | | | | | 16 | | | |
| MEAN 38.8 20.7 28.8 70.9 MAX 162 28 54 164 | 31 | | | | | | | | | | | | | |
| MEAN 38.8 20.7 28.8 70.9 MAX 162 28 54 164 | TOTAL | | | | | | | | | 1165 | 641 | 892 | 2128 | |
| MAX 162 28 54 164 | | | | | | | | | | | | | | |
| | | | | | | | | | | 162 | | 54 | | |
| | | | | | | | | | | 20 | 16 | | 24 | |

RIO CAMUY BASIN

50014600 RIO CAMUY AT TRES PUEBLOS SINKHOLE, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES

| | | | | | DAIL | MEAN VA | CURS | | | | | |
|--------|--------------|------|------|------|------|---------|------|-------------|-------------|-------------|------|----------|
| DAY | OCT | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 243 | 59 | 36 | 27 | 19 | 20 | 15 | 29 | 31 | e64 | 87 | 143 |
| 2 | 132 | 57 | 36 | 25 | 19 | 19 | 19 | 30 | 31 | e 37 | 55 | 102 |
| 3 4 | 84 | 55 | 37 | 24 | 19 | 19 | 97 | 72 | 29 | e32 | 49 | 79 |
| 4 | 76 | 64 | 35 | 24 | 19 | 18 | 166 | 137 | 28 | 31 | 39 | 69 |
| 5 | 71 | 92 | 34 | 24 | 75 | 18 | 97 | 193 | 28 | 30 | 72 | 64 |
| 6 7 | 66 | 65 | 34 | 23 | 34 | 18 | 45 | 109 | 27 | 28 | 68 | 61 |
| 7 | 194 | 65 | 33 | 23 | 27 | 18 | 36 | 60 | 27 | 53 | 44 | 80 |
| 8 | 198 | 77 | 33 | 22 | 28 | 18 | 33 | 47 | 26 | 87 | 42 | 65 |
| 9 | 130 | 56 | 32 | 22 | 23 | 17 | 31 | 88 | 26 | 53 | 40 | 57 55 |
| 10 | 132 | 51 | 32 | 22 | 24 | 16 | 28 | 125 | 31 | 37 | 40 | 55 |
| 11 | 95 | 51 | 31 | 21 | 30 | 17 | 26 | 94 | 26 | 33 | 40 | 54 |
| 12 | ⊕ 79 | 51 | 30 | 22 | 31 | 18 | 27 | 78 | 24 | 30 | 64 | 53 |
| 13 | e81 | 48 | 30 | 22 | 27 | 16 | 26 | 126 | 24 | 30 | 69 | 51 |
| 14 | e 118 | 46 | 31 | 22 | 23 | 16 | 25 | 133 | 25 | 28 | 51 | 49 |
| 15 | e133 | 45 | 29 | 21 | 21 | 16 | 32 | 77 | 27 | 28 | 51 | 48 |
| 16 | e138 | 45 | 29 | 21 | 20 | 15 | 38 | 62 | 29 | 65 | 57 | 49 |
| 17 | 162 | 44 | 28 | 22 | 20 | 15 | 26 | e74 | 25 | 50 | 58 | 53 |
| 18 | 137 | 43 | 28 | 21 | 20 | 16 | 24 | •64 | 33 | 35 | 48 | 47 |
| 19 | 159 | 42 | 28 | 21 | 26 | 16 | 22 | e4 6 | 35 | 31 | 44 | 46 |
| 20 | 103 | 42 | 28 | 21 | 71 | 17 | 22 | e145 | 36 | 29 | 58 | 60 |
| 21 | 128 | 41 | 28 | 21 | 30 | 16 | 22 | e100 | 38 | 28 | 100 | 79 |
| 22 | 102 | 42 | 28 | 20 | 24 | 20 | 21 | 66 | 34 | 27 | 128 | 68 |
| 23 | 85 | 41 | 28 | 20 | 22 | 20 | 19 | 50 | 31 | 26 | 104 | 58 |
| 24 | 77 | 40 | 27 | 19 | 21 | 15 | 19 | 44 | 28 | 26 | 63 | 50 52 |
| 25 | 95 | 53 | 27 | 20 | 22 | 15 | 135 | 41 | 25 | 25 | 60 | 52 |
| 26 | 113 | 51 | 25 | 20 | 21 | 24 | 130 | 40 | e24 | 24 | 67 | 61 |
| 27 | 80 | 41 | 25 | 20 | 20 | 47 | 43 | 37 | e 26 | 25 | 98 | 85 |
| 28 | 71 | 40 | 25 | 20 | 20 | 23 | 55 | 35 | e4 7 | 100 | 114 | 84 |
| 29 | 68 | 38 | 25 | 21 | | 19 | 36 | 34 | e62 | 106 | 72 | 62 |
| 30 | 64 | 37 | 25 | 19 | | 17 | 31 | 33 | e80 | 73 | 63 | 53 |
| 31 | 61 | | 28 | 19 | | 16 | | 32 | | 64 | 100 | |
| TOTAL | 3475 | 1522 | 925 | 669 | 756 | 575 | 1346 | 2301 | 963 | 1335 | 2045 | 1937 |
| MRAN | 112 | 50.7 | 29.8 | 21.6 | 27.0 | 18.5 | 44.9 | 74.2 | 32.1 | 43.1 | 66.0 | 64.6 |
| MAX | 243 | 92 | 37 | 27 | 75 | 47 | 166 | 193 | 80 | 106 | 128 | 143 |
| MIN | 61 | 37 | 25 | 19 | 19 | 15 | 15 | 29 | 24 | 24 | 39 | 46 |

WTR YR 1991 TOTAL 17849 MEAN 48.9 MAX 243 MIN 15

e Estimated

RIO CAMUY BASIN

50014800 RIO CAMUY NEAR BAYANEY, PR

LOCATION.--Lat 18°23'48", long 66°49'04", Hydrologic Unit 21010002, on left bank at Highway 488, 1.4 mi (2.2 km) southeast of school at Santiago, 0.9 mi (1.4 km) northwest from Escuela Manuel A. Rivera at Bayaney and 9.1 mi (14.6 km) upstream from Atlantic Ocean.

DRAINAGE AREA. -- Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- May 1984 to current year.

GAGE. -- Water-stage recorder. Elevation of gage is 341 ft (104 m), from topographic map.

REMARKS. -- Records fair. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--7 years (1985-91), 110 ft³/s (3.115 m³/s), 79,700 acre-ft/yr (98.3 hm²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,450 ft³/s (183 m²/s), Oct. 7, 1985, gage height, 17.66 ft (5.383 m), from rating curve extended above 300 ft²/s (8.50 m²/s) on basis of step-backwater analysis; minimum discharge, 25 ft³/s (0.708 m²/s), Apr. 26-28, 1989.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s (56.6 m³/s) and maximum (*):

| | | Discharge | | Gage | height | | | Disch | arge | Gage height | |
|---------|------|-----------|---------------------|--------|--------|---------|------|---------|---------------------|-------------|--|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Tima | (ft³/s) | (m ³ /s) | (ft) (m) | |
| Oct. 8 | 0030 | *2,280 | 64.6 | *12.10 | | Apr. 25 | 2045 | 2,220 | 62.9 | 11.97 3.648 | |
| Oct. 17 | 1545 | 2,150 | 60.9 | 11.80 | 3.597 | | | | | | |

Minimum discharge, 26 ft3/s (0.736 m3/s), Feb. 1-4, Apr. 24, 25.

| | | DISCHARG | R, CUBIC | FRET PER | | | YEAR OCTOBE | R 1990 TO | SEPTEMBER | 1991 | | |
|-------|-------|----------|----------|----------|------|--------|-------------|-----------|-----------|------|------|------|
| | | | | | DAIL | Y MRAN | AYTMES | | | | | |
| DAY | OCT | MOV | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
| 1 | 587 | 133 | 66 | 65 | 28 | 38 | | 63 | 70 | 144 | 188 | 389 |
| 2 | 288 | 114 | 63 | 45 | 26 | 36 | | 58 | 69 | 85 | 118 | 256 |
| 3 | 147 | 107 | 91 | 42 | 26 | 35 | | 165 | 65 | 73 | 111 | 171 |
| 4 | 132 | 186 | 84 | 40 | 34 | 34 | | 496 | 62 | 70 | 86 | 127 |
| 5 | 122 | 222 | 70 | 39 | 35 | 33 | 212 | 469 | 61 | 64 | 142 | 109 |
| 6 | 106 | 148 | 63 | 39 | 122 | 33 | | 268 | 60 | 59 | 144 | 99 |
| 7 | 303 | 124 | 61 | 37 | 50 | 32 | 62 | 122 | 58 | 78 | 92 | 170 |
| 8 | 599 | 162 | 58 | 34 | 47 | 32 | | 96 | 56 | 190 | 82 | 133 |
| 9 | 361 | 109 | 57 | 34 | 34 | 30 | | 187 | 55 | 120 | 79 | 108 |
| 10 | 316 | 97 | 56 | 33 | 34 | 30 | 39 | 277 | 69 | 80 | 73 | 105 |
| 11 | 191 | 92 | 55 | 33 | 56 | 30 | 34 | 188 | 57 | 73 | 68 | 99 |
| 12 | 155 | 96 | 54 | 32 | 58 | 33 | | 160 | 52 | 73 | 97 | 91 |
| 13 | 173 | 86 | 53 | 32 | 46 | 31 | 34 | 329 | 51 | 66 | 122 | 88 |
| 14 | 354 | 82 | 65 | 32 | 38 | 30 | 33 | 336 | 52 | 64 | 80 | 85 |
| 15 | 409 | 79 | 62 | 31 | 33 | 28 | 34 | 202 | 60 | 63 | 81 | 80 |
| 16 | 616 | 81 | 53 | 31 | 29 | 28 | 69 | 158 | 65 | 138 | 86 | 79 |
| 17 | 684 | 98 | 51 | 32 | 29 | 27 | | 190 | 55 | 114 | 103 | 79 |
| 18 | 427 | 87 | 50 | 30 | 29 | 29 | | 157 | 57 | 77 | 89 | 78 |
| 19 | 489 | 77 | 47 | 30 | 71 | 30 | | 113 | 184 | 75 | 79 | 74 |
| 20 | 253 | 75 | 47 | 30 | 246 | 31 | | 341 | 150 | 73 | 84 | 88 |
| 21 | 394 | 74 | 47 | 30 | 89 | 30 | 31 | 257 | 222 | 66 | 225 | 136 |
| 22 | 258 | 74 | 47 | 29 | 53 | 36 | | 141 | 114 | 64 | 357 | 117 |
| 23 | 196 | 74 | 46 | 28 | 45 | 41 | | 106 | 91 | 60 | 250 | 95 |
| 24 | 167 | 70 | 46 | 28 | 42 | 31 | | 96 | 78 | 60 | 121 | 81 |
| 25 | 235 | 96 | 44 | 27 | 41 | 29 | | 90 | 69 | 58 | 102 | 95 |
| 26 | 317 | 107 | 43 | 27 | 40 | 34 | 426 | 86 | 61 | 57 | 126 | 109 |
| 27 | 180 | 80 | 42 | 27 | 38 | 125 | | 81 | 67 | 55 | 203 | 253 |
| 28 | 151 | 79 | 42 | 27 | 37 | 56 | | 79 | 109 | 201 | 268 | 222 |
| 29 | 142 | 74 | 41 | 28 | | 35 | | 77 | 138 | 226 | 134 | 128 |
| 30 | 136 | 68 | 41 | 28 | | 31 | | 75 | 183 | 157 | 111 | 96 |
| 31 | 157 | | 77 | 27 | | 29 | | 73 | | 123 | 277 | |
| TOTAL | 9045 | 3051 | 1722 | 1027 | 1456 | 1107 | 2815 | 5536 | 2540 | 2906 | 4178 | 3840 |
| MBAN | 292 | 102 | 55.5 | 33.1 | 52.0 | 35.7 | | 179 | 84.7 | 93.7 | 135 | 128 |
| MAX | 684 | 222 | 91 | 65 | 246 | 125 | | 496 | 222 | 226 | 357 | 389 |
| MIN | 106 | 68 | 41 | 27 | 26 | 27 | | 58 | 51 | 55 | 68 | 74 |
| AC-PT | 17940 | 6050 | 3420 | 2040 | 2890 | 2200 | | 10980 | 5040 | 5760 | 8290 | 7620 |

CAL YR 1990 TOTAL 33036 MEAN 90.5 MAX 684 MIN 29 AC-FT 65530 WTR YR 1991 TOTAL 39223 MEAN 107 MAX 684 MIN 26 AC-FT 77800

RIO CAMUY BASIN

50014800 RIO CAMUY NEAR BAYANEY, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS JUNE 1984 TO CURRENT YEAR

| DATE TI | STREAMFLOW, E INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|---------------------------|---|--------------------------------------|-----------------------------|--------------------|------|---------------------------------------|--------------------------------------|-----------------------------|
| APR. 17 131 MAY 23 132 | | 200 121 | 25.0 23.5 | AUG. 15 SEP. 26 | | 81 | 268 302 | 22.5 24.0 |
| JUN. 18 142 | | 273 | 24.0 | 3EP. 20 | 1542 | 101 | 302 | 24.0 |

56

50015700 RIO CAMUY NEAR HATILLO, PR

LOCATION.--Lat 18°27'44", long 66°49'56", Hydrologic Unit 21010002, 1.8 mi (2.9 km) southwest of Hatillo plaza, and 1.8 mi (2.9 km) southeast of Camuy plaza, 1.2 mi (1.9 km) south of Planta de Purificación, and 3.3 mi (5.5 km) upstream from Atlantic Ocean.

DRAINAGE AREA. -- Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- June 1984 to current year.

GAGE. -- Water-stage recorder. Elevation of gage is 13 ft (4 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--7 years (1985-91), 176 ft³/s (4.984 m³/s), 127,500 acre-ft/yr (157 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft²/s (303 m²/s), revised, Oct. 7, 1985, gage height, 24.75 ft (7.544 m), from rating curve extended above 200 ft³/s (5.66 m³/s) on hasis of step-hackwater analysis, minimum daily discharge, 25 ft³/s (0.708 m³/s), May 30.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than hase discharge of 2,500 ft3/s (70.8 m3/s) and maximum (*):

| | | Disc | harge | Gage 1 | neight | | | Disch | rge | Gage h | eight |
|--------|------|---------|--------|--------|--------------|---------|------|---------|---------------------|--------|-------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) |
| Oct. 1 | 2315 | 3,070 | 86.9 | 15.91 | 4.849 | Apr. 26 | 0030 | *4,930 | 140 | *18.88 | 5.755 |
| Oct. 8 | 0315 | 3.970 | 112 | 17.44 | 5.316 | | | | | | |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum daily discharge, 37 ft³/s (1.048 m³/s), Feb. 2, 3, Mar. 16, 17, 21.

| | | | , | | DAIL | Y MEAN VA | LUES | | | | | |
|--------|--------------|------|------|-------------|-------------|-------------|------|-------|------|------|------|------|
| DAY | OCT | MOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 861 | 338 | 68 | 196 | e41 | e4 6 | 39 | 57 | 61 | 219 | 244 | 756 |
| 2 | 691 | 175 | 66 | 75 | e 37 | e4 8 | 40 | 53 | 61 | 99 | 131 | 522 |
| 2 3 | 176 | 148 | 122 | 66 | e 37 | e4 5 | 119 | 223 | 58 | 83 | 115 | 290 |
| 4 | 147 | 348 | 119 | 60 | e4 7 | -44 | 500 | 813 | 56 | 78 | 84 | 165 |
| 5 | 136 | 501 | 83 | 58 | 044 | e42 | 512 | 668 | 55 | 76 | 114 | 129 |
| 6 | 110 | 269 | 72 | 59 | 167 | e41 | 111 | 627 | 54 | 66 | 216 | 114 |
| 7 | 138 | 183 | 73 | 56 | 74 | e41 | 83 | 143 | 58 | 61 | 95 | 214 |
| 8 | 1310 | 271 | 69 | 54 | 69 | e4 0 | 63 | 99 | 55 | 231 | 82 | 281 |
| 9 | 601 | 174 | 67 | 53 | e52 | e4 0 | 58 | 194 | 54 | 200 | 79 | 162 |
| 10 | 809 | 134 | 65 | 51 | e 51 | e39 | 53 | 477 | 67 | 91 | 72 | 138 |
| 11 | 271 | 121 | 64 | 51 | 72 | e38 | 48 | 252 | 59 | 79 | 67 | 131 |
| 12 | 204 | 126 | 63 | 50 | 93 | e 38 | 50 | 251 | 53 | 74 | 68 | 109 |
| 13 | 290 | 109 | 62 | 49 | 71 | e41 | 48 | 397 | 52 | 68 | 174 | 101 |
| 14 | 544 | 103 | 65 | 48 | 57 | e39 | 47 | 786 | 52 | 63 | 81 | 97 |
| 15 | 588 | 96 | 88 | 47 | e52 | e 38 | 46 | 324 | 62 | 65 | 82 | 93 |
| 16 | 1470 | 103 | 67 | 46 | e51 | e 37 | 83 | 272 | 68 | 171 | 78 | 88 |
| 17 | 2270 | 140 | 60 | 48 | e51 | e37 | 52 | 414 | 61 | 180 | 111 | 89 |
| 18 | e1600 | 187 | 60 | e4 5 | e51 | e 39 | 44 | 3 6 5 | 61 | 93 | 94 | 87 |
| 19 | e82 0 | 104 | 58 | e4 5 | e 80 | e4 0 | 43 | 144 | 286 | 84 | 77 | 80 |
| 20 | e1300 | 95 | 53 | e45 | 586 | e4 3 | 41 | 372 | 243 | 73 | 66 | 77 |
| 21 | e820 | 90 | 52 | e4 5 | 130 | 37 | 41 | 540 | 368 | 67 | 226 | 143 |
| 22 | e620 | 89 | 52 | e44 | 75 | 44 | 41 | 193 | 178 | 64 | 672 | 167 |
| 23 | 374 | 87 | 53 | e4 3 | 62 | 55 | 39 | 122 | 123 | 62 | 498 | 111 |
| 24 | 292 | 80 | 51 | e4 3 | 56 | 40 | 38 | 101 | 93 | 60 | 157 | 88 |
| 25 | 310 | 97 | 50 | e42 | 55 | 38 | 462 | 92 | 81 | 59 | 112 | 94 |
| 26 | 757 | 157 | 48 | e4 0 | e52 | 39 | 1600 | 89 | 69 | 56 | 147 | 134 |
| 27 | 313 | 95 | 47 | e4 0 | e4 9 | 242 | 224 | 81 | 76 | 55 | 146 | 316 |
| 28 | 233 | 91 | 47 | e4 0 | e4 7 | 80 | 179 | 71 | 135 | 161 | 509 | 495 |
| 29 | 237 | 81 | 46 | e42 | | 50 | 124 | 69 | 197 | 370 | 176 | 223 |
| 30 | 216 | 73 | 46 | e42 | | 43 | 72 | 65 | 241 | 185 | 129 | 125 |
| 31 | 240 | | 64 | e4 0 | | 41 | | 63 | | 103 | 333 | |
| TOTAL | 18748 | 4665 | 2000 | 1663 | 2309 | 1525 | 4900 | 8417 | 3137 | 3396 | 5235 | 5619 |
| MRAN | 605 | 155 | 64.5 | 53.6 | 82.5 | 49.2 | 163 | 272 | 105 | 110 | 169 | 187 |
| MAX | 2270 | 501 | 122 | 196 | 586 | 242 | 1600 | 813 | 368 | 370 | 672 | 756 |
| MIN | 110 | 73 | 46 | 40 | 37 | 37 | 38 | 53 | 52 | 55 | 66 | 77 |

CAL YR 1990 TOTAL 51394 MEAN 141 MAX 2270 MIN 25 WTR YR 1991 TOTAL 61614 MEAN 169 MAX 2270 MIN 37

e Estimated

RIO CAMUY BASIN

50015700 RIO CAMUY NEAR HATILLO, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS AUGUST 1984 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|--------------------|------|---------------------------------------|--------------------------------------|-----------------------------|--------|------|---------------------------------------|--------------------------------------|-----------------------------|
| AUG. 01 APR. 17 | | 162 49 | 290 220 | 23.5 24.5 | MAY 23 | 0815 | 66 | 244 | 25.0 |

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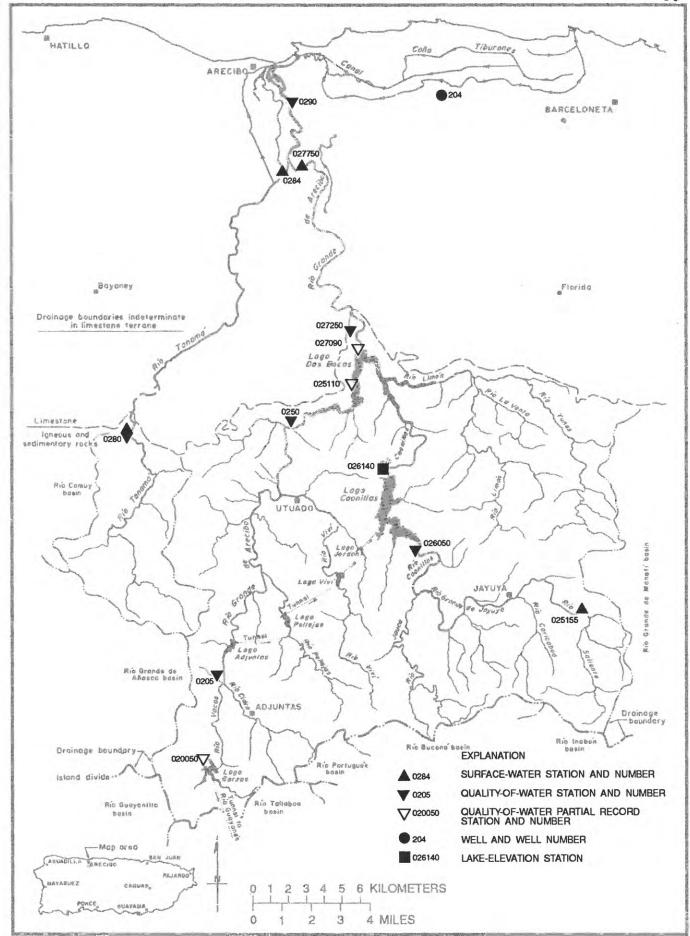


Figure 14.--Río Grande de Arecibo basin.

50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°10'54", long 66°44'12", at Highway 135 bridge, 1.0 mi (1.6 km) upstream from Lago Adjuntas, and 1.5 mi (2.4 km) northwest of Adjuntas plaza.

DRAINAGE AREA.--12.7 mi² (32.9 km²) this does not include 6.0 mi² (15.6 km²) above Lago Garsas.

PERIOD OF RECORD .-- Water years 1969-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | WATI | R-QUALITY | DATA, WA | TER YEAR | OCTOB | BR 199 | O TO B | RELEMBEK | 1991 | | |
|----------------|---|---|---|--|--|---|-------------------------------------|---|---|---|---|---|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FEBT PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TU BI IT (NT | D- Y | DXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 | | | | | | | | | | | | |
| 23 JAN 1991 | 0845 | 137 | 230 | 7.8 | 21.5 | 5 | -4 | 8.0 | 94 | 15 | K120000 | 7900 |
| 09 FRB | 1000 | 29 | 278 | 7.8 | 19.5 | 1 | .1 | 9.0 | 101 | <10 | K100 | 260 |
| 25 | 1330 | 12 | 333 | 8.3 | 24.5 | 1 | .3 | 9.7 | 120 | 17 | K980 | 350 |
| APR 11 | 1215 | 15 | 383 | | 22.5 | 15 | | 9.8 | 117 | 25 | K150 | 270 |
| JUN | 1415 | 15 | 363 | 8.0 | 44.5 | 15 | | 9.8 | 117 | 45 | KISU | 270 |
| 21 | 1230 | 12 | 409 | 8.2 | 26.0 | 1 | .5 | 7.4 | 94 | 13 | 380 | 410 |
| 19 | 1400 | 17 | 348 | 8.2 | 28.0 | 1 | . 8 | 8.1 | 107 | 13 | K690 | 470 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNR- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SOR TI RAT | ON | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FRT FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE: DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 | | | | | | | | | | | | |
| 23 | 81 | 0 | 21 | 7.0 | 14 | | 0.7 | 1.5 | 79 | <0.5 | 14 | 21 |
| JAN 1991 09 | | | | | | _ | _ | | 95 | | | |
| FEB 25 | | | | | | _ | | | 110 | | | |
| APR | | | | | | - | - | | 110 | | | |
| 11 | 150 | 0 | 42 | 11 | 26 | | 0.9 | 3.5 | 100 | <0.5 | 14 | 31 |
| 21 | | | | | | _ | _ | | 110 | | | |
| AUG 19 | 110 | 0 | 30 | 9.1 | 22 | | 0.9 | 2.2 | 110 | | 10 | 32 |
| | | | | | | | | | | | | |
| 1 | R S DATE (| IDE, DI DIS- SO OLVED (I MG/L | LICA, SUM IS- CON OLVED TUE MG/L D AS SO | STI- I NTS, SO IS- (T LVED I | IDS, TO DIS- AT DLVED DE CONS S DER PE | SIDUR TAL 105 G. C, US- ENDED MG/L) | NITE GEN NITE TOTA (MG/ | I, G ATR NIT AL TO 'L (N | RITE NO. | ERN, E+NO3 AB OTAL T | GEN, MONIA OR COTAL T (MG/L (| ITRO- JEN, JANIC OTAL MG/L B N) |
| OCT : | 1990 | | | | | | | | | | | |
| 23. JAN | | <0.10 | 26 | 152 5 | 66 | 13 | 0.9 | 80 0 | .020 | 1.00 | 0.120 | 0.18 |
| O9 | | | | | | 4 | 0.8 | 350 0 | .050 | 0.900 | 0.080 | 0.52 |
| 25. APR | | | | | | 6 | 0.9 | 60 0 | .140 | L.10 | 0.050 | 0.45 |
| 11. JUN | | 0.10 | 24 | 212 | 8.80 | 20 | 0.9 | 40 0 | .160 | 1.10 | 0.140 | 0.56 |
| 21. | | | | | | 5 | 1.1 | L8 0 | .120 | 1.30 | 0.190 | 0.51 |
| | | <0.10 | 32 | 203 | 9.33 | 13 | 0.8 | 200 0 | .080 | 0.880 | 0.080 | 0.22 |
| | | | | | | 20 | v. e | ,,,, | . 000 | | | |

RIO GRANDE DE ARECIBO BASIN

50020500 RIO GRANDE DE ARECIBO NR ADJUNTAS, PR--Continued WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 23 JAN 1991 | 0.30 | 1.3 | 5.8 | 0.070 | <1 | <100 | <10 | <1 | 2 | 10 |
| 09 | 0.60 | 1.5 | 6.6 | 0.070 | | | | | | |
| PRB 25 APR | 0.50 | 1.6 | 8.4 | 0.240 | | | | | | |
| 11 JUN | 0.70 | 1.8 | 8.0 | 0.210 | 2 | <100 | 50 | 3 | 3 | 40 |
| 21 | 0.70 | 2.0 | 8.9 | 0.240 | | | | | | |
| AUG 19 | 0.30 | 1.2 | 5.2 | 0.140 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUR ACTIVE SUB- STANCE (MG/L) |
| ост 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 23 JAN 1991 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| OCT 1990 23 JAN 1991 09 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 23 JAN 1991 09 FEB 25 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 23 JAN 1991 09 FEB 25 APR 11 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 23 JAN 1991 09 FEB 25 | TOTAL RECOV- ERABLE (UG/L AS FE) 580 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L As SE) <1 | TOTAL RECOV- REABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) 2 | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.04 |

50025000 RIO GRANDE DE ARECIBO NEAR UTUADO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'11", long 66°41'59", at bridge near Highway 10 at km 56.4, 0.5 mi (0.8 km) downstream from Río de Caguana, and 2.5 mi (4.0 km) north of Utuado plaza.

DRAINAGE AREA.--66.0 $\rm mi^2$ (170.9 $\rm km^2$) this excludes 6.0 $\rm mi^2$ (15.5 $\rm km^2$) upstream from Lago Gargas to Rio Guayan%s in the Rio Tallaboa basin.

PERIOD OF RECORD. -- Water years 1959-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | | MWIE | W-GOWNIII | DAIA, WA | TEK IBAI | COCTOBE | SK 1990 IC | OBF I BROSE | (1991 | | |
|-----------|---------------------|---|---|---|--|--|--|--|--|--|---------------------------------------|---|
| 1 | DATE | TIME | DIS- CHARGE, INST. CUBIC FERT PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | BII | DIS SOLV | i- cent Ved satui | DEMAND CHEM- CHIGH | , FORM, FECAL, 0.45 | FECAL, (COLS. / PER |
| OCT : | | | | | | | | | | | | |
| | • • • | 0915 | 418 | 213 | 8.0 | 23.0 | 18 | 8. | 3 9 | 6 1 | 0 370 | 520 |
| DEC 20 | | 0950 | 87 | 205 | 7.7 | 21.0 | 5 . | .7 8. | . 6 | 6 <1 | 0 210 | 270 |
| | | 0930 | 64 | 289 | 7.8 | 22.5 | 5 2. | .8 8. | 1 | 3 <1 | 0 K150 | 0 580 |
| APR 16 | • • • | 1330 | 76 | 232 | 7.9 | 28.5 | 5 19 | 7. | 8 10 | 00 2 | 2 3100 | 3600 |
| JUN 24 | • • • | 1245 | 75 | 287 | 8.0 | 29.5 | 5 3. | .7 7. | .3 9 |)5 <1 | 0 320 | 0 570 |
| AUG 20 | • • • | 1225 | 66 | 276 | 8.1 | 29.0 | 31 | 7. | c (| 7 1 | 0 330 | 0 730 |
| | ••• | 1113 | • | 2,0 | 0.1 | 23. | , ,, | , | | | 330 | ,,,, |
| 1 | DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SORI TIC RATI | O- SIU O- DIS ON SOLV | M, WAT WE TOT FE ED FIELD L MG/L J | (H ST SULFID O TOTAL AS (MG/L | SOLVE | DIS- D SOLVED (MG/L |
| OCT : | 1990 | | | | | | | | | | | |
| | ••• | 82 | 1 | 22 | 6.6 | 12 | (| 1.6 | 8 6 | 66 <0. | 5 18 | 12 |
| 20 FRB | | | | | | | | | | 37 | | |
| | • • • | | | | | | | | . 9 | 3 | | |
| 16 JUN | • • • | 100 | 0 | 28 | 8.0 | 13 | (| .6 2. | 1 8 | 2 <0. | 5 27 | 14 |
| 24 | • • • | | | | | | | | | | | |
| AUG 20 | ••• | 88 | 2 | 24 | 6.9 | 12 | (| .6 2. | 7 9 | 0 | 13 | 13 |
| | | | | | | | | | | | | |
| | DA | R: SC TB | IDE, DI DIS- SO DLVED (M SG/L A | ICA, SUM S- CON LVED TUE IG/L D S SO | STI- D NTS, SO IS- (T LVED P | IDS, TO IS- AT LVED DE ONS S ER PE | SSIDUE OTAL 1 105 EG. C, EUS- ENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE P TOTAL (MG/L AS N) | GEN, 102+NO3 A TOTAL (MG/L | GEN, MMONIA OI TOTAL ! (MG/L | NITRO- GEN, RGANIC FOTAL (MG/L AS N) |
| ī. | OCT 19 31 DEC | | <0.10 2 | 9 | 141 15 | 9 | 28 | 1.18 | 0.020 | 1.20 | 0.070 | 0.23 |
| - | 20 FEB 19 | | | | | | <1 | 1.17 | 0.030 | 1.20 | 0.030 | |
| | 22 APR | | | | | | <1 | 0.970 | 0.030 | 1.00 | 0.020 | |
| | 16 | • | 0.20 2 | 6 | 167 3 | 4 | 17 | 1.03 | 0.070 | 1.10 | 0.170 | 0.33 |
| | 24 | • | | | | | 14 | 1.05 | 0.050 | 1.10 | 0.130 | 0.27 |
| | 20 | • | 0.10 2 | 3 | 142 2 | 5 | 38 | 1.04 | 0.060 | 1.10 | 0.070 | 0.53 |
| | K = no | n-ideal d | count | | | | | | | | | |

50025000 RIO GRANDE DE ARECIBO NEAR UTUADO, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 31 DEC | 0.30 | 1.5 | 6.6 | 0.060 | <1 | <100 | <10 | <1 | 2 | 30 |
| 20 FEB 1991 | <0.20 | | | 0.080 | | | | | | |
| 22 APR | <0.20 | | | 0.070 | | | | | | |
| 16 JUN | 0.50 | 1.6 | 7.1 | 0.170 | <1 | <100 | 10 | <1 | 3 | 20 |
| 24 | 0.40 | 1.5 | 6.6 | 0.140 | | | | | | |
| 20 | 0.60 | 1.7 | 7.5 | 0.240 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS EG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- BRABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS EG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- BRABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- BRABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- BRABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| OCT 1990 31 DEC 20 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS EG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- BRABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 31 DBC 20 FEB 1991 22 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS EG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.03 |
| OCT 1990 31 DEC 20 FEB 1991 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- BRABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS EG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.03 |
| OCT 1990 31 DEC 20 FRB 1991 22 APR 16 | TOTAL RECOV- ERABLE (UG/L AS FE) 1900 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS EG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- REABLE (UG/L AS AG) <1 | TOTAL RECOV- BRABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) <1 | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.03 |

50025155 RIO SALIENTE AT COABEY NEAR JAYUYA, PR

LOCATION.--Lat 18°12'48", long 66°33'49", Hydrologic Unit 21010002, 2.0 mi (3.2 km) southeast of Jayuya, 1.4 mi (2.2 km) northeast of Hacienda Gripiñas.

DRAINAGE AREA. -- 9.25 mi2 (23.96 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- October 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,706 ft (520 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 457 ft³/s (12.9 m³/s), Sept. 3, 1990, gage height, 7.58 ft (2.310 m) from rating curve extended above 200 ft³/s (5.66 m³/s) on basis of step-backwater analysis; minimum daily discharge, 2.4 ft³/s (0.068 m³/s), July 23, 1990.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 275 ft³/s (7.79 m³/s) and maximum (*):

| | | Disc | harge | Gage 1 | neight | | | Dis | charge | Gage | height |
|---------|------|---------|--------|--------|--------------|---------|------|---------|--------|-------|--------------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 16 | 1530 | 294 | 8.326 | 7.05 | 2.149 | Aug. 16 | 1430 | *307 | 8.694 | *7.10 | 2.164 |

Minimum daily discharge, 5.2 ft3/s (0.147 m3/s), Aug. 12, 13.

| | | DI S CHA | RGE, CUBI | C FRRT PR | | WATER YE Y MEAN VA | | R 1990 TO | SEPTEMBE | R 1991 | | |
|-------|--------------|-----------------|-----------|-----------|-------|-----------------------|-------|--------------|--------------|--------|-------|-------|
| DAY | OCT | NOV | DEC | JAN | FBB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 37 | e 55 | 24 | 35 | 9.2 | 7.9 | 10 | 13 | e9.5 | 23 | 15 | 29 |
| 2 | 46 | e 55 | 24 | 22 | 8.4 | 7.6 | 11 | 16 | e11 | 18 | 9.7 | 39 |
| 3 | 47 | e 50 | 39 | 19 | 9.8 | 7.3 | 15 | 14 | e11 | 11 | 9.0 | 25 |
| 4 | 35 | e 60 | 35 | 17 | 28 | 7.6 | 38 | 31 | e10 | 10 | 8.6 | 20 |
| 5 | 29 | e 60 | 27 | 15 | 20 | 7.8 | 44 | 29 | e 9.0 | 8.5 | 8.4 | 18 |
| 6 | 25 | 50 | 23 | 15 | 19 | 7.7 | 18 | 16 | 9.2 | 7.6 | 8.0 | 16 |
| 7 | 22 | 41 | 21 | 15 | 15 | 7.4 | 17 | e9.0 | 8.9 | 9.0 | 7.2 | 17 |
| 8 | 22 | 35 | 20 | 14 | 10 | 6.9 | 14 | e8.5 | 8.4 | 18 | 6.8 | 16 |
| 9 | 46 | 32 | 18 | 14 | 8.8 | 6.8 | 14 | e8. 0 | 7.8 | 24 | 6.6 | 13 |
| 10 | e 90 | 29 | 18 | 13 | 16 | 6.4 | 12 | e8. 0 | 7.7 | 14 | 6.0 | 13 |
| 11 | e70 | 27 | 17 | 13 | 17 | 7.1 | 12 | e 7.0 | 7.3 | 11 | 5.8 | 12 |
| 12 | e55 | 26 | 17 | 12 | 15 | 7.7 | 12 | e4 0 | 10 | 9.4 | 5.2 | 13 |
| 13 | e 100 | 23 | 16 | 12 | 25 | 6.6 | 15 | e35 | 8.9 | 8.4 | 5.2 | 11 |
| 14 | e 70 | 22 | 15 | 12 | 16 | 6.6 | 12 | e2 0 | 8.8 | 7.8 | 16 | 8.9 |
| 15 | €70 | 20 | 23 | 11 | 12 | 6.2 | 16 | e15 | 10 | 9.7 | 14 | 8.4 |
| 16 | e100 | 21 | 33 | 11 | 13 | 5.9 | 14 | e18 | 7.1 | 36 | 30 | 8.6 |
| 17 | e 90 | 20 | 16 | 11 | 15 | 5.5 | 11 | e10 | 6.3 | 29 | 31 | 11 |
| 18 | e 85 | 20 | 15 | 10 | 11 | 7.7 | 10 | e 9.5 | 11 | 27 | 16 | 9.0 |
| 19 | e 100 | 47 | 14 | 9.8 | 14 | 6.6 | 9.8 | e 9.0 | 17 | 25 | 12 | 9.2 |
| 20 | ●80 | 66 | 13 | 9.7 | 11 | 6.0 | 9.5 | e2 5 | 17 | 19 | 19 | 15 |
| 21 | e115 | 62 | 12 | 9.4 | 10 | 8.0 | 9.8 | e15 | 14 | 15 | 24 | 13 |
| 22 | e110 | 71 | 12 | 9.0 | 9.2 | 31 | 9.1 | e12 | 15 | 14 | 41 | 9.5 |
| 23 | e 90 | 67 | 11 | 9.1 | 8.6 | 20 | 8.5 | e11 | 11 | 13 | 41 | 9.1 |
| 24 | e75 | 57 | 11 | 9.1 | 8.2 | 11 | 8.0 | e10 | 9.2 | 13 | 31 | 7.7 |
| 25 | e105 | 40 | 10 | 8.7 | 8.3 | 8.5 | 8.3 | e 10 | 8.2 | 13 | 28 | 7.5 |
| 26 | e 95 | 35 | 9.7 | 8.6 | 8.2 | 75 | 8.2 | e10 | 7.4 | 12 | 22 | 7.6 |
| 27 | e 95 | 32 | 9.7 | 8.3 | 7.8 | 51 | 7.5 | e10 | 7.5 | 13 | 26 | 14 |
| 28 | €80 | 28 | 9.1 | 8.0 | 7.7 | 21 | 7.1 | e 9.0 | 7.6 | 17 | 36 | 23 |
| 29 | e75 | 25 | 9.0 | 8.0 | | 15 | 6.6 | e 9.5 | 7.1 | 15 | 31 | 18 |
| 30 | e65 | 25 | 9.9 | 7.6 | | 12 | 13 | e9.5 | 20 | 11 | 21 | 11 |
| 31 | e 60 | | 24 | 7.8 | | 11 | | e 9.5 | | 13 | 18 | |
| TOTAL | 2184 | 1201 | 555.4 | 384.1 | 361.2 | 402.8 | 400.4 | 456.5 | 302.9 | 474.4 | 558.5 | 432.5 |
| MBAN | 70.5 | 40.0 | 17.9 | 12.4 | 12.9 | 13.0 | 13.3 | 14.7 | 10.1 | 15.3 | 18.0 | 14.4 |
| MAX | 115 | 71 | 39 | _35 | _28 | _75 | 44 | _40 | 20 | _36 | 41 | _39 |
| MIN | 22 | 20 | 9.0 | 7.6 | 7.7 | 5.5 | 6.6 | 7.0 | 6.3 | 7.6 | 5.2 | 7.5 |
| AC-FT | 4330 | 2380 | 1100 | 762 | 716 | 799 | 794 | 905 | 601 | 941 | 1110 | 858 |
| CFSM | 7.62 | 4.33 | 1.94 | 1.34 | 1.39 | 1.40 | 1.44 | 1.59 | 1.09 | 1.65 | 1.95 | 1.56 |
| IN. | 8.78 | 4.83 | 2.23 | 1.54 | 1.45 | 1.62 | 1.61 | 1.84 | 1.22 | 1.91 | 2.25 | 1.74 |

CAL YR 1990 TOTAL 7344.0 MEAN 20.1 MAX 115 MIN 2.4 AC-FT 14570 CFSM 2.18 IN. 29.53 WTR YR 1991 TOTAL 7713.7 MEAN 21.1 MAX 115 MIN 5.2 AC-FT 15300 CFSM 2.28 IN. 31.02

e Estimated

50026050 RIO CAONILLAS ABOVE LAGO CAONILLAS NEAR JAYUYA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°13'26", long 66°38'22", 300 ft (91 m) off Highway 531, 700 ft (213 m) upstream from Lago Caonillas, 3.3 mi (5.3 km) northwest of Jayuya plaza.

DRAINAGE AREA .-- 40.4 mi2 (104.6 km2).

PERIOD OF RECORD .-- Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | | IK GOMMIII | DAIN, W | IIDK IBAK | OCTOBE | MA 1990 1 | O DEFIE | Dan 1 | | | |
|------------------|----------------|-------------------|----------------|-----------------|------------------|--------------|----------------|----------------|-------------|-------------------|----------------|------------------|
| | | DIS- CHARGE, | SPE- | | | | | | GEN, IS- | OXYGEN DEMAND, | COLI- FORM, | STREP- |
| | | Inst. | CIFIC | | | | | SO | LVED | CHEM- | FECAL, | TOCOCCI |
| | | CUBIC FEET | CON- DUCT- | PH (STAND- | TEMPER- ATURE | TUR BII | | | er- ent | ICAL (HIGH | 0.45 UM-MF | FECAL, (COLS. |
| DATE | TIME | PER | ANCE | ARD | WATER | ITY | | | TUR- | TEART) | (COLS./ | PER |
| | | SECOND | (US/CM) | UNITS) | (DEG C) | (NTU | J) (MG | I/L) AT | ION) | (MG/L) | 100 ML) | 100 ML) |
| OCT 1990 | | | | | | | | | | | | |
| 23 | 1230 | 281 | 154 | 8.0 | 23.5 | 7. | .0 8 | 3.5 | 102 | 12 | 400 | 350 |
| JAN 1991 09 | 1155 | 41 | 250 | 7.1 | 23.0 | 1. | 3 | . 0 | 105 | <10 | 210 | 20 |
| FEB | | _ | | | | | | | | | | |
| 25 APR | 1030 | 29 | 229 | 8.1 | 23.0 | 1. | .0 8 | 8.5 | 100 | 12 | K33 | K19 |
| 11 JUN | 0830 | 33 | 216 | 7.6 | 21.0 | 1. | .0 8 | . 8 | 99 | 10 | 100 | 110 |
| 21 AUG | 0915 | 34 | 174 | 7.8 | 23.5 | 26 | 8 | 1.1 | 96 | 15 | K600 | K1000 |
| 19 | 1110 | 41 | 158 | 7.9 | 25.5 | 0. | 40 7 | . 9 | 97 | <10 | K290 | 210 |
| | | | | | | | | | | | | |
| | HARD- | HARD- NESS | | MAGNE- | | SODI | mi nom | | KA- ITY | | | CHLO- |
| | ness | NONCARB | CALCIUM | SIUM, | SODIUM, | λI | | | WH | | SULFATE | RIDE, |
| | TOTAL (MG/L | WH WAT TOT FLD | DIS- SOLVED | DIS- SOLVED | DIS- | SORE | | | PET | SULFIDE | DIS- SOLVED | Solved Dis- |
| DATE | AS | MG/L AS | (MG/L | SOLVED (MG/L | Solved (MG/L | TIC RATI | | | LAS | (MG/L | SOLVED (MG/L | (MG/L |
| | CACO3) | CACO3 | AS CA) | AS MG) | AS NA) | | λS | K) CA | CO3 | AS S) | AS SO4) | AS CL) |
| OCT 1990 | | | | | | | | | | | | |
| 23 | 54 | 0 | 14 | 4.6 | 8.5 | 0 |).5 1 | L.3 | 49 | <0.5 | 11 | 9.6 |
| JAN 1991 09 | | | | | | | | · - | 75 | | | |
| FEB 25 APR | | | | | | | | · - | 79 | | | |
| 11 JUN | 79 | 0 | 21 | 6.5 | 12 | C | 0.6 1 | 1.3 | 68 | <0.5 | 14 | 13 |
| 21 | | | | | | | | | 56 | | | |
| AUG 19 | 89 | 0 | 21 | 6.6 | 12 | C |).5 1 | L. 4 | 59 | | 13 | 10 |
| | | | | | | | | | | | | |
| | | | | IDS, | | SIDUR | | | | | | |
| | | | | | | የአL 105 | NITRO- GEN, | NITRO- GEN, | | | | TRO- EN, |
| | D | IS- SC | LVED TUE | NTS, SC | DEC DEC | 3. C, | NITRATE | NITRITE | NO2 | +NO3 AMM | ONIA ORG | ANIC |
| na. | | | | | | JS – NDRD | TOTAL (MG/L | TOTAL (MG/L | | | | TAL IG/L |
| | | | | | | 6G/L) | AS N) | AS N) | | | | N) |
| 0СТ 19 | | | | | | | | | | | | |
| 23 | | 0.10 2 | 4 | 102 7 | 17.7 | 5 | 1.09 | 0.010 | 1 | .10 0 | .020 | |
| JAN 19 | | | | | | _ | | | | | | |
| 09 FEB | • | | | | | 8 | 0.490 | 0.010 | 0 | .500 0 | .020 | 0.38 |
| 25 | • | | | | | <1 | 0.390 | <0.010 | 0 | .400 0 | .020 | 0.28 |
| APR 11 | | :0.10 2 | 13 | 132 | 11.6 | 1 | | <0.010 | 0 | .460 <0 | .010 | |
| JUN 21 | • | | | | | 27 | 0.690 | 0.020 | 0 | .710 0 | . 080 | 0.32 |
| AUG 19 | | .0 10 - | 10 | 130 1 | | 15 | | -0.050 | | EEA ^ | | |
| 13 | • | :0.10 2 | | 130 | 14.4 | 15 | | <0.010 | , 0 | .550 0 | . 020 | |

K = non-ideal count

RIO GRANDE DE ARECIBO BASIN
50026050 RIO CAONILLAS ABOVE LAGO CAONILLAS NEAR JAYUYA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- HRABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|---|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 23 | <0.20 | | | 0.040 | <1 | <100 | <10 | <1 | 2 | 20 |
| JAN 1991 09 | 0.40 | 0.90 | 4.0 | 0.050 | | | | | | |
| FEB | 0.40 | 0.30 | 4.0 | 0.050 | | | | | | |
| 25 APR | 0.30 | 0.70 | 3.1 | 0.060 | | | | | | |
| 11 | <0.20 | | | 0.070 | <1 | <100 | 30 | <1 | <1 | 10 |
| JUN | | | | | _ | _ | | | | |
| 21 | 0.40 | 1.1 | 4.9 | 0.130 | | | | | | |
| 19 | <0.20 | | | 0.090 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 23 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 23 JAN 1991 09 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 23 JAN 1991 09 FEB 25 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 23 JAN 1991 09 FEB 25 APR 11 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 23 JAN 1991 09 FRB 25 APR 11 JUN | TOTAL RECOV- ERABLE (UG/L AS FE) 820 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS EG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- RRABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.04 |
| OCT 1990 23 JAN 1991 09 FEB 25 APR 11 | TOTAL RECOV- ERABLE (UG/L AS FE) 820 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS EG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- RRABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) 4 <1 | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.04 |

50026140 LAGO CAONILLAS AT CAONILLAS, PR

LOCATION.--Lat 18°16'43", long 66°39'43", Hydrologic Unit 21010001, at Lago Caonillas Dam on Río Caonillas, 2.92 mi (4.7 km) northeast of Plaza de Utuado, 0.34 mi (0.55 km) west from Iglesia Santa María del Monte Carmelo, and 1.85 mi (3.0 km) nothwest from Hacienda Carbonell.

DRAINAGE AREA. -- 48.4 mi 2 (125.4 km2).

ELEVATION RECORDS

PERIOD OF RECORD. -- March to September 1991.

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

REMARKS.--Lago Caonillas was completed in 1948. The dam is a concrete gravity structure with a total length of 815 ft (248 m), a maximum height of 235 ft (72 m), and a maximum base width of 195 ft (59 m). Nonoverflow sections on each abutment have a total length of 603 ft (184 m). The dam is the main unit of Caonillas Hidroelectric Project, and provides 49,000 acre-feet (60 hm²) of usable storage for power generation at Caonillas Powerplant No. 1 located 2.5 mi (4.0 km) downstream from the dam. The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR CURRENT PERIOD.--Maximum elevation 806.42 ft (245.80 m), Mar. 13; minimum elevation, less than 771.00 ft (235.00 m), many days.

Capacity Table (based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 705 | 0 | 800 | 27,982 |
| 750 | 8,421 | 830 | 46,161 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | Jan | PEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|--------|-----|-----|-----|-----|-----|--------|----------|--------|----------|----------|----------|-----------------|
| 1 | | | | | | | 797.44 | 772.31 | 778.24 | 777.37 | 780.83 | 781.25 |
| 2 | | | | | | | 796.77 | В | 777.97 | 777.69 | 780.41 | 781.80 |
| 3 4 | | | | | | | 795.08 | В | 777.36 | 777.77 | 780.54 | 781.05 |
| 4 | | | | | | | 794.33 | В | 776.87 | 777.98 | 780.43 | 780.85 |
| 5 | | | | | | | 795.15 | 771.14 | 776.54 | 778.12 | 780.60 | 781.05 |
| 6 | | | | | | 805.80 | 794.60 | В | 775.91 | 778.22 | 779.90 | 781.22 |
| 7 | | | | | | 805.86 | 794.64 | В | 775.26 | 778.24 | 779.03 | 781.61 |
| 8 | | | | | | 805.93 | 793.63 | В | 774.65 | 779.15 | 778.29 | 781.84 |
| 9 | | | | | | 805.99 | 792.44 | В | 774.49 | 780.06 | 778.29 | 781.57 |
| 10 | | | | | | 806.07 | 791.13 | В | 773.22 | 780.31 | 778.02 | 781.44 |
| 11 | | | | | | 806.19 | 789.89 | В | 773.20 | 780.50 | 777.66 | 781.57 |
| 12 | | | | | | 806.25 | 789.13 | 772.27 | 773.26 | 780.62 | 777.35 | 780.26 |
| 13 | | | | | | 806.33 | 788.28 | 772.95 | 773.02 | 780.71 | 777.29 | 778.74 |
| 14 | | | | | | 806.25 | 788.07 | В | 772.98 | 780.78 | 777.81 | 779.17 |
| 15 | | | | | | 805.07 | 786.88 | В | 773.12 | 780.87 | 778.08 | 778.93 |
| 16 | | | | | | 804.32 | 785.41 | В | 773.17 | 783.88 | 779.33 | 779.18 |
| 17 | | | | | | 804.31 | 783.84 | В | 772.86 | 784.39 | 779.85 | 779.09 |
| 18 | | | | | | 803.72 | 782.58 | В | 773.01 | 784.73 | 779.62 | 779.40 |
| 19 | | | | | | 802.97 | 781.06 | В | 773.38 | 784.48 | 779.13 | 778.07 |
| 20 | | | | | | 802.13 | 780.51 | В | 773.29 | 784.71 | 779.53 | 778.98 |
| 21 | | | | | | 801.16 | 779.22 | В | 773.89 | 784.51 | 780.11 | 777. 9 7 |
| 22 | | | | | | 801.00 | 777.58 | В | 774.21 | 783.22 | 780.92 | 778.29 |
| 23 | | | | | | 800.18 | 776.35 | 781.19 | 774.32 | 783.34 | 781.44 | 777.93 |
| 24 | | | | | | 800.23 | 775.44 | 781.53 | 774.40 | 783.47 | 781.68 | 775.89 |
| 25 | | | | | | 799.67 | 776.26 | 781.75 | 774.44 | 783.59 | 781.97 | 776.26 |
| 26 | | | | | | 800.13 | 775.95 | 781.87 | 774.44 | 783.51 | 781.33 | 776.46 |
| 27 | | | | | | 800.72 | 775.05 | 781.64 | 774.48 | 783.44 | 781.31 | 778.05 |
| 28 | | | | | | 800.13 | 774.58 | 780.87 | 774.64 | 783.28 | 780.88 | 779.10 |
| 29 | | | | | | 800.01 | 774.27 | 780.34 | 774.73 | 781.90 | 780.41 | 779.63 |
| 30 | | | | | | 799.27 | 773.57 | 779.24 | 776.74 | 781.15 | 779.38 | 779.95 |
| 31 | | | | | | 798.58 | | 778.36 | | 781.12 | 779.06 | |
| TOTAL | | | | | | | 23559.13 | | 23238.09 | 24223.11 | 24170.48 | 23386.60 |
| MBYN | | | | | | | 785.30 | | 774.60 | 781.39 | 779.69 | 779.55 |
| MAX | | | | | | | 797.44 | | 778.24 | 784.73 | 781.97 | 781.84 |
| MIN | | | | | | | 773.57 | | 772.86 | 777.37 | 777.29 | 775.89 |

B Stage below elevation 771.00 ft.

50027250 RIO GRANDE DE ARECIBO BELOW LAGO DOS BOCAS NEAR FLORIDA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'50", long 66°40'02", at pedestrian bridge, 0.7 mi (1.1 km) downstream from Lago Dos Bocas and 6.6 mi (10.6 km) west of Florida plaza.

DRAINAGE AREA.--169 mi² (436 km²) does not include 6.0 mi² (15.6 km²) above Lago Garsas.

PERIOD OF RECORD. -- Water years 1970-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEBT PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|--|---|---|--|---|---|--|---|---|---|---|
| OCT 1990 19 | 1315 | 1860 | 165 | 7.7 | 25.0 | 170 | 7.7 | 92 | 32 | K7100 | 11000 |
| DEC 20 | 0820 | 31 | 201 | 7.2 | 23.5 | 3.5 | 4.7 | 55 | 11 | K20 | K140 |
| FEB 1991 15 | 0900 | 29 | 227 | 7.5 | 23.5 | 4.0 | 6.5 | 75 | <10 | K4 9 | 130 |
| APR 16 | 1045 | 1490 | 210 | 7.2 | | | | 47 | 16 | 2400 | K40 |
| JUN | | | | | 25.0 | 3.0 | 4.0 | | | | |
| AUG | 1020 | 20 | 209 | 7.5 | 27.5 | 2.1 | 6.1 | 76 | 19 | K60 | 44 |
| 20 | 1020 | 19 | 221 | 7.6 | 28.0 | 23 | 5.2 | 65 | 13 | 100 | K23 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3 | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | FOTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS 8) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 | _ | | | | | | | | | | |
| 19 | 6 | 0 0 | 17 | 4.3 | 9.7 | 0.5 | 2.7 | 56 | <0.5 | 13 | 12 |
| 20 FEB 1991 | | | | | | | | 76 | | | |
| 15 APR | | | | | | | | 75 | | | |
| 16 Jun | 7 | 5 0 | 20 | 6.1 | 10 | 0.5 | 2.2 | 67 | <0.5 | 12 | 11 |
| 24 AUG | | | | | | | | 72 | | | |
| 20 | 8 | 0 0 | 25 | 6.5 | 9.4 | 0.5 | 2.8 | 75 | | 13 | 10 |
| | DATE | RIDE, D DIS- S SOLVED ((MG/L AS F) S | OLVED TUE MG/L D AS SO | OF SOI BTI- I NTS, SO IS- (T LVED E | LIDS, TOT. OLVED DEG ONS SU PER PEN OAY) (M | 105 . C, NI 8- 'I DED (| GEN, (TRATE NIT TOTAL TO (MG/L () AS N) A | GEN, G FRITE NO2 OTAL TO MG/L (M S N) AS | EN, G +NO3 AMM TAL TO IG/L (M | RN, G ONIA ORG TAL TO G/L (M | TRO- EN, ANIC TAL G/L N) |
| DEC | D | | | | | _ | | | | | 0.25 |
| PEB | 1991 5 | | | | | <1 | | | | | |
| APR | | | | | | 13 | _ | _ | | | 0.47 |
| JUN | 6 1 | | 20 | 122 48 | | 4 | | | | | 0.42 |
| AUG | | | | - - | | 3 | | | | | 0.18 |
| | D | | 20 | 130 | 6.70 | 1 | 0.180 | 0.020 0 | .200 0 | . 060 | 0.34 |
| K = | non-ideal | count | | | | | | | | | |

RIO GRANDE DE ARECIBO BASIN

50027250 RIO GRANDE DE ARECIBO BELOW LAGO DOS BOCAS NEAR FLORIDA, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- NIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|---|
| OCT 1990 | | | | | | | | | | |
| 19 DRC | 0.50 | 1.4 | 6.2 | 0.160 | <1 | <100 | <10 | <1 | 6 | 60 |
| 20 | 0.30 | 0.90 | 4.0 | 0.040 | | | | | | |
| FEB 1991 15 | 0.50 | 1.1 | 4.9 | 0.020 | | | | | | |
| APR | | | | | _ | | | _ | _ | |
| 16 Jun | 0.50 | 0.76 | 3.4 | 0.020 | <1 | <100 | 30 | <1 | 1 | 10 |
| 24 | 0.30 | 0.62 | 2.7 | 0.030 | | | | | | |
| AUG 20 | 0.40 | 0.60 | 2.7 | 0.020 | | | | | | |
| | | | manga- | | | 477.1500 | ZINC, | | | METHY- LENE |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | BLUE ACTIVE SUB- STANCE |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 DEC 20 FEB 1991 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) 15 | TOTAL RECOV- ERABLE (UG/L AS MN) 220 | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) 30 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) <1 | BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 DEC 20 FEB 1991 15 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 DEC 20 FEB 1991 15 APR 16 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) 15 | TOTAL RECOV- ERABLE (UG/L AS MN) 220 | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) 30 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) <1 | BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 DEC 20 FEB 1991 15 | TOTAL RECOV- ERABLE (UG/L AS FE) 8400 | TOTAL RECOV- ERABLE (UQ/L AS PB) | TOTAL RECOV- ERABLE (UG/L AS MN) 220 | TOTAL RECOV- ERABLE (UG/L AS HG) 0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) <1 | BLUE ACTIVE SUB- STANCE (MG/L) <0.01 |

50027750 RIO GRANDE DE ARECIBO ABOVE ARECIBO, PR

LOCATION.--Lat 18°25'22", long 66°41'58", Hydrologic Unit 21010002, 0.5 mi (0.8 km) upstream from Río Tanamá, 3.6 mi (5.8 km) south of Arecibo and 4.9 mi (7.9 km) above mouth, and 10.4 mi (16.7 km) downstream from Lago Dos Bocas.

DRAINAGE AREA. -- 200 mi² (520 km²), approximately, of which an undetermined amount does not contribute directly to surface runoff.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 30 ft (9 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Lago Dos Bocas Dam 10.4 mi (16.7 km) upstream from gage. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--9 years (1983-91), 430 ft³/s (12.18 m²/s), 29.20 in/yr (742 mm/yr), 311,500 acre-ft/yr (384 hm²/yr).

EXTREMES FOR PERIOD OF RECORD. --Maximum discharge, 45,800 ft³/s (1,300 m³/s), May 18, 1985, gage height, 18.22 ft (5.553 m), from floodmark, from rating curve extended above 2,400 ft³/s (68.0 m³/s) on basis of slope-area measurement of peak flow; minimum discharge, 30 ft³/s (0.850 m³/s), Mar. 30, 1986.

EXTREMES FOR CURRENT YEAR .-- Peak discharges greater than base discharge of 4,300 ft³/s (122 m³/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | | harge | Gage h | eight | | | | charge | Gage | height |
|---------|------|----------------------|---------------------|--------|-------|------|------|---------|--------|------|--------|
| Date | Time | (ft ³ /s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 17 | 2345 | *4,100 | 116 | *9.27 | 2.825 | | | | | | |

Minimum daily discharge, 43 ft³/s (1.218 m³/s), June 25.

| | | 010012 | INGE, CODI | C FABI FA | | Y MEAN VA | | 1330 10 | GHILIMDE | IK 1331 | | |
|-------|-------|--------|--------------|--------------|-------|-------------|-------|---------|----------|---------|-------|-------|
| DAY | OCT | MOA | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
| 1 | 758 | 838 | 133 | e140 | 91 | 64 | 711 | 438 | 98 | 244 | 325 | 173 |
| 2 | 586 | 750 | 194 | e4 50 | 76 | 273 | 247 | 454 | 148 | 406 | 318 | 160 |
| 3 | 612 | 807 | 532 | e130 | 109 | 93 | 163 | 496 | 180 | 244 | 90 | 527 |
| 4 | 662 | 470 | 508 | e100 | 196 | 166 | 685 | 395 | 464 | 110 | 218 | 600 |
| 5 | 631 | 718 | 97 | ●80 | 99 | 387 | 333 | 553 | 552 | 303 | 482 | 449 |
| 6 | 233 | 693 | 369 | e74 | 69 | 320 | 199 | 394 | 579 | 523 | 536 | 401 |
| 7 | 82 | 713 | e 383 | ●70 | 195 | 139 | 240 | 457 | 323 | 243 | 411 | 99 |
| 8 | 632 | 669 | e474 | 511 | 433 | 368 | 354 | 535 | 77 | 644 | 465 | 153 |
| 9 | 286 | 583 | e659 | 96 | 263 | 185 | 487 | 473 | 52 | 426 | 107 | 563 |
| 10 | 1350 | 462 | e240 | 283 | 164 | 122 | 522 | 743 | 500 | 500 | 60 | 424 |
| 11 | 782 | 573 | 544 | 345 | 544 | 140 | 652 | 1030 | 119 | 587 | 52 | 326 |
| 12 | 626 | 609 | 576 | 534 | 618 | 78 | 542 | 291 | 71 | 375 | 212 | 509 |
| 13 | 513 | 672 | 643 | 222 | 259 | e63 | 109 | 531 | 154 | 101 | 102 | 468 |
| 14 | 573 | 600 | 652 | 213 | 246 | e147 | 168 | 426 | 166 | 224 | 64 | 100 |
| 15 | 808 | 661 | 259 | 112 | 83 | e143 | 564 | 444 | 108 | 126 | 116 | 482 |
| 16 | 1070 | 708 | 67 | 71 | 249 | ⊕ 70 | 768 | 767 | 63 | 328 | 99 | 424 |
| 17 | 1630 | 602 | 83 | 95 | 494 | 189 | 676 | 201 | 162 | 299 | 61 | 247 |
| 18 | 2010 | 327 | 151 | 237 | 259 | 65 | 135 | 515 | 71 | 87 | 58 | 184 |
| 19 | 1910 | 169 | 233 | 326 | 362 | 269 | 82 | 237 | 60 | 433 | 449 | 399 |
| 20 | 1060 | 149 | 202 | 422 | 240 | 107 | 148 | 237 | 415 | 133 | 76 | 203 |
| 21 | 1260 | 190 | 319 | 473 | 157 | 131 | 252 | 763 | 94 | 188 | 81 | 503 |
| 22 | 1170 | 80 | 157 | 568 | 110 | 240 | 612 | 507 | 49 | 724 | 491 | 209 |
| 23 | 930 | 79 | 370 | 220 | 120 | 320 | 314 | 465 | 48 | 262 | 495 | 289 |
| 24 | 1010 | 136 | 169 | 78 | 160 | 241 | 215 | 105 | 56 | 72 | 157 | 404 |
| 25 | 1090 | 90 | 122 | 361 | 67 | 391 | 190 | 107 | 43 | 57 | 183 | 512 |
| 26 | 1310 | 620 | 60 | 151 | 275 | 373 | 279 | 60 | 212 | 275 | 550 | 300 |
| 27 | 1580 | 462 | 233 | 156 | 408 | 485 | 479 | 53 | 418 | 179 | 556 | 305 |
| 28 | 1470 | 413 | e 100 | 221 | 144 | 501 | 173 | 614 | 488 | 276 | 539 | 97 |
| 29 | 1280 | 579 | e94 | 199 | | 248 | 346 | 360 | 104 | 711 | 559 | 54 |
| 30 | 1210 | 413 | e210 | 387 | | 447 | 291 | 438 | 59 | 580 | 510 | 173 |
| 31 | 1090 | | e22 0 | 186 | | 534 | | 552 | | 404 | 414 | |
| TOTAL | 30214 | 14835 | 9053 | 7511 | 6490 | 7299 | 10936 | 13641 | 5933 | 10064 | 8836 | 9737 |
| MEYN | 975 | 494 | 292 | 242 | 232 | 235 | 365 | 440 | 198 | 325 | 285 | 325 |
| MAX | 2010 | 838 | 659 | 568 | 618 | 534 | 768 | 1030 | 579 | 724 | 559 | 600 |
| MIN | 82 | 79 | 60 | 70 | 67 | 63 | 82 | 53 | 43 | 57 | 52 | 54 |
| AC-FT | 59930 | 29430 | 17960 | 14900 | 12870 | 14480 | 21690 | 27060 | 11770 | 19960 | 17530 | 19310 |
| CFSM | 6.96 | 3.53 | 2.09 | 1.73 | 1.66 | 1.68 | 2.60 | 3.14 | 1.41 | 2.32 | 2.04 | 2.32 |
| IN. | 8.03 | 3.94 | 2.41 | 2.00 | 1.72 | 1.94 | 2.91 | 3.62 | 1.58 | 2.67 | 2.35 | 2.59 |

CAL YR 1990 TOTAL 115242 MEAN 316 MAX 2010 MIN 38 AC-FT 228600 CFSM 2.26 IN. 30.62 WTR YR 1991 TOTAL 134549 MEAN 369 MAX 2010 MIN 43 AC-FT 266900 CFSM 2.63 IN. 35.75

e Estimated

50027750 RIO GRANDE DE ARECIBO ABOVE ARECIBO, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS APRIL 1982 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|---------|------|---------------------------------------|--------------------------------------|-----------------------------|---------|------|---------------------------------------|--------------------------------------|-----------------------------|
| APR. 22 | 1125 | 121 | 230 | 26.0 | AUG. 16 | 0930 | 92 | 242 | 22.5 |
| JUN. 25 | 1145 | 43 | 273 | 28.0 | | | | | |

50028000 RIO TANAMA NEAR UTUADO, PR

LOCATION.--Lat 18°18'02", long 66°46'58", Hydrologic Unit 21010001, on downstream side of left abutment of bridge on Highway 111, 1.2 mi (1.9 km) upstream from natural tunnel, 1.5 mi (2.4 km) northeast of Angeles, and 5.8 mi (9.3 km) northwest of Utuado.

DRAINAGE AREA. -- 18.4 mi2 (47.7 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- June 1944 to June 1958 (daily stage and two to four measurements per month by Puerto Rico Water Resources Authority), November 1959 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 938.32 ft (286.000 m) above mean sea level.

Datum of gage was lowered 3.00 ft (0.914 m) on Oct. 1978. Prior to Nov. 17, 1966, non-recording gage and

Nov. 17, 1966 to Sept. 30, 1978 recording gage, both at present site.

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

AVERAGE DISCHARGE.--31 years (1961-91), 48.1 ft 3 /s (1.362 m^2 /s), 35.50 in/yr (902 mm/yr), 34,850 acre-ft/yr (43.0 hm 3 /yr); median of yearly mean discharges, 48 ft 3 /s (1.36 m^3 /s), 34,800 acre-ft/yr (43 hm 3 /yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,190 ft³/s (345 m³/s), May 18, 1985, gage height, 17.45 ft (5.319 m) new datum in use, from floodmark and recorder, from rating curve extended above 500 ft³/s (14.2 m³/s) on basis of slope-area measurement of peak flow; minimum discharge, 6.6 ft³/s (0.187 m²/s), June 12, 1977.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 3,000 ft3/s (85.0 m3/s) and maximum (*):

| | | Discha | irge | Gage h | eight | | | Disch | arge | Gage h | eight | |
|--------|------|---------|---------------------|--------|--------------|--------|------|---------|--------|--------|-------|--|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | |
| Oct. 1 | 1600 | *10,270 | 291 | *16.74 | 5.102 | May 10 | 1715 | 3,280 | 92.9 | 12.20 | 3.718 | |
| Mass E | 1745 | 2 100 | 00.3 | 40 00 | 2 600 | | | | | | | |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum daily discharge, 11 ft³/s (0.312 m³/s), Mar. 15-17.

| | | | | | DAIL | MRAN VA | LUES | | | | | |
|-------|------|------|---------------|------|------|---------|-------------|-------------|------|-------------|-------------|-------------|
| DAY | OCT | MOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 534 | 78 | 40 | 30 | 21 | 18 | 13 | 32 | 36 | 40 | 70 | 145 |
| 2 | 186 | 74 | 39 | 27 | 19 | 17 | 28 | 78 | 35 | 32 | 39 | e 70 |
| 3 | 136 | 70 | 47 | 25 | 25 | 16 | 35 | 34 | 33 | 31 | 42 | 55 |
| 4 | 123 | 70 | 40 | 25 | 33 | 16 | 75 | 69 | 31 | 32 | 45 | e4 9 |
| 5 | 113 | 96 | 37 | 24 | 97 | 16 | 63 | 338 | 31 | 28 | 144 | e4 5 |
| 6 | 97 | 71 | 36 | 24 | 47 | 15 | 23 | e 93 | 30 | 26 | 75 | 44 |
| 7 | 184 | 68 | 34 | 24 | 25 | 15 | 19 | 46 | 29 | 124 | 52 | 51 |
| 8 | 97 | 61 | 34 | 23 | 21 | 15 | 18 | 38 | 28 | 194 | 47 | 45 |
| 9 | 108 | 58 | 34 | 23 | 20 | 14 | 18 | 105 | 27 | 63 | 44 | 41 |
| 10 | 89 | 55 | 32 | 23 | 36 | 13 | 16 | 285 | 26 | 41 | 41 | 44 |
| 11 | 74 | 71 | 33 | 22 | 34 | 14 | 18 | 166 | 25 | e37 | 39 | 44 |
| 12 | 68 | 63 | 31 | 22 | 28 | 13 | 22 | 124 | 25 | e35 | 54 | 61 |
| 13 | 91 | 59 | 32 | 22 | 39 | 12 | 19 | 122 | 25 | e 39 | 40 | 47 |
| 14 | 173 | 56 | 34 | 21 | 25 | 12 | 16 | 83 | 33 | 42 | 70 | 40 |
| 15 | 190 | 54 | 31 | 21 | 22 | 11 | 59 | 65 | 38 | 49 | 49 | 41 |
| 16 | 157 | 54 | 30 | 20 | 21 | 11 | 36 | 55 | 31 | 102 | 61 | 56 |
| 17 | 119 | 52 | 30 | 20 | 20 | 11 | 19 | 51 | 59 | 157 | 46 | 51 |
| 18 | 170 | 50 | 29 | 19 | 22 | 14 | 18 | 57 | 81 | 85 | e3 9 | 41 |
| 19 | 170 | 50 | 28 | 19 | 29 | 12 | 16 | 50 | 39 | e51 | 37 | 40 |
| 20 | 116 | 59 | 28 | 19 | 25 | 12 | 16 | 96 | 46 | 39 | 39 | 73 |
| 21 | 201 | 56 | 28 | 18 | 21 | 14 | 15 | 54 | 40 | 36 | 87 | 98 |
| 22 | 127 | 65 | 30 | 18 | 19 | 27 | 15 | 45 | 36 | 36 | 97 | 58 |
| 23 | 111 | 49 | 28 | 18 | 18 | 19 | 14 | 42 | 31 | 37 | 57 | 46 |
| 24 | 105 | 52 | 28 | 18 | 17 | 13 | 14 | 41 | 29 | 34 | 40 | 42 |
| 25 | 166 | 52 | 27 | 18 | 17 | 13 | 216 | 42 | 27 | 33 | 50 | 43 |
| 26 | 149 | 48 | 26 | 18 | 17 | 65 | e4 5 | 40 | 26 | 33 | 43 | 39 |
| 27 | 114 | 45 | 26 | 18 | 17 | 58 | e 26 | 39 | 27 | 32 | 88 | 70 |
| 28 | 103 | 43 | 25 | 18 | 18 | 19 | e19 | 38 | 57 | 48 | 59 | 52 |
| 29 | 94 | 41 | 25 | 18 | | 16 | 16 | 37 | 47 | 34 | 42 | 43 |
| 30 | 87 | 40 | 25 | 18 | | 14 | 16 | 37 | 95 | 31 | 37 | 39 |
| 31 | 82 | | 36 | 18 | | 13 | | 37 | | 55 | 54 | |
| TOTAL | 4334 | 1760 | 983 | 651 | 753 | 548 | 943 | 2439 | 1123 | 1656 | 1727 | 1613 |
| MEAN | 140 | 58.7 | 31.7 | 21.0 | 26.9 | 17.7 | 31.4 | 78.7 | 37.4 | 53.4 | 55.7 | 53.8 |
| MAX | 534 | 96 | 47 | 30 | 97 | 65 | 216 | 338 | 95 | 194 | 144 | 145 |
| MIN | 68 | 40 | 25 | 18 | 17 | 11 | 13 | 32 | 25 | 26 | 37 | 39 |
| AC-FT | 8600 | 3490 | 1950 | 1290 | 1490 | 1090 | 1870 | 4840 | 2230 | 3280 | 3430 | 3200 |
| CFSM | 7.60 | 3.19 | 1.72 | 1.14 | 1.46 | .96 | 1.71 | 4.28 | 2.03 | 2.90 | 3.03 | 2.92 |
| IN. | 8.76 | 3.56 | 1. 9 9 | 1.32 | 1.52 | 1.11 | 1.91 | 4.93 | 2.27 | 3.35 | 3.49 | 3.26 |

CAL YR 1990 TOTAL 16504 MEAN 45.2 MAX 534 MIN 11 AC-FT 32740 CFSM 2.46 IN. 33.37 WTR YR 1991 TOTAL 18530 MEAN 50.8 MAX 534 MIN 11 AC-FT 36750 CFSM 2.76 IN. 37.46

e Estimated

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1958 to current year.

PERIOD OF DAILY RECORD. --

SUSPENDED SEDIMENT DISCHARGE: January 1968 to current year.

INSTRUMENTATION. -- US D-49 Sediment sampler since October 1968. Automatic sediment sampler since 1990.

REMARKS.--sediment samples were collected by a local observer on a weekly basis and during high flow events.

Estimates for period of missing daily record were made from a sediment transport curve developed from a period of record over 5 years.

EXTREMES FOR PERIOD OF DAILY RECORD. --

SEDIMENT CONCENTRATIONS: Maximum daily mean, 20,400 mg/L November 27, 1968; minimum daily mean, 0 mg/L during water year 1985.
SEDIMENT LOADS: Maximum daily, 167,000 tons (152,000 tonnes) May 18, 1985, minimum daily, 0.0 ton (0.0 tonne) several days during many years.

EXTREMES FOR CURRENT YEAR .--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,310 mg/L October 17, 1989; minimum daily mean,

3.0 mg/L several days.

SEDIMENT LOADS: Maximum daily, 11,400 tons (10,400 tonnes) October 17, 1989; minimum daily, 0.14 ton (0.13 tonne) several days.

WATER-QUALITY DATA, WATER YEARS OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|--|---|---|---|--|--|---|---|---|---|---|---|
| OCT 1990 | | | | | | | | | | | |
| 11 DEC | 1130 | 75 | 151 | 7.8 | 23.0 | 7.9 | 8.5 | 101 | <10 | 480 | 240 |
| 26 | 0935 | 27 | 160 | 8.0 | 19.0 | 2.4 | 9.0 | 99 | | K70 | 210 |
| FEB 1991 19 APR | 1030 | 27 | 162 | 7.8 | 21.0 | 10 | 8.4 | 95 | 12 | 2000 | 4100 |
| 16 | 1715 | 25 | 133 | 7.4 | 24.0 | 93 | 7.7 | 93 | 31 | K12000 | K20000 |
| JUN 11 AUG | 1020 | 26 | 172 | 7.9 | 24.5 | 1.6 | 8.1 | 99 | 10 | 96 | 130 |
| 07 | 1200 | 52 | 209 | 7.8 | 24.0 | 9.0 | 8.4 | 100 | <10 | 270 | 330 |
| | | | | | | | | | | | |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT PET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| | ness Total (MG/L As | NESS NONCARB WH WAT TOT FLD MG/L AS | DIS- SOLVED (MG/L | SIUM, DIS- SOLVED (MG/L | DIS- SOLVED (MG/L | AD- SORP- TION | SIUM, DIS- SOLVED (MG/L | LINITY WAT WH TOT FET FIELD MG/L AS | TOTAL (MG/L | DIS- SOLVED (MG/L | RIDE, DIS- SOLVED (MG/L |
| OCT 1990 11 DEC 26 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT PET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 11 DEC 26 FEB 1991 19 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 11 DBC 26 FEB 1991 19 APR 16 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FILD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) 7.5 | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT PET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) <0.5 | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 11 DEC 26 FEB 1991 19 | NESS TOTAL (Mg/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) 7.5 | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 49 160 53 | TOTAL (MG/L AS S) <0.5 | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) 8.3 |

K = non-ideal count

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

WATER-QUALITY DATA, WATER YEARS OCTOBER 1990 TO SEPTEMBER 1991

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | MITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | MITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------------|---|---|---|---|---|---|---|---|--|---|
| OCT 1990 11 | 0.10 | 24 | 99 | 20.0 | 6 | | <0.010 | 0.800 | <0.010 | |
| DEC | | | | | _ | | | | | |
| 26 FRB 1991 | | | | | <1 | | <0.010 | 0.700 | 0.010 | |
| 19 APR | | | | | 4 | 0.690 | 0.010 | 0.700 | 0.020 | 0.18 |
| 16 JUN | <0.10 | 18 | 82 | 5.40 | 121 | 1.25 | 0.050 | 1.30 | 0.080 | 0.42 |
| 11 | | | | | 2 | 0.640 | 0.010 | 0.650 | <0.010 | |
| 07 | <0.10 | 24 | 101 | 14.0 | 7 | 0.800 | <0.010 | 0.810 | 0.020 | 0.28 |
| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | MITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
| OCT 1990 | | | | | | | | | | |
| 11 Dec | 0.30 | 1.1 | 4.9 | 0.030 | <1 | <100 | 20 | <1 | 1 | <10 |
| 26 FEB 1991 | <0.20 | | | <0.010 | | | | | | |
| 19 | 0.20 | 0.90 | 4.0 | 0.040 | | | | | | |
| 16 JUN | 0.50 | 1.8 | 8.0 | 0.080 | <1 | <100 | <10 | <1 | 5 | 20 |
| 11 | <0.20 | | | 0.020 | | | | | | |
| AUG 07 | 0.30 | 1.1 | 4.9 | 0.020 | | | | | | |
| | | | manga - | | | | | | | MRTHY- |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | •= - | | _, | | | | 4.0 | | | |
| 11 Dec | 470 | 1 | 30 | <0.10 | <1 | <1 | <10 | <0.010 | <1 | 0.02 |
| 26 FRB 1991 | | | | | | | | | | |
| 19 APR | | | | | | | | | | |
| 16 | 5500 | 3 | 130 | <0.10 | <1 | <1 | 20 | <0.010 | 3 | 0.01 |
| 11 | | | | | | | | | | |
| 07 | | | | | | | | | | |

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1958 to current year.

PERIOD OF DAILY RECORD. --

SUSPENDED SEDIMENT DISCHARGE: January 1968 to current year.

INSTRUMENTATION .-- US D-49 SEDIMENT SAMPLER SINCE OCTOBER 1968. AUTOMATIC SEDIMENT SAMPLER SINCE 1990

REMARKS.--Sediment samples were collected by a local observer on a weekly basis and during high flow events.

Estimates for period of missing daily record were made from a sediment transport curve developed from a period of record over 5 years.

EXTREMES FOR PERIOD OF DAILY RECORD.-SEDIMENT CONCENTRATIONS: Maximum daily mean, 20,400 mg/L November 27, 1968; minimum daily mean, 0 mg/L during

water year 1985.
SEDIMENT LOADS: Maximum daily, 167,000 tons (152,000 tonnes) May 18, 1985, minimum daily, 0.0 ton (0.0 tonne) several days during many years.

EXTREMES FOR CURRENT YEAR.--SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,900 mg/L October 1, 1990; minimum daily mean,

3.0 mg/L several days.

SEDIMENT LOADS: Maximum daily, 16,500 tons (15,000 tonnes) October 17, 1989; minimum daily, 0.14 ton (0.13 tonne) several days.

| WATER-QUALITY DATA, WAY | MRR YRARS OCTO | DBRR 1990 TO | SEPTEMBER | 1991 |
|-------------------------|----------------|--------------|-----------|------|
|-------------------------|----------------|--------------|-----------|------|

| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|--|---|---|---|--|--|---|---|---|---|---|---|
| OCT 1990 | 4430 | 95 | 454 | | | | | 101 | <10 | 480 | 240 |
| 11 DEC | 1130 | 75 | 151 | 7.8 | 23.0 | 7.9 | 8.5 | 101 | <10 | 480 | 240 |
| 26 FEB 1991 | 0935 | 27 | 160 | 8.0 | 19.0 | 2.4 | 9.0 | 99 | | K70 | 210 |
| 19 | 1030 | 27 | 162 | 7.8 | 21.0 | 10 | 8.4 | 95 | 12 | 2000 | 4100 |
| 16 JUN | 1715 | 25 | 133 | 7.4 | 24.0 | 93 | 7.7 | 93 | 31 | K12000 | K20000 |
| 11 | 1020 | 26 | 172 | 7.9 | 24.5 | 1.6 | 8.1 | 99 | 10 | 96 | 130 |
| AUG 07 | 1200 | 52 | 209 | 7.8 | 24.0 | 9.0 | 8.4 | 100 | <10 | 270 | 330 |
| | | | | | | | | | | | |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- MESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH YAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| | NESS TOTAL (MG/L AS | NESS NONCARB WH YAT TOT FLD MG/L AS | DIS- SOLVED (MG/L | SIUM, DIS- SOLVED (MG/L | DIS- SOLVED (MG/L | AD- SORP- TION | SIUM, DIS- SOLVED (MG/L | LINITY WAT WH TOT FET FIELD MG/L AS | TOTAL (MG/L | DIS- SOLVED (MG/L | RIDE, DIS- SOLVED (MG/L |
| OCT 1990 11 DEC 26 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH YAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 11 DEC 26 FEB 1991 19 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 11 DEC 26 FEB 1991 19 APR 16 | NESS TOTAL (MG/L AS CACO3) | MESS NONCARB WH VAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT PET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 11 DEC 26 FEB 1991 19 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH YAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) 12 | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) 7.5 | AD- SORP- TION RATIO 0.5 | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 49 160 53 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) 11 | RIDE, DIS- SOLVED (MG/L AS CL) 8.3 |

K = non-ideal count

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

WATER-QUALITY DATA, WATER YEARS OCTOBER 1990 TO SEPTEMBER 1991

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------------|---|---|---|---|---|---|---|---|--|--|
| OCT 1990 | | • | | | _ | | | | | |
| 11 Dec | 0.10 | 24 | 99 | 20.0 | 6 | | <0.010 | 0.800 | <0.010 | |
| 26 FEB 1991 | | | | | <1 | | <0.010 | 0.700 | 0.010 | |
| 19 APR | | | | | 4 | 0.690 | 0.010 | 0.700 | 0.020 | 0.18 |
| 16 JUN | <0.10 | 18 | 82 | 5.40 | 121 | 1.25 | 0.050 | 1.30 | 0.080 | 0.42 |
| 11 | | | | | 2 | 0.640 | 0.010 | 0.650 | <0.010 | |
| 07 | <0.10 | 24 | 101 | 14.0 | 7 | 0.800 | <0.010 | 0.810 | 0.020 | 0.28 |
| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
| OCT 1990 11 | 0.30 | 1.1 | 4.9 | 0.030 | <1 | <100 | 20 | <1 | 1 | <10 |
| DEC 26 | <0.20 | | | <0.010 | | | | | | |
| FEB 1991 19 | 0.20 | 0.90 | 4.0 | 0.040 | | | | | | |
| APR 16 | 0.50 | 1.8 | 8.0 | 0.080 | <1 | <100 | <10 | <1 | 5 | 20 |
| JUN | | | | | | | | | | |
| 11 | <0.20 | | | 0.020 | | | | | | |
| 07 | 0.30 | 1.1 | 4.9 | 0.020 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 11 | 470 | 1 | 30 | <0.10 | <1 | <1 | <10 | <0.010 | <1 | 0.02 |
| DEC | -70 | | 30 | | _ | _ | | | _ | |
| 26 PRB 1991 | | | | | | | | | | |
| 19 APR | | | | | | | | | | |
| 16 Jun | 5500 | 3 | 130 | <0.10 | <1 | <1 | 20 | <0.010 | 3 | 0.01 |
| 11 | | | | | | | | | | |
| 07 | | | | | | | | | | |

RIO GRANDE DE ARBCIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | MBAN | | | MRAN | | | MEAN | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MRAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | OCTOBER | | · · | NOVEMBER | | | DECEMBER | |
| 1 | 534 | 1900 | 16500 | 78 | 14 | 2.9 | 40 | 11 | 1.1 |
| 2 | 186 | 396 | 219 | 74 | 18 | 3.5 | 39 | 12 | 1.2 |
| 3 | 136 | 60 | 23 | 70 | 24 | 4.5 | 47 | 12 | 1.4 |
| í | 123 | 50 | 17 | 70 | 60 | 12 | 46 | 14 | 1.5 |
| 5 | 113 | 50 | 15 | 96 | 190 | 91 | 37 | 15 | 1.5 |
| • | 113 | 50 | 19 | 36 | 130 | 31 | 3, | 19 | 1.3 |
| 6 | 97 | 50 | 13 | 71 | 137 | 31 | 36 | 16 | 1.5 |
| 7 | 184 | 567 | 970 | 68 | 103 | 21 | 34 | 18 | 1.6 |
| 8 | 97 | 143 | 48 | 61 | 56 | 9.5 | 34 | 19 | 1.8 |
| 9 | 108 | 225 | 105 | 58 | 23 | 3.6 | 34 | 22 | 1.9 |
| 10 | 89 | 91 | 26 | 55 | 16 | 2.3 | 32 | 24 | 2.1 |
| 11 | 74 | 18 | 3.5 | 71 | 94 | 39 | 33 | 25 | 2.1 |
| 12 | 68 | 13 | 2.3 | 63 | 65 | 12 | 31 | 23 | 1.9 |
| 13 | 91 | 162 | 46 | 59 | 24 | 3.8 | 32 | 18 | 1.5 |
| 14 | 173 | 543 | 576 | 56 | 15 | 2.3 | 34 | 14 | 1.3 |
| 15 | 190 | 613 | 861 | 54 | 11 | 1.6 | 31 | 13 | 1.0 |
| | 130 | 013 | 001 | | | 1.0 | | | |
| 16 | 157 | 497 | 334 | 54 | 10 | 1.4 | 30 | 12 | .91 |
| 17 | 119 | 268 | 88 | 52 | 10 | 1.4 | 30 | 11 | . 81 |
| 18 | 170 | 518 | 555 | 50 | 11 | 1.4 | 29 | 11 | . 80 |
| 19 | 170 | 521 | 325 | 50 | 14 | 1.9 | 28 | 11 | . 82 |
| 20 | 116 | 207 | 66 | 59 | 55 | 16 | 28 | 11 | .81 |
| 21 | 201 | 697 | 449 | 56 | 76 | 13 | 28 | 12 | .86 |
| 22 | 127 | 226 | 84 | 65 | 345 | 64 | 30 | 12 | . 91 |
| 23 | 111 | 54 | 17 | 49 | 33 | 4.5 | 28 | 12 | .91 |
| 24 | 105 | 46 | 15 | 52 | 57 | 9.7 | 28 | 12 | . 88 |
| 25 | 166 | 470 | 335 | 52 | 72 | 11 | 27 | 12 | . 85 |
| 26 | 149 | 588 | 281 | 48 | 31 | 4.3 | 26 | 12 | . 85 |
| 27 | 114 | 54 | 17 | 45 | 13 | 1.5 | 26 | 12 | . 83 |
| 28 | 103 | 35 | 10 | 43 | 10 | 1.1 | 25 | 11 | .72 |
| 29 | 94 | 22 | 5.6 | 41 | 9 | .99 | 25 | 11 | .70 |
| 30 | 87 | 17 | 3.8 | 40 | 10 | 1.0 | 25 | 13 | .90 |
| 31 | 82 | 14 | 3.0 | -== | | | 36 | 17 | 1.7 |
| TOTAL | 4334 | | 22013.2 | 1760 | | 373.19 | 983 | | 37.66 |

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | MRAN | | | MRAN | | MRAN | | | |
|-------|-----------|---------|------------|-----------|----------|------------|-----------|---------|------------|--|
| | MRAN | CONCEN- | SEDIMENT | MEAN | CONCEN- | SEDIMENT | MRAN | CONCEN- | SEDIMENT | |
| | DISCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE | |
| DAY | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | |
| | | JANUARY | | 1 | FEBRUARY | | | MARCH | | |
| | | | | | | | | | | |
| 1 | 30 | 21 | 1.6 | 21 | 10 | .58 | 18 | 12 | . 58 | |
| 2 | 27 | 22 | 1.6 | 19 | 10 | .50 | 17 | 12 | . 54 | |
| 3 | 25 | 20 | 1.3 | 25 | 23 | 2.5 | 16 | 12 | . 49 | |
| 4 | 25 | 14 | .90 | 33 | 45 | 5.2 | 16 | 11 | . 45 | |
| 5 | 24 | 11 | . 69 | 97 | 486 | 330 | 16 | 10 | .43 | |
| 6 | 24 | 10 | . 66 | 47 | 92 | 20 | 15 | 10 | .41 | |
| 7 | 24 | 10 | . 62 | 25 | 22 | 1.5 | 15 | 10 | .40 | |
| 8 | 23 | 10 | . 64 | 21 | 20 | 1.2 | 15 | 10 | .40 | |
| 9 | 23 | 10 | . 66 | 20 | 20 | 1.0 | 14 | 10 | .37 | |
| 10 | 23 | 10 | . 63 | 36 | 48 | 7.4 | 13 | 10 | .35 | |
| 11 | 22 | 10 | . 60 | 34 | 45 | 4.8 | 14 | 11 | .50 | |
| 12 | 22 | 10 | . 60 | 28 | 23 | 2.0 | 13 | 11 | .39 | |
| 13 | 22 | 10 | . 59 | 39 | 45 | 5.6 | 12 | 13 | .41 | |
| 14 | 21 | 9 | .50 | 25 | 20 | 1.3 | 12 | 15 | .46 | |
| 15 | 21 | 9 | .48 | 22 | 19 | 1.1 | 11 | 14 | .41 | |
| 16 | 20 | 10 | . 54 | 21 | 17 | .97 | 11 | 12 | . 35 | |
| 17 | 20 | 10 | . 54 | 20 | 16 | .85 | 11 | 11 | . 32 | |
| 18 | 19 | 10 | .51 | 22 | 17 | 1.0 | 14 | 10 | . 37 | |
| 19 | 19 | 10 | .50 | 29 | 23 | 1.9 | 12 | 9 | .30 | |
| 20 | 19 | 9 | .45 | 25 | 24 | 1.6 | 12 | 8 | .26 | |
| 21 | 18 | 8 | .39 | 21 | 13 | .68 | 14 | 9 | .34 | |
| 22 | 18 | 8 | .39 | 19 | 9 | .46 | 27 | 25 | 2.5 | |
| 23 | 18 | 8 | .39 | 18 | 7 | .36 | 19 | 19 | 1.0 | |
| 24 | 18 | 8 | .38 | 17 | 7 | .33 | 13 | 13 | .45 | |
| 25 | 18 | 8 | .38 | 17 | 7 | .33 | 13 | 10 | .33 | |
| 26 | 18 | 8 | .40 | 17 | 8 | .36 | 65 | 205 | 157 | |
| 27 | 18 | 10 | . 45 | 17ـ | 10 | .43 | 58 | 102 | 25 | |
| 28 | 18 | 10 | .48 | 18 | 11 | .54 | 19 | 32 | 1.8 | |
| 29 | 18 | 10 | .48 | | | | 16 | 26 | 1.1 | |
| 30 | 18 | 10 | .48 | | | | 14 | 20 | .72 | |
| 31 | 18 | 10 | .49 | | | | 13 | 15 | . 52 | |
| TOTAL | 651 | | 19.32 | 753 | | 394.49 | 548 | | 198.95 | |

RIO GRANDE DE ARECIBO BASIN
50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|--------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 13 | 10 | .38 | 32 | 42 | 8.5 | 36 | 5 | .47 |
| 2 3 | 28 | 42 | 10 | 78 | 240 | 302 | 35 | 4 | .41 |
| 3 | 35 | 54 | 13 | 34 | 37 | 4.3 | 33 | 3 | .31 |
| 4 | 75 | 736 | 484 | 69 | 342 | 159 | 31 | 3 | .25 |
| 5 | 63 | 129 | 46 | 338 | 1280 | 4870 | 31 | 3 | . 25 |
| 6 | 23 | 19 | 1.2 | e93 | 207 | 69 | 30 | 3 | .24 |
| 7 | 19 | 14 | .70 | 46 | 29 | 4.4 | 29 | 3 | .23 |
| 8 | 18 | 12 | .58 | 38 | 20 | 2.1 | 28 | 3 | . 22 |
| 9 | 18 | 10 | . 49 | 105 | 461 | 327 | 27 | 4 | .28 |
| 10 | 16 | 8 | .35 | 285 | 1050 | 4420 | 26 | • | .40 |
| 11 | 18 | 9 | . 65 | 166 | 505 | 373 | 25 | 8 | . 55 |
| 12 | 22 | 15 | 1.2 | 124 | 349 | 164 | 25 | 1210 | 80 |
| 13 | 19 | 5 | .26 | 122 | 320 | 143 | 25 | 12 | .78 |
| 14 | 16 | 5 | .21 | 83 | 116 | 30 | 33 | 29 | 3.6 |
| 15 | 59 | 275 | 159 | 65 | 53 | 10 | 38 | 37 | 5.4 |
| 16 | 36 | 156 | 18 | 55 | 74 | 11 | 31 | 35 | 3.3 |
| 17 | 19 | 64 | 3.4 | 51 | 63 | 8.4 | 59 | 234 | 128 |
| 18 | 18 | 20 | . 96 | 57 | 85 | 16 | 81 | 328 | 142 |
| 19 | 16 | 8 | .38 | 50 | 50 | 8.1 | 39 | 39 | 4.6 |
| 20 | 16 | 6 | .26 | 96 | 287 | 220 | 46 | 76 | 16 |
| 21 | 15 | 5 5 5 | . 22 | 54 | 81 | 13 | 40 | 115 | 13 |
| 22 | 15 | 5 | . 21 | 45 | 25 | 3.1 | 36 | 34 | 3.5 |
| 23 | 14 | | .20 | 42 | 13 | 1.4 | 31 | 18 | 1.5 |
| 24 | 14 | 5 | . 18 | 41 | 8 | . 86 | 29 | 12 | . 87 |
| 25 | 216 | 791 | 2300 | 42 | 5 | . 55 | 27 | 12 | . 86 |
| 26 | e45 | 68 | 11 | 40 | 4 | .51 | 26 | 12 | . 84 |
| 27 | e26 | 35 | 2.5 | 39 | 5 | .54 | 27 | 10 | . 68 |
| 28 | e19 | 21 | 1.1 | 38 | 5 5 5 | .50 | 57 | 149 | 77 |
| 29 | 16 | 14 | .59 | 37 | 5 | .48 | 47 | 71 | 14 251 |
| 30 | 16 | 10 | . 42 | 37 37 | 5 5 | .51 | 95 | 315 | 431 |
| 31 | | | | 37 | 5 | .50 | | | |
| TOTAL | 943 | | 3057.44 | 2439 | | 11171.75 | 1123 | | 750.54 |

e Estimated

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | MRAN | | | MRAN | | MEAN | | |
|-------|-------------|---------|------------|-----------|---------|------------|-------------|------------------|------------|
| | MRAN | CONCEN- | SEDIMENT | MBAN | CONCEN- | SEDIMENT | MRAN | CONCEN- | SEDIMENT |
| | DISCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE | DI SCHARGE | TRATION | DISCHARGE |
| DAY | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) |
| | | | | | | | | | |
| | | JULY | | | AUGUST | | SI | ep tember | |
| 1 | 40 | 110 | 13 | 70 | 231 | 102 | 145 | 526 | 973 |
| 2 | 32 | 64 | 5.7 | 39 | 67 | 8.0 | ⊕ 70 | 178 | 38 |
| 3 | 31 | 23 | 1.9 | 42 | 89 | 15 | 55 | 48 | 7.9 |
| 4 | 32 | 14 | 1.2 | 45 | 98 | 24 | e4 9 | 31 | 4.1 |
| 5 | 28 | 12 | . 90 | 144 | 522 | 849 | e4 5 | 30 | 3.6 |
| 6 | 26 | 12 | . 84 | 75 | 74 | 19 | 44 | 28 | 3.3 |
| 7 | 124 | 452 | 619 | 52 | 15 | 2.1 | 51 | 49 | 8.6 |
| 8 | 194 | 667 | 1840 | 47 | 21 | 2.8 | 45 | 71 | 9.1 |
| 9 | 63 | 97 | 21 | 44 | 25 | 2.9 | 41 | 55 | 6.1 |
| 10 | 41 | 45 | 5.2 | 41 | 13 | 1.4 | 44 | 47 | 6.3 |
| 11 | e37 | 20 | 2.2 | 39 | 16 | 1.7 | 44 | 32 | 4.5 |
| 12 | e35 | 20 | 2.1 | 54 | 87 | 33 | 61 | 104 | 28 |
| 13 | e 39 | 20 | 2.1 | 40 | 43 | 4.8 | 47 | 59 | 8.2 |
| 14 | 42 | 20 | 2.2 | 70 | 180 | 101 | 40 | 28 | 2.9 |
| 15 | 49 | 36 | 5.8 | 49 | 134 | 20 | 41 | 15 | 1.7 |
| 16 | 102 | 274 | 134 | 61 | 132 | 43 | 56 | 82 | 23 |
| 17 | 157 | 545 | 1340 | 46 | 57 | 7.7 | 51 | 80 | 11 |
| 18 | 85 | 182 | 50 | e39 | 26 | 2.9 | 41 | 43 | 4.9 |
| 19 | e51 | 93 | 14 | 37 | 10 | 1.0 | 40 | 42 | 5.1 |
| 20 | 39 | 35 | 3.9 | 39 | 15 | 1.7 | 73 | 648 | 312 |
| 21 | 36 | 14 | 1.3 | 87 | 415 | 424 | 98 | 371 | 283 |
| 22 | 36 | 14 | 1.3 | 97 | 229 | 89 | 58 | 83 | 14 |
| 23 | 37 | 11 | 1.1 | 57 | 93 | 16 | 46 | 52 | 6.5 |
| 24 | 34 | 7 | . 67 | 40 | 53 | 5.7 | 42 | 43 | 4.9 |
| 25 | 33 | 5 | .44 | 50 | 80 | 14 | 43 | 46 | 5.9 |
| 26 | 33 | 5 | .43 | 43 | 94 | 12 | 39 | 39 | 4.1 |
| 27 | 32 | 5 | .41 | 88 | 279 | 137 | 70 | 168 | 76 |
| 28 | 48 | 82 | 19 | 59 | 86 | 17 | 52 | 77 | 12 |
| 29 | 34 | 47 | 4.8 | 42 | 50 | 5.6 | 43 | 50 | 6.3 |
| 30 | 31 | 20 | 1.6 | 37 | 50 | 4.9 | 39 | 37 | 3.8 |
| 31 | 55 | 136 | 52 | 54 | 121 | 53 | | | |
| TOTAL | 1656 | | 4148.09 | 1727 | | 2021.2 | 1613 | | 1877.8 |
| YEAR | 18530 | | 46063.63 | | | | | | |

e Estimated

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|-----------|---|---|--|--|--|--|--|
| OCT 1990 | | | | | | | |
| 01 | 1605 | 7100 | 16800 | 322000 | 11 | 20 | 32 |
| 01 | 1620 | 4620 | 14500 | 181000 | 13 | 24 | 37 |
| FEB 1991 | | | | | | | |
| 05 APR | 1656 | 342 | 4330 | 4000 | 20 | 32 | 53 |
| 04 | 1800 | 248 | 6670 | 4470 | 19 | 33 | 47 |
| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 | | | | | | | |
| 01 | 43 | 57 | 70 | 81 | 91 | 98 | 100 |
| 01 | 48 | 60 | 75 | 84 | 99 | 98 | 100 |
| FEB 1991 | | | | | | | |
| 05 APR | 62 | 70 | 90 | 96 | 99 | 100 | 100 |
| 04 | 59 | 74 | 89 | 96 | 99 | 100 | 100 |
| 15 | 37 | 46 | 76 | 88 | 94 | 98 | 99 |

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|--|
| OCT 1990 | | | | | |
| 01 | 1635 | 3180 | 8730 | 75000 | 76 |
| 01 | 1705 | 1780 | 9260 | 44500 | 75 |
| 14 | 1252 | 898 | 1370 | 3320 | 82 |
| FRB 1991 | | | | | |
| 05 | 1646 | 351 | 3330 | 3200 | 79 |
| 05 | 1936 | 255 | 2330 | 1600 | 93 |
| APR | | | | | |
| 04 | 2045 | 200 | 2340 | 1300 | 89 |
| 15 | 1940 | 357 | 1870 | 1800 | 73 |
| 15 | 1940 | 212 | 2570 | 1500 | 81 |
| MAY | | | | | |
| 06 | 1824 | 2770 | 2800 | 21000 | 74 |
| 09 | 1820 | 344 | 2230 | 2100 | 72 |
| 20 | 1525 | 347 | 1320 | 1240 | 82 |
| 20 | 1750 | 212 | 1710 | 980 | 93 |
| JUN | | | | | |
| 28 | 1602 | 250 | 2940 | 2000 | 88 |
| λŪG | | | | | |
| 21 | 1545 | 280 | 1590 | 1200 | 72 |
| 21 | 1745 | 248 | 1150 | 770 | 83 |
| SEP | | | | | |
| 20 | 1630 | 267 | 2740 | 2000 | 86 |
| 20 | 1830 | 160 | 3820 | 1700 | 87 |
| | | | | | |

50028400 RIO TANAMA AT CHARCO HONDO, PR

LOCATION.--Lat 18°24'52", long 66°42'52", Hydrologic Unit 21010002 on right bank at abandoned power house at Charco Hondo, 1.5 mi (2.4 km) upstream from mouth, and 4 mi (6 km) south of Arecibo.

DRAINAGE AREA. -- 57.6 mi 2 (149.2 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- April 1969 to June 1971, October 1981 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 60 ft (18 m), from topographic map.

REMARKS. -- Records poor. Diversion 0.8 mi (1.3 km) upstream for municipal supply of Arecibo.

AVERAGE DISCHARGE.--11 years (1969-71, 1981-91), 88.2 ft³/s (2.498 m³/s), 20.79 in/yr (528 mm/yr), 63,900 acre-ft/yr (78.8 hm²/yr); median of yearly mean discharges, 86 ft³/s (2.44 m³/s), 62,300 acre-ft/yr (77 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft³/s (425 m³/s), May 18, 1985, gage height, 17.95 ft (5.471 m), from floodmark, from rating curve extended above 1,000 ft³/s (28.3 m³/s) on basis of step-backwater analysis; minimum discharge, 3.3 ft³/s (0.093 m³/s), May 28, 29, 1989.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 2,000 ft³/s (56.6 m³/s) and maximum (*):

| | | Disc | narge | Gage height | | _ | | Disch | arge | Gage height | | |
|---------|------|---------|--------|-------------|-------|--------|------|---------|---------------------|-------------|--------------|--|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | |
| Oct. 1 | 1830 | *7,811 | 221 | *15.36 | 4.682 | May 10 | 1945 | 3,010 | 85.2 | 11.42 | | |
| Apr. 25 | 2015 | 2,020 | 57.2 | 10.16 | 3.097 | July 8 | 1830 | 2,282 | 64.6 | 10.52 | 3.206 | |
| May 5 | 2000 | 3,261 | 92.4 | 11.71 | 3.569 | | | | | | | |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum daily discharge, 35 ft3/s (0.991 m3/s), Apr. 22.

| DAILY MEAN VALUES | | | | | | | | | | | | |
|-------------------|-------------|-------------|-------------|-------------|------|------|-------------|-------------|-------------|-------------|-------------|------|
| DAY | OCT | NOA | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 550 | 159 | e 96 | e53 | 44 | 44 | 39 | 66 | e 66 | 140 | 122 | 278 |
| 2 | e360 | e145 | e82 | e53 | 42 | 42 | 44 | 104 | e63 | 79 | 99 | 180 |
| 3 | e300 | e140 | e78 | e50 | 42 | 41 | 72 | 92 | e59 | 69 | 84 | 112 |
| 4 | e250 | e140 | e77 | e52 | 56 | 41 | 81 | 148 | e58 | 63 | 83 | 81 |
| 5 | e225 | e165 | e75 | e52 | 123 | 40 | 128 | 479 | e57 | 63 | 202 | 69 |
| 6 | e190 | e150 | e73 | e50 | 174 | 40 | 52 | e250 | e55 | 58 | 133 | 65 |
| 7 | e350 | e145 | •72 | e 50 | 58 | 40 | 45 | ●90 | e 53 | 156 | 101 | 73 |
| 8 | e190 | 145 | e68 | 49 | 50 | 40 | 42 | e80 | 50 | 338 | 99 | 88 |
| 9 | e205 | e121 | e70 | 50 | 47 | 40 | 42 | e180 | 55 | 306 | e9 0 | 68 |
| 10 | e170 | e118 | e 66 | 49 | 48 | 39 | 40 | 430 | 57 | 103 | e84 | 72 |
| 11 | e130 | e121 | e69 | 49 | 72 | 41 | 39 | 305 | 61 | 83 | e78 | 71 |
| 12 | 124 | e122 | e72 | 48 | 57 | 43 | 44 | e230 | 64 | e74 | e74 | 75 |
| 13 | 143 | e115 | e65 | 48 | 69 | 41 | 40 | e270 | 66 | e72 | e100 | 95 |
| 14 | 309 | e110 | e64 | 47 | 54 | 40 | 38 | e180 | 77 | 70 | e74 | 69 |
| 15 | 328 | e109 | e 63 | 47 | 48 | 39 | 48 | e140 | 117 | 81 | e103 | 67 |
| 16 | 380 | e103 | e61 | 46 | 46 | 38 | 92 | e110 | 124 | 168 | e90 | 70 |
| 17 | 479 | e100 | e 60 | 46 | 45 | 38 | 43 | e100 | 68 | 231 | e102 | 91 |
| 18 | 465 | e110 | e 60 | 45 | 46 | 40 | 39 | e110 | 132 | 151 | e74 | 71 |
| 19 | 562 | e106 | e61 | 44 | 72 | 39 | 38 | e120 | 99 | 101 | e68 | 65 |
| 20 | 316 | e104 | e64 | 44 | 150 | 37 | 36 | 342 | 110 | e9 0 | e72 | 89 |
| 21 | 430 | e107 | e 61 | 44 | 74 | 38 | 36 | 352 | 136 | e74 | 249 | 130 |
| 22 | 312 | e106 | e58 | 44 | 51 | 46 | 35 | e8 6 | 111 | e85 | 432 | 108 |
| 23 | 237 | e 99 | e57 | 44 | 47 | 55 | 35 | e8 0 | 72 | 84 | 287 | 77 |
| 24 | 212 | e98 | e54 | 43 | 47 | 41 | 36 | e80 | 75 | 84 | 132 | 70 |
| 25 | 255 | e95 | e54 | 43 | 45 | 38 | 310 | e8 0 | 64 | 82 | e74 | 82 |
| 26 | 357 | e88 | e53 | 43 | 44 | 65 | 336 | e76 | 60 | 82 | 105 | 87 |
| 27 | 233 | e83 | e53 | 42 | 43 | 130 | 97 | e74 | 66 | 82 | 152 | 145 |
| 28 | 191 | e81 | e51 | 42 | 42 | 53 | e 60 | e72 | 116 | e78 | 257 | 210 |
| 29 | 170 | e78 | e78 | 42 | | 44 | e38 | e70 | 100 | 92 | 112 | 125 |
| 30 | 154 | e77 | e67 | 41 | | 41 | e38 | e70 | 183 | 82 | 87 | 80 |
| 31 | 152 | | e 60 | 41 | | 40 | | e 68 | | e74 | e 70 | |
| TOTAL | 8729 | 3440 | 2042 | 1441 | 1736 | 1394 | 2063 | 4934 | 2474 | 3395 | 3889 | 2963 |
| MEAN | 282 | 115 | 65.9 | 46.5 | 62.0 | 45.0 | 68.8 | 159 | 82.5 | 110 | 125 | 98.8 |
| MAX | 562 | 165 | 96 | 53 | 174 | 130 | 336 | 479 | 183 | 338 | 432 | 278 |
| MIN | 124 | 77 | 51 | 41 | 42 | 37 | 35 | 66 | 50 | 58 | 68 | 65 |
| AC-FT | 17310 | 6820 | 4050 | 2860 | 3440 | 2760 | 4090 | 9790 | 4910 | 6730 | 7710 | 5880 |
| CFSM | 4.89 | 1.99 | 1.14 | . 81 | 1.08 | .78 | 1.19 | 2.76 | 1.43 | 1.90 | 2.18 | 1.71 |
| IN. | 5.64 | 2.22 | 1.32 | . 93 | 1.12 | . 90 | 1.33 | 3.19 | 1.60 | 2.19 | 2.51 | 1.91 |

CAL YR 1990 TOTAL 30865 MEAN 84.6 MAX 562 MIN 13 AC-FT 61220 CFSM 1.47 IN. 19.93 WTR YR 1991 TOTAL 38500 MEAN 105 MAX 562 MIN 35 AC-FT 76360 CFSM 1.83 IN. 24.86

e Estimated

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°27'20", long 66°42'10", Hydrologic Unit 21010002, at bridge on unimproved road, about 500 ft (152 m) upstream from Central Cambalache, near Highway 2, 8.3 mi (13.4 km) downstream from Dos Bocas Reservoir, 1.9 mi (3.1 km) downstream from Rio Taname, and 1.6 mi (2.6 km) southeast of Arecibo.

DRAINAGE AREA. -- 200 mi2 (520 km2), approximately.

PERIOD OF RECORD. -- Water years 1963-66, 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SPE- CIFIC COM- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|---|---|---|--|---|---|---|---|---|---|---|
| NOV 1990 01 | 1330 | 1200 | 248 | 7.6 | 26.5 | 42 | 6.2 | 77 | 15 | K1500 | K1200 |
| JAN 1991 14 | 1000 | 75 | | | | | | 83 | | 380 | K40 |
| FRB | | | 250 | 7.9 | 23.0 | 3.5 | 7.3 | | <10 | | |
| 26 APR | 1115 | 108 | 300 | 8.1 | 25.0 | 3.7 | 8.8 | 104 | <10 | 200 | K1 |
| 15 Jun | 1015 | 172 | 250 | 7.5 | 25.0 | 2.0 | 7.9 | 94 | 10 | 360 | K100 |
| 25 AUG | 0845 | 117 | 284 | 7.8 | 26.0 | 6.3 | 7.5 | 90 | <10 | 5000 | 300 |
| 21 | 1130 | 241 | 262 | 7.8 | 25.5 | 100 | 7.1 | 385 | 24 | 20000 | 10000 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUI AD- SORP- TION RATIO | M POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 01 | 110 | | 34 | 5.5 | 10 | 0.4 | 1 2.3 | | <0.5 | 12 | 11 |
| JAN 1991 14 | | | | | | | | 95 | | | |
| FEB 26 | | | | | | | | 120 | | | |
| APR 15 | 110 | | 34 | 5.7 | 9.3 | 0.4 | | 100 | <0.5 | 12 | 10 |
| JUN | | | | | | | | | | | |
| 25 AUG | | | | | | | | 120 | | | |
| 21 | 120 | | 40 | 4.5 | 7.1 | 0.3 | 1.9 | 110 | | 6.0 | 6.8 |
| DA NOV 19 | RI D SO ATE (M AS | DE, DI DIS- SO DLVED (M NG/L A | ICA, SUM S- CON LVED TUE IG/L D S SO | STI- D NTS, SO IS- (T LVED P | RESI IDS, TOTA IS- AT 1 LVHD DEG. ONS SUS ER PENI AY) (MG | AL 1 105 . C, NI 3- ' | GEN, G TTRATE NIT POTAL TO (MG/L (M | EN, G TRITE NO2 TAL TO G/L (M | EN, G +NO3 AMM TAL TO G/L (M | EN, G ONIA ORG TAL TO G/L (M | TRO- EN, ANIC TAL G/L N) |
| 01. | < | 0.10 1 | .8 | 152 49 | 3 | 43 | 0.870 | .030 0 | .900 0 | . 100 | 0.60 |
| JAN 19 | | | | | | 50 | <0 | .010 0 | .600 0 | . 020 | 0.18 |
| FRB 26 | | | | | | <1 | <0 | .010 0 | .500 0 | . 030 | |
| APR 15. | | 0.10 1 | .6 | 149 6 | 9.1 | <1 | 0.350 | .010 0 | .360 0 | .040 | 0.36 |
| JUN 25. | | | | | | 16 | | | .420 0 | . 090 | 1.1 |
| AUG 21. | | 0.10 1 | 2 | | 3.9 | 111 | | | | | 0.37 |
| | < | | .= | 444 7 | J. J | 444 | v.300 (| 0 | | | |

K = non-ideal count

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|------------------|---|---|---|---|--|---|---|---|--|--|
| NOV 1990 | | | | | | | | | | |
| 01 Jan 1991 | 0.70 | 1.6 | 7.1 | 0.070 | <1 | <100 | <10 | <1 | 5 | 20 |
| 14 | 0.20 | 0.80 | 3.5 | 0.020 | | | | | | |
| FRB | | | | | | | | | | |
| 26 | <0.20 | | | 0.020 | | | | | | |
| 15 Jun | 0.40 | 0.76 | 3.4 | 0.030 | <1 | <100 | <10 | <1 | <1 | 10 |
| 25 Aug | 1.2 | 1.6 | 7.2 | 0.070 | | | | | | |
| 21 | 0.40 | 0.93 | 4.1 | 0.090 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SKLE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- BRABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 01 | 3300 | 1 | 200 | -0.10 | ∢1 | <1 | 20 | -0 010 | 7 | 0.03 |
| JAN 1991 | 3300 | | 200 | <0.10 | 41 | ₹1 | 20 | <0.010 | , | 0.03 |
| 14 FRB | | | | | | | | | | |
| 26 | | | | | | | | | | |
| APR 15 | 180 | <1 | 20 | <0.10 | <1 | <1 | <10 | <0.010 | <1 | 0.01 |
| JUN 25 AUG | | | | | | | | | | |
| 21 | | | | | | | | | | |
| | | | | PESTICID | e analyse | :S | | | | |
| | | | | | | | | | | |
| DATE | TIMB | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- BLDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
| JUN_1991 | | | | | | | | | | |
| 25 | 0845 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| DATE | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | METHYL TRI- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
| JUN 1991 | | | | | | | | | | |
| 25 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| D A | PAR THI TE TOT (UG | ON, CHL | A- BS, Y- PE OR. THA AL TOT | NE APHE | AL THI | I- 2,4 | AL TOI | 5-T 2, 4 AL TOT :/L) (UG/ | AL TOT | |
| JUN 19: 25 | | .01 <0 | .10 < | 0.1 < | 1 <0 | .01 <0 | .01 <0 | .01 <0 | .01 <0 | .01 |

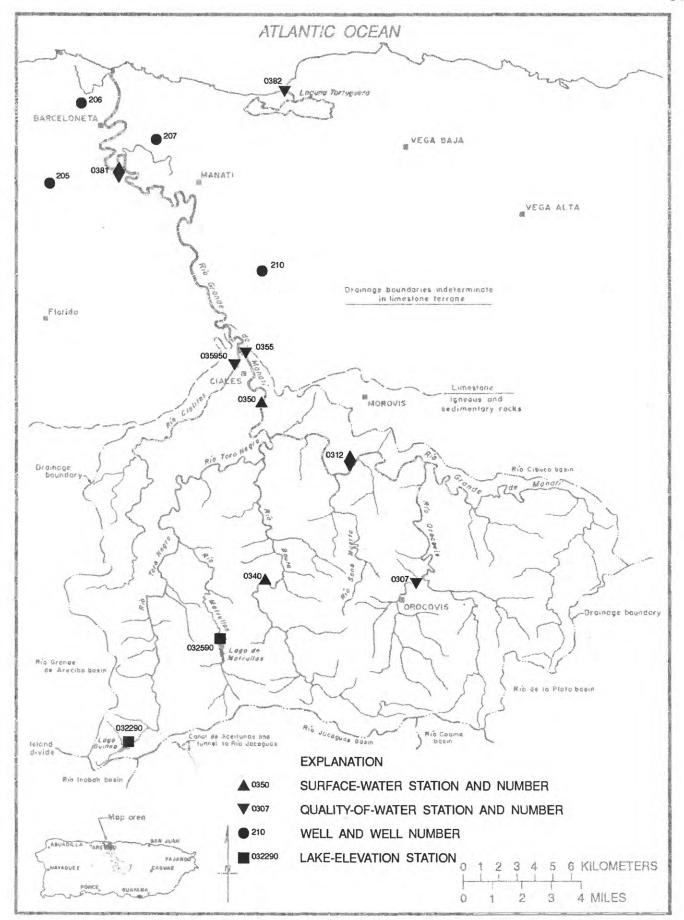


Figure 15.--Río Grande de Manatí basin.

50030700 RIO OROCOVIS NEAR OROCOVIS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'20", long 66°22'58", at flat low bridge about 300 ft (91 m) northwest of Highway 568, 1.0 mi (1.6 km) north of Orocovis plaza.

DRAINAGE AREA . -- 10.1 mi2 (26.2 km2) .

PERIOD OF RECORD .-- Water year 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | | DIS- CHARGE INST. CUBIC FEET | CON- | C PH - (STAN | | TRE B | ID- | XYGEN, DIS- | OXYGEN, DIS- SOLVEI (PER- CENT | DEMANI CHEM- ICAL (HIGH | FORM FECA 0.45 | L, STREP- L, TOCOCCI FECAL, F (COLS. |
|----------------|------|------------------------|--|-------------|----------------------------|------------------------------------|--|------------------------------|-------------------------|--|----------------------------------|----------------------|---|
| DATE | | TIME | PER SECON | D (US/C | | | | TY TU) | SOLVED (MG/L) | SATUR- ATION) | | | |
| OCT 1990 | | | | | | | | | | | | | |
| DEC | | 1230 | 27 | 2 | 06 8. | 1 2 | 3.5 1 | 0 | 7.8 | 95 | | 14 43 | 00 K660 |
| 05 FEB 1991 | | 1330 | 20 | 2 | 52 8. | 3 2 | 2.5 2 | 5 | 8.3 | 99 | . 1 | L9 49 | 00 K100 |
| 06 APR | | 1245 | 10 | 2 | 92 8. | 2 2 | 1.0 6 | 5 | 9.0 | 104 | 1 1 | L8 43 | 00 2000 |
| 03 | | 1300 | 6.8 | 3 | 14 8. | 5 2 | 13.5 | 1.5 | 9.1 | 108 | <1 | LO K | 30 K150 |
| 20 | | 1215 | 5.2 | 3 | 32 8. | 1 2 | 15.5 | 1.7 | 8.0 | 101 | L <1 | 10 4 | 70 360 |
| 16 | | 1045 | 6.5 | 3 | 09 8. | 2 2 | 3.5 2 | 0 | 8.0 | 97 | <1 | LO 42 | 00 780 |
| | | HARD- NESS TOTAL | HARD- NESS NONCAR WH WAT | B CALCI | DIS | M, SODI | TUM, | AD~ RP~ | POTAS- SIUM, DIS- | ALKA- LINITY WAT WH TOT FET | | | DIS- |
| DATE | | (MG/L | MG/L A | | | | The Part of the Pa | ION TIO | SOLVED (MG/L | FIELD MG/L AS | TOTAL (MG/I | | |
| | | CACO3) | CAC03 | | | | NA) | | AS K) | CACO3 | AS S | | |
| OCT 1990 | | | | | | | | | | | | | |
| 24 DRC | | 80 | | 19 | 7. | 8 9 | . 6 | 0.5 | 1.8 | 75 | <0. | .5 7. | 9 14 |
| 05 FEB 1991 | | | | | | | - | | | 96 | | | |
| 06 APR | | | | | | | - | | | 110 | | - | |
| 03 JUN | | 130 | | 33 | 12 | 14 | 1 | 0.5 | 1.8 | 120 | <0. | .5 11 | 16 |
| 20 | | | | | | | - | | | 140 | | - | |
| 16 | | 130 | | 32 | 11 | 13 | | 0.5 | 1.7 | 120 | | 10 | 16 |
| | | | | | SOLIDS, | | RESIDUE | | | | | | |
| | DATE | RI I | DE, DIS- DLVED | (MG/L | CONSTI- TUENTS, DIS- | SOLIDS, DIS- SOLVED (TONS | TOTAL AT 105 DEG. C, SUS- | NITR GEN NITRA TOTA | TR NIT | EN, RITE NO TAL 7 | OTAL | TOTAL | NITRO- GEN, ORGANIC TOTAL |
| | DATE | | G/L F) | AS SIO2) | (MG/L) | PER DAY) | PENDED (MG/L) | (MG/ | | | (MG/L AS N) | (MG/L AS N) | (MG/L As N) |
| | 1990 | | | | | | 100 | | | | | | 4.44 |
| DEC | 4 | | 0.10 | 28 | 133 | 9.69 | 23 | 0.8 | | .020 | 0.900 | 0.020 | 0.28 |
| FEB | 1991 | | | | | | 164 | | <0 | .010 | 0.800 | 0.050 | 0.45 |
| APR | 6 | | | | | | 96 | 1.2 | 9 0 | .010 | 1.30 | 0.010 | 0.49 |
| O JUN | 3 | • | 0.10 | 33 | 193 | 3.54 | 2 | | <0 | .010 | 0.590 | 0.040 | |
| AUG | 0 | | | | | | 5 | | <0 | .010 | 0.930 | 0.040 | 0.26 |
| | 6 | | 0.10 | 32 | 188 | 3.31 | 3 | 1.0 | 9 0 | .010 | 1.10 | 0.020 | 0.18 |
| AUG 1 | 6 | ideal c | 0.10 | | | | | | | | | | |

50030700 RIO OROCOVIS NEAR OROCOVIS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GRN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 24 Dec | 0,30 | 1.2 | 5.3 | 0.090 | <1 | 200 | <10 | <1 | 4 | 10 |
| 05 FRB 1991 | 0.50 | 1.3 | 5.8 | 0.210 | | | | | | |
| 06 APR | 0.50 | 1.8 | 8.0 | 0.230 | | | | | | |
| 03 JUN | <0.20 | | | 0.260 | <1 | <100 | <10 | <1 | <1 | 10 |
| 20 AUG | 0.30 | 1.2 | 5.4 | 0.170 | | | | | | |
| 16 | 0.20 | 1.3 | 5.8 | 0.200 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| | TOTAL RECOV- BRABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | LENE BLUE ACTIVE SUB- STANCE |
| OCT 1990 24 DEC 05 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 24 DEC 05 FEB 1991 06 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- RRABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 24 DEC 05 FEB 1991 06 APR 03 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.02 |
| OCT 1990 24 DEC 05 FEB 1991 06 | TOTAL RECOV- BRABLE (UG/L AS FE) 1100 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- BRABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.02 |

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR

LOCATION.--Lat 18°17'45", long 66°24'47", Hydrologic Unit 21010001, on right bank , 0.1 mi (0.2 km) downstream from Quebrada Perchas, 0.8 mi (1.3 km) upstream from Río Sana Muerto, and 2.2 mi (3.5 km) south of Morovis.

DRAINAGE AREA. -- 55.2 mi 2 (143.0 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- January 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 440 ft (134 m), from topographic map. Feb. 2, 1966 to Apr. 27, 1967, staff gage read twice daily.

REMARKS.--Records fair. Public water-supply pumpage, about 300 ft (91 m) above the station, influences low-flow discharges. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--26 years (1966-91), 101 ft³/s (2.860 m³/s), 24.85 in/yr (631 mm/yr), 73,170 acre-ft/yr (90.2 hm³/yr); median of yearly mean discharges, 88 ft³/s (2.49 m³/s), 63,700 acre-ft/yr (78 hm³/yr).

EXTREMES FOR PERIOD OF RECORD. --Maximum discharge, 48,000 ft³/s (1,359 m²/s), May 18, 1985, gage height, 17.89 ft (5.453 m), from floodmarks, from rating curve extended above 200 ft³/s (5.66 m²/s) on basis of computations of flow over broad-crested weir and step-backwater analysis; minimum discharge, 4.4 ft³/s (0.125 m³/s), Apr. 15, 1984.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 3,500 ft³/s (99.1 m³/s) and maximum (*):

| | | | harge | Gage 1 | | | | charge | | height | |
|---------|------|---------|---------------------|--------|-------|------|------|---------|---------------------|--------|-----|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) |
| Oct. 15 | 1540 | *2,920 | 82.7 | *4.65 | 1.417 | | | | | | |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum discharge, 15 ft3/s (0.425 m3/s), Sept. 6, 7.

| DAILY MEAN VALUES | | | | | | | | | | | | |
|-------------------|-------|------|-------------|------|------|------|------|------|------|------|------|------|
| DAY | OCT | MOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 164 | 117 | 92 | 194 | 47 | 48 | 48 | 85 | 49 | 37 | 25 | 20 |
| 2 | 89 | 109 | 101 | 131 | 41 | 45 | 47 | 89 | 33 | 29 | 24 | 20 |
| 2 3 | 51 | 102 | 275 | 102 | 42 | 46 | 58 | 137 | 30 | 25 | 23 | 20 |
| 4 | 104 | 120 | 201 | 82 | 51 | 45 | 53 | 104 | 28 | 24 | 21 | 18 |
| 5 | 106 | 127 | 125 | 83 | 61 | 45 | 49 | 53 | 30 | 23 | 21 | 16 |
| 6 | 92 | 103 | 100 | 111 | 144 | 45 | 42 | 37 | 29 | 22 | 21 | 15 |
| 7 | 244 | 94 | 85 | 95 | 106 | 45 | 44 | 59 | 30 | 24 | 20 | 103 |
| 8 | 157 | 100 | 75 | 76 | 61 | 48 | 54 | 93 | 29 | 43 | 20 | 107 |
| 9 | 219 | 89 | 72 | 76 | 45 | 47 | 72 | 55 | 28 | 92 | 20 | 39 |
| 10 | 226 | 80 | 73 | 82 | 44 | 44 | 45 | 41 | 28 | 33 | 20 | 32 |
| 11 | 161 | 76 | 67 | 79 | 83 | 45 | 46 | 35 | 28 | 25 | 21 | 23 |
| 12 | 105 | 73 | 84 | 67 | 64 | 48 | 56 | 120 | 28 | 23 | 20 | 49 |
| 13 | 107 | 69 | 94 | 62 | 155 | 44 | 114 | 358 | 28 | 21 | 21 | 54 |
| 14 | 565 | 68 | 66 | 57 | 87 | 45 | 63 | 501 | 28 | 19 | 19 | 28 |
| 15 | 629 | 64 | 92 | 53 | 61 | 42 | 61 | 233 | 28 | 28 | 45 | 21 |
| 16 | 638 | 75 | 95 | 53 | 54 | 40 | 55 | 121 | 27 | 605 | 28 | 24 |
| 17 | 454 | 72 | 67 | 50 | 115 | 40 | 46 | 82 | 27 | 177 | 24 | 23 |
| 18 | 380 | 65 | 61 | 48 | 129 | 49 | 41 | 65 | 28 | 82 | 32 | 34 |
| 19 | 509 | 61 | 59 | 47 | 280 | 47 | 39 | 61 | 29 | 52 | 23 | 23 |
| 20 | 298 | 130 | 56 | 46 | 161 | 41 | 38 | 58 | 29 | 42 | 20 | 31 |
| 21 | 781 | 137 | \$ 5 | 45 | 122 | 42 | 37 | 46 | 29 | 34 | 22 | 45 |
| 22 | 316 | 160 | 57 | 43 | 93 | 168 | 37 | 41 | 42 | 30 | 24 | 26 |
| 23 | 204 | 135 | 64 | 44 | 75 | 145 | 35 | 38 | 32 | 29 | 69 | 25 |
| 24 | 169 | 96 | 66 | 43 | 67 | 74 | 34 | 35 | 36 | 28 | 29 | 26 |
| 25 | 237 | 79 | 58 | 41 | 59 | 55 | 34 | 35 | 30 | 27 | 23 | 21 |
| 26 | 446 | 74 | 50 | 42 | 57 | 129 | 34 | 35 | 28 | 25 | 21 | 19 |
| 27 | 226 | 91 | 50 | 40 | 54 | 208 | 31 | 36 | 27 | 25 | 82 | 18 |
| 28 | 170 | 99 | 50 | 40 | 48 | 103 | 31 | 32 | 26 | 44 | 109 | 43 |
| 29 | 150 | 73 | 51 | 39 | | 68 | 30 | 30 | 26 | 52 | 39 | 24 |
| 30 | 134 | 120 | 98 | 40 | | 56 | 47 | 29 | 35 | 30 | 26 | 26 |
| 31 - | 132 | | 187 | 40 | | 49 | | 45 | | 28 | 22 | |
| TOTAL | 8263 | 2858 | 2726 | 2051 | 2406 | 1996 | 1421 | 2789 | 905 | 1778 | 934 | 973 |
| MRAN | 267 | 95.3 | 87.9 | 66.2 | 85.9 | 64.4 | 47.4 | 90.0 | 30.2 | 57.4 | 30.1 | 32.4 |
| MAX | 781 | 160 | 275 | 194 | 280 | 208 | 114 | 501 | 49 | 605 | 109 | 107 |
| MIN | 51 | 61 | 50 | 39 | 41 | 40 | 30 | 29 | 26 | 19 | 19 | 15 |
| AC-FT | 16390 | 5670 | 5410 | 4070 | 4770 | 3960 | 2820 | 5530 | 1800 | 3530 | 1850 | 1930 |
| CFSM | 4.83 | 1.73 | 1.59 | 1.20 | 1.56 | 1.17 | .86 | 1.63 | .55 | 1.04 | . 55 | . 59 |
| IN. | 5.57 | 1.93 | 1.84 | 1.38 | 1.62 | 1.35 | .96 | 1.88 | .61 | 1.20 | .63 | . 66 |

CAL YR 1990 TOTAL 27347 MRAN 74.9 MAX 781 MIN 12 AC-FT 54240 CFSM 1.36 IN. 18.43 WTR YR 1991 TOTAL 29100 MRAN 79.7 MAX 781 MIN 15 AC-FT 57720 CFSM 1.44 IN. 19.61

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1968 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR BID ITY (NTU | DIS- | CENT D SATUR- | reart) (High ICyr | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|--|---|---|--|---|--|--|---|---|---|---|
| OCT 1990 24 | 0930 | 169 | 221 | 8.0 | 23.5 | 11 | 8.5 | 101 | . 16 | K1200 | 530 |
| DEC 05 | 1110 | 123 | 231 | 8.2 | 22.5 | 70 | | | _ | K1200 | 650 |
| FEB 1991 | | | _ | | | • - | 8.4 | | _ | | |
| 06 APR | 1000 | 118 | 234 | 8.0 | 20.5 | 98 | 8.7 | 96 | 31 | 6000 | 11000 |
| 03 Jun | 1000 | 44 | 281 | 8.2 | 23.0 | 5.0 | 8.4 | 97 | <10 | 110 | 92 |
| 20 | 0945 | 29 | 281 | 8.6 | 26.5 | 2.4 | 8.2 | 105 | 13 | 80 | K51 |
| 16 | 0815 | 27 | 287 | 7.9 | 25.5 | 6. | 7.2 | 87 | <10 | K1600 | 220 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3 | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | Solved | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODI AD- SORP- TIO RATIO | - SIUM - DIS- N SOLVE | TOT FET DE FIELD MG/L AS | TOTAL | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 24 | 8! | 5 | 20 | 8.5 | 11 | 0 | .5 2.3 | 78 | <0.5 | 11 | 14 |
| DEC 05 | | | | | | | | 84 | | | |
| FEB 1991 06 | | | | | | | | 92 | | | |
| APR 03 | 120 | 0 | 28 | 11 | 13 | | .5 1.9 | | | 7.5 | 6.3 |
| JUN 20 | 4.6 | | | | | · | | | | | |
| AUG | | | | | | | | 105 | | | |
| 16 | 110 | D | 27 | 10 | 13 | Ū | .5 2.2 | 110 | | 8.1 | 16 |
| | DATE | RIDE, D DIS- S SOLVED ((MG/L | LICA, SUM IS- CON OLVED TUE MG/L I AS SO | STI- I NTS, SC IS- (T LVED F | LIDS, TO: DIS- AT DLVED DEC CONS SUPER PEI | SIDUE TAL 105 G. C, I US- NDED MG/L) | NITRO- GEN, NITRATE P TOTAL (MG/L AS N) | GEN, HTRITE NO TOTAL T (MG/L (| GEN, C 2+NO3 AMI OTAL TO MG/L (1 | SEN, COMIA ORCOTAL TO | ITRO- IEN, BANIC TAL IG/L I N) |
| | 1990 | 0.10 | 27 | 141 6 | 4.2 | 24 | 1.08 | 0.020 | 1.10 | 0.020 | 0.28 |
| DEC | · | | | | | 113 | 0.790 | 0.010 | | 0.020 | 0.28 |
| FEB | 1991 | | | | | 172 | 0.870 | 0.030 | | 0.030 | 0.97 |
| APR | | | | | | | | | | | |
| JUN | | | 28 | | 19.6 | 10 | 0.380 | 0.010 | | 0.030 | 0.17 |
| AUG | | | | | | 26 | 0.140 | 0.040 | 0.180 | 0.030 | |
| 16 | · · · · | 0.10 | 27 | 169 1 | 12.2 | 3 | 0.310 | 0.020 | 0.330 | 0.040 | 0.26 |

K = non-idea1 count

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTMBER 1991

| DATE | MITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|--|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 24 DEC | 0.30 | 1.4 | 6.2 | 0.070 | <1 | 200 | 30 | <1 | 3 | 10 |
| 05 FRB 1991 | 0.30 | 1.1 | 4.9 | 0.090 | | | | | | |
| 06 APR | 1.0 | 1.9 | 8.4 | 0.140 | | | | | | |
| 03 JUN | 0.20 | 0.59 | 2.6 | 0.060 | <1 | <100 | 30 | <1 | 2 | <10 |
| 20 AUG | <0.20 | | | 0.040 | | | | | | |
| 16 | 0.30 | 0.63 | 2.8 | 0.080 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FR) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA - NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 24 DEC | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| OCT 1990 24 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 24 DEC 05 FRB 1991 06 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 24 DEC 05 FEB 1991 06 APR 03 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 24 DEC 05 FEB 1991 06 | TOTAL RECOV- ERABLE (UG/L AS FR) 1200 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- REABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) 2 | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.03 |

50032290 LAGO EL GUINEO AT DAMSITE, PR

LOCATION.--Lat 18°09'41", long 66°51'48", Hydrologic Unit 21010001, at damsite on Río Toro Negro, 3.0 mi (4.8 km) northwest from Villalba plaza and 1.9 mi (3.1 km) northwast of Cerro Maravillas. The reservoir itself fixes the territorial limits between the Municipality of Ciales and Orocovis.

DRAINAGE AREA. -- 1.64 mi 3 (4.25 km2).

ELEVATION RECORDS

PERIOD OF RECORD. -- May 1988 to current year.

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

REMARKS.--Lago Guineo was completed in 1931. It provides a maximum storage of approximately 2,180 ac-ft (2.688 hm³) for power and irrigation. Waters are discharged through an outlet power tunnel into the Río Toro Negro and coveyed to the head water works of Toro Negro Hydroelectric Plant No.2, for energy generation at Toro Negro Hydroelectric plant No.1, and are discharged into the Guayabal Reservoir to be later used for irrigation at South Coast Irrigation System. The dam is rockfill with a vertical concrete corewall, rock toes, and riprap facing of upstream slope, with a total length of 565 ft (172 m), a maximum structural height of 125 ft (38 m) to top of corewall. At a maximum reservoir water surface elevation the uncontrolled morning-glory tunnel spillway crest has an elevation of 2,966 ft (904 m) above mean sea level and a design capacity of 7,000 ft³/s. The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD. -- Maximum elevation 2,961.70 ft (902.73 m), Oct. 21, 1990; minimum elevation, 2,919.79 ft (899.95 m), May 27, 1988.

EXTREMES FOR CURRENT YEAR. -- Maximum elevation, 2,961.70 ft (902.73 m), Oct. 21; minimum elevation, 2,945.53 ft (897.80 m), Oct. 1.

Capacity Table (based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 2,872 | 0 | 2,943 | 1,029 |
| 2,919 | 361 | 2,950 | 1,308 |
| 2,925 | 491 | 2,961 | 1,852 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOA | DEC | JAN | YBB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 2946.21 | 2960.72 | 2959.98 | 2956.44 | 2951.43 | 2952.50 | 2955.42 | 2948.82 | 2952.13 | 2952.44 | 2955.44 | 2953.64 |
| 2 | 2949.32 | 2960.71 | 2960.22 | 2956.20 | 2951.50 | 2952.55 | 2955.32 | 2948,92 | 2952.33 | 2952.07 | 2954.84 | 2953.78 |
| 3 | 2949.89 | 2960.31 | 2960.06 | 2955.98 | 2951.62 | 2952.60 | 2955.40 | 2948.98 | 2952.17 | 2951.77 | 2954.92 | 2953.04 |
| 4 | 2950.25 | 2960.77 | 2959.82 | 2955.80 | 2952.19 | 2952.67 | 2955.34 | 2949.34 | 2951.97 | 2951.86 | 2955.02 | 2952.48 |
| 5 | 2950.43 | 2960.34 | 2959.69 | 2955.88 | 2952.15 | 2952.73 | 2955.45 | 2949.44 | 2951.25 | 2951.63 | 2954.90 | 2952.18 |
| 6 | 2950.67 | 2959.89 | 2959.61 | 2955.98 | 2952.08 | 2952.58 | 2955.53 | 2949.03 | 2950.67 | 2951.69 | 2954.56 | |
| 7 | 2950.88 | 2959.38 | 2959.48 | 2956.06 | 2952.06 | 2952.63 | 2955.59 | 2949.09 | 2950.47 | 2952.25 | 2954.64 | 2952.04 |
| 8 | 2950.93 | 2958.81 | 2959.16 | 2956.16 | 2952.14 | 2952.18 | 2955.67 | 2949.05 | 2950.53 | 2954.71 | 2954.40 | 2952.14 |
| 9 | 2951.85 | 2959.01 | 2959.31 | 2956.26 | 2952.22 | 2952.23 | 2955.49 | 2949.11 | 2950.59 | 2954.71 | 2954.46 | |
| 10 | 2952.77 | 2959.27 | 2959.44 | 2956.30 | 2952.43 | 2952.27 | 2955.43 | 2949.23 | 2950.01 | 2954.53 | 2954.54 | 2951.55 |
| 11 | 2952.89 | 2959.53 | 2959.37 | 2956.06 | 2952.04 | 2952.34 | 2955.37 | 2949.83 | 2949.83 | 2954.35 | 2954.60 | |
| 12 | 2953.77 | 2959.77 | 2959.53 | 2956.11 | 2951.66 | 2952.40 | 2954.87 | 2949.94 | 2949.93 | 2954.45 | 2954.46 | 2951.24 |
| 13 | 2954.64 | 2959.51 | 2959.00 | 2956.18 | 2951.78 | 2952.43 | 2954.93 | 2950.09 | 2949.97 | 2954.55 | 2954.39 | 2951.21 |
| 14 | 2955.46 | 2959.72 | 2958.90 | 2955.98 | 2951.89 | 2952.47 | 2954.98 | 2950.18 | 2949.67 | 2954.63 | 2954.67 | 2951.29 |
| 15 | 2956.08 | 2959.40 | 2958.49 | 2955.89 | 2951.95 | 2952.51 | 2954.26 | 2949.89 | 2949.72 | 2954.93 | 2954.09 | 2951.37 |
| 16 | 2959.51 | 2959.05 | 2958.63 | 2955.66 | 2952.05 | 2952.52 | 2953.68 | 2949.95 | 2949.75 | 2957.91 | 2954.65 | 2951.09 |
| 17 | 2960.18 | 2958.84 | 2958.36 | 2955.55 | 2952.13 | 2952.57 | 2952.90 | 2950.03 | 2949.79 | 2957.73 | 2954.05 | 2950.87 |
| 18 | 2960.95 | 2959.05 | 2958.20 | 2955.38 | 2952.24 | 2952.44 | 2952.30 | 2950.13 | 2949.96 | 2957.87 | 2953.47 | 2950.57 |
| 19 | 2960.81 | 2959.73 | 2957.87 | 2954.98 | 2951.83 | 2952.50 | 2951.32 | 2950.22 | 2950.42 | 2957.43 | 2953.05 | 2950.44 |
| 20 | 2960.66 | 2960.16 | 2957.58 | 2955.04 | 2951.91 | 2952.53 | 2950.40 | 2952.24 | 2950.11 | 2956.97 | 2953.35 | 2950.39 |
| 21 | 2960.89 | 2960.34 | 2957.70 | 2954.42 | 2951.98 | 2952.59 | 2950.48 | 2952.26 | 2950.57 | 2957.13 | 2953.75 | 2950.51 |
| 22 | 2960.78 | 2960.62 | 2957.79 | 2954.00 | 2952.03 | 2952.77 | 2950.21 | 2952.41 | 2950.71 | 2957.07 | 2954.89 | 2950.61 |
| 23 | 2960.26 | 2960.76 | 2957.89 | 2953.60 | 2952.09 | 2952.81 | 2949.64 | 2952.28 | 2950.79 | 2956.73 | 2954.75 | 2950.35 |
| 24 | 2960.75 | 2960.70 | 2957.78 | 2953.42 | 2952.17 | 2952.87 | 2949.42 | 2952.15 | 2950.85 | 2956.45 | 2954.95 | 2950.05 |
| 25 | 2961,00 | 2960.69 | 2957.64 | 2953.10 | 2952.25 | 2952.91 | 2949.46 | 2952.27 | 2950.93 | 2956.58 | 2955.17 | 2949.73 |
| 26 | 2960.85 | 2960.55 | 2957.43 | 2952.45 | 2952.31 | 2955.01 | 2949.52 | 2952.33 | 2950.97 | 2956.43 | 2954.81 | 2949.79 |
| 27 | 2960.87 | 2960.47 | 2957.07 | 2952.51 | 2952.37 | 2955.11 | 2949.02 | 2952.41 | 2951.03 | 2955.81 | 2954.35 | 2949.65 |
| 28 | 2960.91 | 2960.36 | 2956.55 | 2952.56 | 2952.44 | 2955.20 | 2949.06 | 2951.85 | 2951.09 | 2956.21 | 2954.10 | 2949.95 |
| 29 | 2960.65 | 2960.18 | 2956.43 | 2952.14 | | 2955.26 | 2949.10 | 2951.91 | 2950.99 | 2955.79 | 2953.57 | 2950.06 |
| 30 | 2960.85 | 2959.80 | 2956.54 | 2951.74 | | 2955.32 | 2949.28 | 2951.96 | 2952.45 | 2955.89 | 2953.30 | 2949.76 |
| 31 | 2960.37 | | 2956.55 | 2951.60 | | 2955.37 | | 2952.01 | | 2955.78 | 2953.42 | |
| MRAN | 2956.33 | 2959.95 | 2958.45 | 2954.82 | 2952.03 | 2953.06 | 2952.83 | 2950.56 | 2950.72 | 2955.11 | 2954.37 | 2951.18 |
| Max | 2961.00 | 2960.77 | 2960.22 | 2956.44 | 2952.44 | 2955.37 | 2955.67 | 2952.41 | 2952.45 | 2957.91 | 2955.44 | 2953.78 |
| MIN | 2946.21 | 2958.81 | 2956.43 | 2951.60 | 2951.43 | 2952.18 | 2949.02 | 2948.82 | 2949.67 | 2951.63 | 2953.05 | 2949.65 |
| | | | | | | | | | | | | |

CAL YR 1990 MEAN 2937.92 MAX 2961.00 MIN 2926.24 WTR YR 1991 MEAN 2954.14 MAX 2961.00 MIN 2946.21

50032590 LAGO DE MATRULLAS AT DAMSITE, PR

LOCATION.--Lat 18°12'46", long 66°28'50", Hydrologic Unit 21010001, in concrete house at damsite, and 5.8 mi (9.3 km) southwest of Orocovis.

DRAINAGE AREA . -- 4.46 mi 2 (11.55 km2).

ELEVATION RECORDS

PERIOD OF RECORD .-- May 1988 to current year.

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

REMARKS.--Lago Matrullas was completed in 1934. The dam is an earthfill structure about 120 ft (37 m) height, a top width of 30 ft (9 m) and a length of 710 ft (216 m), and has a maximum storage capacity of about 4,274 ac-ft (5.220 hm²) at top of dam elevation. The Matrullas Dam is owned by the Puerto Rico Electric Power Authority and is part of the Toro Negro Hydroelectric Project, a project developed by the P.R.B.P.A. for the primary purpose of generating electric power. Discharges from the Power Plants are collected by the Jacquas River which flows into Guayabal Dam, at which dam they are regulated for irrigation of lands served by the Juana Díaz Canal. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD. -- Maximum elevation 2,413.49 ft (735.63 m), Sept. 30, 1989; minimum elevation 2,392.81 ft (729.33 m), Sept. 10, 1989.

EXTREMES OBSERVED FOR CURRENT YEAR. -- Maximum elevation, 2,413.15 ft (735.53 m), Mar. 26; minimum elevation 2,409.56 ft (734.43 m), Aug. 16.

Capacity Table (based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 2,338 | 2 | 2,399 | 1,845 |
| 2,360 | 302 | 2,415 | 2,945 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOW | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | ÀUG | SEP |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------------|---------|
| 1 | 2412.14 | 2412.28 | 2412.61 | 2412.65 | 2410.33 | 2411.29 | 2412.44 | 2412.51 | 2412.05 | 2411.98 | 2410.39 | 2412.04 |
| 2 | 2411.68 | 2412.57 | 2412.71 | 2412.42 | 2410.41 | 2411.38 | 2412.47 | 2412.40 | 2412.17 | 2411.83 | 2410.11 | 2412.15 |
| 3 | 2411.69 | 2412.53 | 2412.65 | 2412.25 | 2410.57 | 2411.49 | 2412.63 | 2412.37 | 2412.12 | 2411.62 | 2410.10 | 2412.05 |
| ă | 2411.76 | 2412.83 | 2412.60 | 2412.16 | 2410.51 | | 2412.70 | 2412.51 | | | 2410.22 | 2412.03 |
| 5 | 2411.82 | 2412.63 | 2412.55 | 2412.33 | 2410.50 | 2411.51 | | | 2411.85 | | 2410.21 | 2411.81 |
| _ | | | | | | **11.31 | | | | 2411.40 | | |
| 6 | 2412.03 | 2412.60 | 2412.55 | 2412.54 | 2410.53 | 2411.47 | 2412.49 | 2412.07 | 2411.57 | 2411.49 | 2410.02 | 2411.86 |
| 7 | 2412.26 | 2412.58 | 2412.55 | 2412.59 | 2410.57 | 2411.44 | 2412.49 | 2411.98 | 2411.42 | 2411.58 | 2409.91 | 2411.98 |
| 8 | 2412.26 | 2412.58 | 2412.41 | 2412.35 | 2410.59 | 2411.21 | 2412.47 | 2411.91 | 2411.49 | 2411.77 | 2409.83 | 2411.99 |
| 9 | 2412.53 | 2412.66 | 2412.61 | 2412.22 | 2410.71 | 2411.21 | 2412.45 | 2411.89 | 2411.61 | 2412.01 | 2409.75 | 2411.91 |
| 10 | 2412.47 | 2412.51 | 2412.67 | 2412.27 | 2410.96 | 2411.30 | 2412.35 | 2411.92 | 2411.39 | 2412.05 | 2409.81 | 2411.74 |
| | | | | | | | | | | | | |
| 11 | 2412.08 | 2412.67 | 2412.67 | 2412.45 | 2410.93 | 2411.31 | 2412.27 | 2412.05 | 2411.13 | 2412.06 | 2409.90 | 2411.69 |
| 12 | 2412.13 | 2412.70 | 2412.67 | 2412.55 | 2410.75 | 2411.27 | 2412.07 | 2412.18 | 2411.09 | 2412.07 | 2409.86 | 2411.46 |
| 13 | 2412.45 | 2412.55 | 2412.67 | 2412.57 | 2410.77 | 2411.25 | 2412.16 | 2412.25 | 2411.05 | 2412.05 | 2409.81 | 2411.25 |
| 14 | 2412.46 | 2412.46 | 2412.52 | 2412.32 | 2410.82 | 2411.22 | 2412.28 | 2412.21 | 2410.89 | 2412.07 | 2409.79 | 2411.01 |
| 15 | 2412.52 | 2412.24 | 2412.45 | 2412.32 | 2410.85 | 2411.17 | 2412.13 | 2412.03 | | 2412.09 | 2409.64 | 2411.04 |
| | | | | | | | | | | | | |
| 16 | 2412.44 | 2412.12 | 2412.62 | 2412.15 | 2410.98 | 2411.24 | 2412.07 | 2411.93 | 2411.00 | 2412.76 | 2410.07 | 2410.89 |
| 17 | 2412.23 | 2412.02 | 2412.48 | 2412.12 | 2411.12 | 2411.33 | 2411.77 | 2411.91 | | 2412.15 | 2410.27 | 2410.67 |
| 18 | 2412.33 | 2412.24 | 2412.41 | 2412.17 | 2411.31 | 2411.37 | 2411.44 | 2412.03 | 2410.95 | 2411.93 | 2409.99 | 2410.45 |
| 19 | 2412.39 | 2412.55 | 2412.35 | 2412.15 | 2411.17 | 2411.37 | 2411.42 | 2412.16 | 2410.85 | 2411.68 | 2409.73 | 2410.19 |
| 20 | 2412.34 | 2413.06 | 2412.29 | 2412.23 | 2411.10 | 2411.35 | 2411.53 | 2412.99 | 2410.67 | 2411.31 | 2409.64 | 2410.05 |
| | | | | ****** | ******* | ****** | **11.55 | ****** | 2410.07 | -411.31 | ********** | 2410.03 |
| 21 | 2412.88 | 2412.74 | 2412.51 | 2412.07 | 2411.09 | 2411.37 | 2411.67 | 2412.42 | 2410.57 | 2411.31 | 2410.36 | 2410.13 |
| 22 | 2412.55 | 2412.86 | 2412.63 | 2411.85 | 2411.07 | 2411.93 | 2411.82 | 2412.25 | 2410.65 | 2411.29 | 2411.68 | 2410.26 |
| 23 | 2412.43 | 2412.73 | 2412.65 | 2411.69 | 2411.17 | 2412.21 | 2411.90 | 2412.20 | 2410.75 | 2411.05 | 2411.89 | 2410.17 |
| 24 | 2412.51 | 2412.70 | 2412.65 | 2411.52 | 2411.30 | 2412.33 | 2411.96 | 2412.18 | 2410.73 | 2410.81 | 2411.90 | 2409.99 |
| 25 | 2412.69 | 2412.68 | 2412.65 | 2411.34 | 2411.35 | 2412.13 | 2411.91 | 2412.26 | 2410.68 | 2410.85 | 2412.00 | 2409.77 |
| | | | | | | | | | | | | |
| 26 | 2412.77 | 2412.52 | 2412.42 | 2411.03 | 2411.33 | 2413.15 | 2411.87 | 2412.25 | 2410.61 | 2410.84 | 2411.77 | 2409.68 |
| 27 | 2412.67 | 2412.46 | 2412.23 | 2411.03 | 2411.31 | 2412.52 | 2411.63 | 2412.25 | 2410.56 | 2410.56 | 2411.52 | 2409.87 |
| 28 | 2412.73 | 2412.38 | 2412.09 | 2411.07 | 2411.29 | 2412.47 | 2411.62 | 2412.03 | 2410.51 | 2410.72 | 2411.25 | 2410.17 |
| 29 | 2412.59 | 2412.32 | 2412.10 | 2410.89 | | 2412.45 | 2411.59 | 2411.97 | 2410.46 | 2410.69 | 2410.95 | 2410.32 |
| 30 | 2412.53 | 2412.32 | 2412.35 | 2410.63 | | 2412.43 | 2411.82 | 2411.93 | 2411.82 | 2410.61 | 2410.69 | 2410.21 |
| 31 | 2412.39 | | 2412.66 | 2410.47 | | 2412.44 | | 2411.93 | | 2410.55 | 2410.71 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | 74723.77 | |
| | 2412.35 | 2412.54 | | 2411.95 | | | | | 2411.15 | | | 2410.96 |
| MAX | 2412.88 | 2413.06 | 2412.71 | 2412.65 | 2411.35 | 2413.15 | 2412.70 | | | | 2412.00 | 2412.15 |
| MIN | 2411.68 | 2412.02 | 2412.09 | 2410.47 | 2410.33 | 2411.17 | 2411.42 | 2411.89 | 2410.46 | 2410.55 | 2409.64 | 2409.68 |
| | | | | | | | | | | | | |

CAL YR 1990 TOTAL 878922.73 MEAN 2408.01 MAX 2413.06 MIN 2403.11 WTR YR 1991 TOTAL 880268.10 MEAN 2411.69 MAX 2413.15 MIN 2409.64

50034000 RIO BAUTA NEAR OROCOVIS, PR

LOCATION.--Lat 18°14'10", long 66°27'18", Hydrologic Unit 21010001, on left bank, at bridge on Highway 157 (12.1 km), and 4.2 mi (6.8 km) west of Orocovis.

DRAINAGE AREA. -- 16.7 mi 2 (43.3 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- February 1959 to April 1966 (annual low-flow measurements only), February to September 1969 (occasional measurements only), October 1969 to September 1982, October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 772.82 ft (235.556 m) above mean sea level.

REMARKS. -- Records fair. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--15 years (1971-82,1989-91), 36.0 ft³/s (1.020 m³/s), 29.27 in/yr (743 mm/yr), 26,080 acre-ft/yr (32.2 hm³/yr); median of yearly mean discharges, 28 ft³/s (0.79 m³/s), 20,300 acre-ft/yr (25 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,800 ft³/s (504 m³/s), Oct. 9, 1970, gage height, 21.9 ft (6.675 m), from floodmark, from rating curve extended above 100 ft³/s (2.83 m³/s) on basis of step-backwater analysis by U.S. Bureau of Reclamation; minimum discharge 2.8 ft³/s (0.079 m³/s), July 23, 1977.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 1,500 ft³/s (42.5 m³/s) and maximum (*):

| Date | Time | Disc (ft³/s) | harge (m³/s) | Gage : | height (m) | Date | Time | Disc (ft ³ /s) | charge (m³/s) | Gage (ft) | height (m) |
|--------------------|--------------|-----------------|-----------------|--------|---------------|---------|------|------------------------------|------------------|--------------|------------|
| Oct. 21 Nov. 20 | 1000 1620 | 1,560 1,530 | 44.2 | 11.56 | 3.523 | Mar. 26 | 1645 | *1,650 | 46.7 | *11.68 | 3.560 |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum discharge, 6.1 ft3/s (0.172 m3/s), July 7.

| | DAILY MEAN VALUES | | | | | | | | | | | | | |
|-------------|-------------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|--|--|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP | | |
| 1 | 60 | 60 | 21 | 25 | 10 | 10 | 14 | 32 | 11 | 11 | 9.8 | 125 | | |
| | 30 | 50 | 25 | 17 | 9.9 | 9.8 | 14 | 23 | 12 | 7.0 | 9.6 | 77 | | |
| 2 3 4 | 22 | 44 | 72 | 15 | 10 | 9.9 | 14 | 11 | 12 | 6.6 | 9.3 | 27 | | |
| 4 | 21 | 64 | 52 | 14 | 9.6 | 9.8 | 17 | 11 | 11 | 6.4 | 27 | 18 | | |
| 5 | 22 | 49 | 30 | 13 | 17 | 10 | 16 | 9.6 | 10 | 6.4 | 15 | 14 | | |
| 6 | 21 | 43 | 24 | 13 | 36 | 10 | 13 | 8.2 | 10 | 6.2 | 11 | 13 | | |
| 7 | 27 | 38 | 21 | 13 | 20 | 10 | 13 | 10 | 10 | 6.1 | 9.2 | 26 | | |
| 8 | 26 | 33 | 19 | 13 | 13 | 9.3 | 13 | 9.8 | 9.9 | 69 | 8.8 | 24 | | |
| 9 | 77 | 31 | 18 | 12 | 11 | 8.9 | 13 | 8.4 | 9.8 | 35 | 8.6 | 16 | | |
| 10 | 120 | 29 | 18 | 12 | 20 | 9.1 | 12 | 8.0 | 9.4 | 9.5 | 8.4 | 14 | | |
| 11 | 81 | 27 | 18 | 12 | 23 | 9.5 | 12 | 7.7 | 9.2 | 7.3 | 8.4 | 13 | | |
| 12 | 64 | 27 | 18 | 11 | 22 | 9.7 | 11 | 33 | 9.2 | 6.8 | 8.1 | 13 | | |
| 13 | 143 | 25 | 17 | 11 | 38 | 9.4 | 13 | 149 | 9.2 | 6.6 | 8.3 | 12 | | |
| 14 | 290 | 24 | 16 | 11 | 21 | 9.5 | 11 | 85 | 8.8 | 6.4 | 26 | 11 | | |
| 15 | 271 | 23 | 19 | 11 | 15 | 9.1 | 11 | 32 | 8.6 | 6.7 | 24 | 11 | | |
| 16 | 265 | 23 | 17 | 11 | 14 | 9.0 | 11 | 17 | 8.5 | 362 | 13 | 11 | | |
| 17 | 155 | 22 | 15 | 11 | 14 | 9.0 | 10 | 12 | 8.4 | 69 | 24 | 13 | | |
| 18 | 160 | 21 | 15 | 10 | 13 | 11 | 10 | 11 | 8.1 | 26 | 21 | 12 | | |
| 19 | 228 | 21 | 14 | 10 | 21 | 9.7 | 9.8 | 10 | 8.0 | 18 | 13 | 11 | | |
| 20 | 94 | 239 | 14 | 10 | 16 | 9.2 | 9.6 | 91 | 7.9 | 14 | 23 | 13 | | |
| 21 | 542 | 115 | 14 | 9.8 | 14 | 11 | 9.3 | 49 | 7.8 | 12 | 34 | 15 | | |
| 22 | 153 | 148 | 14 | 9.8 | 12 | 34 | 8.9 | 19 | 7.9 | 11 | 122 | 11 | | |
| 23 | 98 | 90 | 15 | 9.8 | 12 | 22 | 8.8 | 14 | 7.7 | 11 | 100 | 11 | | |
| 24 | 98 | 47 | 14 | 10 | 11 | 12 | 8.7 | 12 | 7.3 | 12 | 31 | 11 | | |
| 25 | 206 | 34 | 13 | 9.9 | 12 | 11 | 8.6 | - 11 | 7.2 | 11 | 19 | 10 | | |
| 26 | 362 | 29 | 13 | 9.6 | 11 | 268 | 8.4 | 11 | 6.9 | 10 | 15 | 10 | | |
| 27 | 189 | 28 | 13 | 9.6 | 11 | 111 | 8.3 | 11 | 6.7 | 10 | 24 | 14 | | |
| 28 | 149 | 25 | 13 | 9.5 | 11 | 30 | 8.1 | 10 | 81 | 19 | 23 | 17 | | |
| 29 | 114 | 23 | 12 | 9.7 | | 19 | 7.8 | 11 | 7.0 | 18 | 14 | 12 | | |
| 30 | 85 | 22 | 14 | 9.6 | | 16 | 11 | 11 | 35 | 12 | 12 | 12 | | |
| 31 | 73 | | 32 | 9.7 | | 14 | | 11 | | 11 | 11 | | | |
| TOTAL | 4246 | 1454 | 630 | 362.0 | 447.5 | 739.9 | 335.3 | 748.7 | 365.5 | 823.0 | 690.5 | 597 | | |
| MBAN | 137 | 48.5 | 20.3 | 11.7 | 16.0 | 23.9 | 11.2 | 24.2 | 12.2 | 26.5 | 22.3 | 19.9 | | |
| MAX | 542 | 239 | 72 | 25 | 38 | 268 | _17 | 149 | 81 | 362 | 122 | 125 | | |
| MIN | 21 | 21 | 12 | 9.5 | 9.6 | 8.9 | 7.8 | 7.7 | 6.7 | 6.1 | 8.1 | 10 | | |
| AC-FT | 8420 | 2880 | 1250 | 718 | 888 | 1470 | 665 | 1490 | 725 | 1630 | 1370 | 1180 | | |
| CFSM | 8.20 | 2.90 | 1.22 | . 70 | .96 | 1.43 | . 67 | 1.45 | .73 | 1.59 | 1.33 | 1.19 | | |
| IN. | 9.46 | 3.24 | 1.40 | .81 | 1.00 | 1.65 | .75 | 1.67 | .81 | 1.83 | 1.54 | 1.33 | | |

CAL YR 1990 TOTAL 10140.4 MEAN 27.8 MAX 542 MIN 3.6 AC-FT 20110 CFSM 1.66 IN. 22.59 WTR YR 1991 TOTAL 11439.4 MEAN 31.3 MAX 542 MIN 6.1 AC-FT 22690 CFSM 1.88 IN. 25.48

50034000 RIO BAUTA NEAR OROCOVIS, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS OCTOBER 1988 TO CURRENT YEAR

| DATE T | IMR | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|------------|-----|---------------------------------------|--------------------------------------|-----------------------------|--------|--------|---------------------------------------|--------------------------------------|-----------------------------|
| APR. 30 08 | 845 | 7.8 | 210 | 22.5 | JUN. 2 | 1009 | 6.9 | 242 | 25.0 |
| JUN. 04 1: | 122 | 11 | 223 | 25.5 | AUG. 0 | 7 1230 | 9.6 | 231 | 27.5 |

50035000 RIO GRANDE DE MANATI AT CIALES, PR

LOCATION.--Lat 18°19'26", long 66°27'36", Hydrologic Unit 21010001, on left bank, 1.6 mi (2.6 km) upstream from Hwy 145 bridge, 0.8 mi (1.3 km) downstream from Quebrada Saliente, 0.9 mi (1.4 km) upstream from Quebrada Cojo Vales, and 1.2 mi (1.9 km) southeast of Ciales.

DRAINAGE AREA.--128 mi² (332 km²), excludes 6.0 mi² (15.5 km²), the runoff from which is diverted through El Guineo and de Matrullas reservoirs.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- September 1946 to September 1953, May 1956 to December 1957 (unpublished, available in files of Caribbean District Office and in the National Water Data Storage and Retrieval System, Washington, D.C.), February 1959 to September 1960 (monthly discharge measurements only), October 1960 to current year. Equivalent record from January 1971 to December 1972 published as 50035200 Rfo Grande de Manatí at Highway 145 at Ciales at site 1.6 mi (2.6 km) downstream, drainage area 132 mi² (342 km²).

GAGE.--Water-stage recorder. Elevation of gage is 140 ft (43 m), from topographic map. Prior to Apr. 1, 1962, staff gage, read twice daily, at site 100 ft (30 m) upstream at same datum. January 1971 to December 1972 at site 1.6 mi (2.6 km) downstream at different datum.

REMARKS .-- Records poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--31 years (1961-91), 258 ft 3 /s (7.306 m^2 /s), 27.37 in/yr (695 mm/yr), 186,900 acre-ft/yr (230 hm 2 /yr); median of yearly mean discharges, 232 ft 3 /s (6.57 m^2 /s), 168,000 acre-ft/yr (207 hm 2 /yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 125,000 ft³/s (3,540 m³/s), Oct. 9, 1970, gage height, 24.0 ft (7.315 m), from floodmark, from rating curve extended above 3,000 ft³/s (85.0 m³/s) on basis of slope-area measurements of peak flow at gage heights 13.2 ft (4.02 m), 15.0 ft (4.57 m), 19.0 ft (5.79 m), and 24.0 ft (7.315 m), datum then in use; minimum discharge, 20 ft³/s (0.566 m³/s), Apr. 20, 21, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate gage heights of major floods, pointed out by local residents are as follows: August 1899, 50 ft (15 m), September 1928, 36 ft (11 m), and September 1932, 34 ft (10 m) at site 1.6 mi (2.6 km) upstream.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 7,000 ft3/s (198 m3/s) and maximum (*):

| | | Disc | harge | Gage height | | | | | harge | Gage | height |
|---------|------|---------|--------|-------------|-------|---------|------|---------|--------|-------|--------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 14 | 1440 | 8,940 | 253 | 7.39 | 2.252 | Oct. 17 | 1615 | *13,700 | 388 | *9.00 | 2.743 |
| Oct. 15 | 1645 | 8,420 | 238 | 7.19 | 2.192 | Oct. 21 | 1145 | 8,320 | 236 | 7.15 | 2.179 |
| Oct. 16 | 1745 | 7,180 | 203 | 6.68 | 2.036 | | | | | | |

Minimum discharge, 46 ft³/s (1.30 m³/s), Aug. 11-15.

RIO GRANDE DE MANATI BASIN

50035000 RIO GRANDE DE MANATI AT CIALES, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES OCT NOV DEC JAN FEB MAR APR MAY JUN JUL

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------------|-------|-------|--------------|--------------|--------------|------------|-----------------|--------------|------|------|------|------|
| 1 | 577 | 351 | 234 | e4 68 | e 109 | e92 | 87 | 136 | 108 | 121 | 60 | 226 |
| 2 | 306 | 296 | 210 | e273 | e110 | e91 | 89 | 241 | 87 | 68 | 56 | 280 |
| 2 3 4 | 224 | 278 | 796 | e206 | e108 | e89 | 125 | 253 | 83 | 59 | 53 | 110 |
| 4 | 333 | 252 | 574 | e184 | e117 | e88 | 850 | 195 | 80 | 56 | 102 | 84 |
| 5 | 308 | 493 | 305 | e 175 | 132 | €87 | 560 | 119 | 79 | 54 | 100 | 73 |
| 6 | 246 | 275 | e190 | e21 9 | 211 | 87 | 147 | 81 | 75 | 53 | 60 | 66 |
| 7 | 858 | 235 | e170 | e 168 | 273 | 86 | 118 | 68 | 72 | 52 | 53 | 200 |
| 8 | 625 | 226 | e 160 | e160 | 136 | 84 | 108 | 133 | 72 | 204 | 49 | 241 |
| 9 | 1030 | 204 | e155 | e153 | 120 | 83 | 108 | 100 | 72 | 248 | 48 | 99 |
| 10 | 1180 | 193 | e153 | 149 | 109 | 82 | 89 | 81 | 69 | 78 | 48 | 82 |
| 11 | 662 | 186 | e153 | 149 | 150 | 81 | 83 | 115 | 68 | 62 | 47 | 74 |
| 12 | 359 | 182 | e153 | 144 | 150 | 81 | 84 | 220 | 66 | 59 | 46 | 126 |
| 13 | 618 | 174 | e220 | 139 | 296 | 81 | 154 | 885 | 66 | 56 | 46 | 153 |
| 14 | 2180 | 161 | -2 00 | 136 | 177 | 81 | 109 | 1200 | 65 | 54 | 46 | 85 |
| 15 | 2350 | 154 | e200 | 127 | 139 | 79 | e 95 | 585 | 65 | 61 | 81 | 77 |
| 16 | 2420 | 163 | e24 9 | 121 | 120 | 75 | e100 | 216 | 61 | 2030 | 79 | 81 |
| 17 | 2630 | 178 | e175 | 121 | 168 | 72 | e 86 | 149 | 57 | 521 | 99 | 69 |
| 18 | 1510 | 167 | e165 | 120 | 148 | 72 | e81 | 134 | 57 | 165 | 81 | 76 |
| 19 | 1910 | 163 | e1 60 | 117 | 649 | 74 | e78 | 128 | 60 | 126 | 58 | 68 |
| 20 | 986 | 604 | e155 | 115 | 361 | 76 | e7 6 | e2 00 | 63 | 96 | 53 | 82 |
| 21 | 3160 | 583 | e151 | 113 | 190 | 72 | e72 | e4 50 | 63 | 81 | 121 | 91 |
| 22 | 1240 | 681 | e150 | 113 | 140 | 236 | e 69 | 162 | 69 | 73 | 221 | 70 |
| 23 | 747 | 541 | e15 0 | 113 | 124 | 316 | e 66 | 128 | 62 | 71 | 293 | 66 |
| 24 | 617 | 390 | e170 | 110 | 113 | 131 | e64 | 114 | 60 | 67 | 105 | 66 |
| 25 | 815 | 318 | e 160 | 107 | 107 | 103 | e 63 | 105 | 59 | 65 | 75 | 62 |
| 26 | 1690 | 301 | e145 | 107 | e98 | 810 | e64 | 105 | 54 | 62 | 67 | 60 |
| 27 | 1090 | 288 | -140 | e1 06 | e 97 | 816 | e62 | 105 | 54 | 59 | 198 | 70 |
| 28 | 767 | 274 | e145 | e104 | e94 | 196 | - 60 | 101 | 52 | 61 | 257 | 125 |
| 29 | 642 | 213 | e140 | e102 | | 124 | e62 | 94 | 53 | 113 | 94 | 74 |
| 30 | 503 | 286 | e180 | e101 | | 106 | - 80 | 88 | 136 | 70 | 72 | 70 |
| 31 | 458 | | e 350 | e 103 | | 92 | | 114 | | 63 | 63 | |
| TOTAL | 33041 | 8810 | 6658 | 4623 | 4746 | 4643 | 3889 | 6805 | 2087 | 5008 | 2831 | 3106 |
| MEAN | 1066 | 294 | 215 | 149 | 169 | 150 | 130 | 220 | 69.6 | 162 | 91.3 | 104 |
| MAX | 3160 | 681 | 796 | 468 | 649 | 816 | 850 | 1200 | 136 | 2030 | 293 | 280 |
| MIN | 224 | 154 | 140 | 101 | 94 | 72 | 60 | 68 | 52 | 52 | 46 | 60 |
| AC-FT | 65540 | 17470 | 13210 | 9170 | 9410 | 9210 | 7710 | 13500 | 4140 | 9930 | 5620 | 6160 |
| CPSM | 8.33 | 2.29 | 1.68 | 1.17 | 1.32 | 1.17 | 1.01 | 1.71 | .54 | 1.26 | .71 | .81 |
| IN. | 9.60 | 2.56 | 1.93 | 1.34 | 1.38 | 1.35 | 1.13 | 1.98 | .61 | 1.46 | .82 | . 90 |

CAL YR 1990 TOTAL 83456 MEAN 229 MAX 3160 MIN 36 AC-FT 165500 CFSM 1.79 IN. 24.25 WTR YR 1991 TOTAL 86247 MEAN 236 MAX 3160 MIN 46 AC-FT 171100 CFSM 1.85 IN. 25.07

e Estimated

50035500 RIO GRANDE DE MANATI AT HIGHWAY 149 AT CIALES, RP

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'46", long 66°28'06", at bridge on Highway 149, about 800 ft (244 m) upstream from confluence with Río Cialitos, 0.5 mi (0.8 km) north of Ciales plaza.

DRAINAGE AREA.--136 mi^2 (352 km^2) this excludes the 6 mi^2 (15.5 km^2) upstream from Lago El Guineo and Lago de Matrullas, flow from which is diverted to Río Jacaguas.

PERIOD OF RECORD. -- Water years 1979 to current year.

K = non-ideal count

WATER-CUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1991

| | | WATE | R-QUALITY | DATA, WA | TER YEAR | OCTOBER | 1991 TO SI | EPTEMBER 1 | .991 | | |
|----------------|---|---|---|--|--|---|---|---|---|---|---|
| DATE | TIMB | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| NOV 1990 | | | | | | | | | | | |
| 05 | 1100 | 585 | 189 | 7.8 | 24.0 | 45 | 8.4 | 99 | 18 | 23000 | 5700 |
| JAN 1991 03 | 0835 | 202 | 223 | 7.7 | 22.0 | 20 | 7.9 | 90 | <10 | K700 | 360 |
| FEB 27 | 0950 | 98 | 265 | 8.1 | 24.2 | 20 | 7.7 | 91 | 10 | K840 | K140 |
| MAY 01 | 1030 | 116 | 264 | 8.1 | 27.0 | 5.5 | 7.0 | 87 | 11 | 560 | 720 |
| JUN 26 | 1205 | 36 | 373 | 8.2 | 29.5 | 5.7 | 6.5 | 85 | 16 | K50 | K10 |
| AUG | _ | | | | | | | | | | |
| 30 | 1205 | 64 | 350 | 8.0 | 28.5 | 52 | 6.8 | 87 | 25 | 3100 | 300 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | FOTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDR, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 | 70 | | 18 | | | | | | | | |
| 05 JAN 1991 | 70 | | 19 | 6.1 | 9.0 | 0.9 | 5 1.7 | 68 | <0.5 | 5.7 | 10 |
| 03 FRB | | | | | | | | 84 | | | |
| 27 | | | | | | | | 100 | | | |
| 01 | 110 | | 26 | 9.9 | 13 | 0.6 | 1.8 | 101 | <0.5 | 12 | 15 |
| JUN 26 | | | | | | | | 140 | | | |
| AUG 30 | 87 | | 22 | 7.9 | 11 | 0.5 | 5 2.4 | 75 | | 10 | 12 |
| | | | | | | | | | | - | |
| DA: | ri E SC TB (Y | DE, DI DIS- SC DLVED (M G/L A | OLVED TUE IG/L D: AS SOI | OF SOL BTI- D NTS, SO IS- (T LVED P | IDS, TOT IS- AT LVED DEG ONS SU ER PEN | 105 . C, Ni S- 1 | GEN, GITRATE NIT | SEN, G PRITE NO2 PTAL TO SG/L (M | EN, G +NO3 AMM TAL TO G/L (M | EN, G ONIA ORG TAL TO G/L (M | TRO- EN, ANIC TAL G/L |
| NOV 19: 05 | | :0.10 2 | :3 | 115 18 | 1 | 20 | 0.780 (| 0.020 0 | .800 0 | . 03 0 | 0.27 |
| JAN 19: 03 | 91 | | | | - | 19 | | | | | 0.24 |
| FEB 27 | | | | | | 23 | | | | | 0.57 |
| MAY 01 | | | 16 | | 1.5 | 12 | | | | | 0.46 |
| JUN 26 | | | | | | 6 | | | | | 0.28 |
| AUG | | | | | | - | | | | | |
| 30 | | :0.10 2 | 15 | 141 2 | 4.4 | 29 | 0.500 (| 0.040 0 | .540 0 | .070 | 0.23 |

50035500 RIO GRANDE DE MANATI AT HIGHWAY 149 AT CIALES, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|--|---|--|---|---|---|--|--|
| NOV 1990 | | | | | | | | | | |
| 05 | 0.30 | 1.1 | 4.9 | 0.110 | <1 | <100 | <10 | <1 | 4 | <10 |
| JAN 1991 03 | 0.30 | 1.2 | 5.3 | 0.070 | | | | | | |
| FEB 27 | 2.52 | | | | | | | | | |
| MAY | 0.60 | 1.1 | 4.8 | 0.080 | | | | | | |
| 01 Jun | 0.50 | 0.70 | 3.1 | 0.100 | <1 | 200 | <10 | <1 | 2 | 20 |
| 26 | 0.30 | 0.38 | 1.7 | 0.070 | | | | | | |
| AUG 30 | 0.30 | 0.84 | 3.7 | 0.120 | | | | | | |
| | | | 1 | | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA - NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| DATE | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | LENE BLUE ACTIVE SUB- STANCE |
| NOV 1990 05 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | LENE BLUE ACTIVE SUB- STANCE |
| NOV 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 05 JAN 1991 03 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 05 JAN 1991 03 FEB 27 | TOTAL RECOV- ERABLE (UG/L AS FE) 2300 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL TOTAL TOTAL ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS EG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 05 JAN 1991 03 FEB 27 MAY 01 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 05 JAN 1991 03 FEB 27 | TOTAL RECOV- ERABLE (UG/L AS FE) 2300 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL TOTAL TOTAL ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS EG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |

50035950 RIO CIALITOS AT HIGHWAY 649 AT CIALES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'18", long 66°28'28", 100 ft (30 m) upstream from bridge on Highway 649, 0.7 mi (1.1 km) upstream from mouth, and about 0.4 mi (0.6 km) west of Ciales plaza.

DRAINAGE AREA . -- 17.0 mi2 (44.0 km2).

PERIOD OF RECORD. -- Water years 1969-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | WATE | K-GOVPTIA | DATA, WA | TER YEAR | OCTOBE | K 1990 T |) SEPTEMB | EK 1991 | | | |
|---------------------------------------|---|---|---|--|--|--|--|---|--|--|---|---------|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR BID ITY (NTU | - DI | e- Cri Ved satu | B- DEMA VED CHI R- ICA VT (HI UR- LEVI | ND, FOR M- FEC L 0.4 (GH UM- (L) (COI | M, STREE AL, TOCOCO 5 FECAI MF (COLS. S./ PER | I, |
| NOV 1990 05 | 0945 | 53 | 158 | 7.9 | 22.5 | 27 | | . 5 | 97 | 20 K7 | 300 970 | 00 |
| DEC 26 | 1110 | 19 | 232 | 8.5 | 21.0 | 1. | | | L05 | <10 | 530 48 | |
| FRB 1991 | | | | | | | _ | | | | | |
| 27 May | 1205 | 17 | 239 | 8.2 | 23.0 | 81 | | . 2 | 95 | | 400 26 | |
| 01 Jun | 1320 | 12 | 230 | 8.4 | 27.0 | 2. | 5 8 | . 8 | 109 | <10 3 | 800 63 | 10 |
| 26 Aug | 1320 | 1.2 | 242 | 7.4 | 28.5 | 8. | 0 8 | .1 | L03 | <10 2 | 000 37 | 0 |
| 30 | 1345 | 1.5 | 216 | 8.0 | 28.0 | 6. | 3 8 | . 8 | L10 | 38 | 570 51 | LO |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS MONCARB WH WAT TOT FLD 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) | SODI AD SORP TIO RATI | - SI - DIS | UM, WAT I S- TOT : VED FIE: /L MG/L | fy NH PRT SULI LD TO! AS (MG | PAL SOI | - DIS- VED SOLVE /L (MG/I | ; 3D |
| NOV 1990 | | | | | | _ | | _ | | | | |
| 05 Dec | 66 | | 19 | 4.5 | 8.2 | 0 | .4 1 | .7 | | (0.5 4 | .9 11 | |
| 26 FRB 1991 | | | | | | | | - | 93 - | | | |
| 27 May | | | | | | | | - : | L00 - | | | |
| 01 JUN | 92 | | 25 | 7.1 | 12 | 0 | .5 2 | . 0 | 79 | :0.5 1 | .4 11 | |
| 26 | | | | | | | - | - | 46 - | | | |
| 30 | 58 | | 16 | 4.3 | 8.9 | 0 | .5 1 | . 9 | 36 - | 7 | .0 8.5 | į |
| NOV 199 05 DEC 26 FEB 199 | RI I SC TE (N As | DE, DI DIS- SC DLVED (M IG/L A S F) SI | ICA, SUM S- CON IVED TUE IG/L D S SO O2) (M | STI- D NTS, SO IS- (T LVED F G/L) E | IDS, TOTAL | 105 3. C, JS- JDED 4G/L) 36 | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) 0.010 <0.010 | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) 1.00 | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) | |
| 27 May | • | | | | | 107 | 0.670 | 0.010 | 0.680 | 0.030 | 0.87 | |
| 01 JUN | • | 0.10 2 | 9 | 135 | 4.19 | 4 | 0.410 | <0.010 | 0.420 | 0.020 | 0.18 | |
| 26 | • | | | | | 10 | 0.420 | 0.010 | 0.430 | 0.020 | | |
| 30 | • | 0.10 2 | :1 | 100 | 0.41 | | | <0.010 | 0.730 | 0.030 | 0.17 | |
| K = noi | n-ideal c | ount | | | | | | | | | | |

RIO GRANDE DE MANATI BASIN

50035950 RIO CIALITOS AT HIGHWAY 649 AT CIALES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- NIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------------|---|---|---|---|--|---|---|---|--|--|
| NOV 1990 | | | | | | | | | | |
| 05 | <0.20 | | | 0.130 | <1 | <100 | <10 | <1 | 2 | <10 |
| 26 FEB 1991 | 0.20 | 0.90 | 4.0 | 0.050 | | | | | | |
| 27 MAY | 0.90 | 1.6 | 7.0 | 0.370 | | | | | | |
| 01 JUN | 0.20 | 0.62 | 2.7 | 0.070 | <1 | 200 | <10 | <1 | 1 | 10 |
| 26 AUG | <0.20 | | | 0.080 | | | | | | |
| 30 | 0.20 | 0.93 | 4.1 | 0.040 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 | | _ | | | _ | | | | _ | |
| 05 Dec | 1500 | 2 | 60 | 0.50 | <1 | <1 | <10 | <0.010 | 1 | 0.01 |
| 26 FEB 1991 | | | | | | | | | | |
| 27 | | | | | | | | | | |
| 01 JUN | 90 | 3 | 20 | <0.10 | <1 | <1 | <10 | <0.010 | <1 | 0.01 |
| UUM | | | | | | | | | | |
| 26 Aug | | | | | | | | | | |

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR

LOCATION.--Lat 18°25'52", long 66°31'37", Hydrologic Unit 21010002, at bridge on Highway 2, and 2.3 mi (3.7 km) west of Manatí.

DRAINAGE AREA.--197 mi² (510 km²), approximately, of which about 38 mi² (98 km²) is partly or entirely noncontributing, excludes 6.0 mi² (15.5 km²) upstream from Lago El Guineo and Lago de Matrullas.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- 1963-68 (annual maximum discharge only), February 1970 to current year.

REVISED RECORDS. -- WRD PR-86-1: 1970-71 (M), 1975, 1979, 1982-85 (P).

GAGE.--Water-stage recorder. Elevation of gage is 14 ft (4 m), from topographic map. Prior to 1968 crest-stage gage at same site and datum 3.57 ft (1.09 m) lower.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--21 years (1971-91), 384 ft³/s (10.87 m³/s), 26.47 in/yr (672 mm/yr), 278,200 acre-ft/yr (343 hm³/yr); median of yearly mean discharges, 361 ft³/s (10.2 m³/s), 261,000 acre-ft/yr (323 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 97,200 ft³/s (2,750 m³/s), Oct. 7, 1985, gage height, 33.79 ft (10.299 m) from rating curve extended above 15,000 ft³/s (425 m³/s) on basis of slope-area measurements of peak flow; minimum discharge, 33 ft³/s (0.935 m³/s), May 12, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate gage heights to gage datum of major floods, pointed out by local residents, are as follows: Sept. 13, 1928, 36.6 ft (11.16 m), Sept. 27, 1932, 36.3 ft (11.06 m), and Aug. 4, 1945, 34.3 ft (10.45 m).

EXTREMES FOR CURRENT YEAR, -- Peak discharges greater than hase discharge of 9,000 ft³/s (255 m³/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | Disc | harge | Gage 1 | height | | | Disc | harge | Gage h | neight |
|-----------|-----------|------------|---------------------|------------|--------|---------|------|---------|--------|--------|--------|
| Date | Time | (ft³/s) | (m ² /s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 17 | 2200 | °15,500 | 439 | *28.92 | 8.815 | Oct. 21 | 1815 | 10,700 | 303 | 27.77 | 8.464 |
| Minimum d | lischarge | . 85 ft³/s | (2.41 m |)/s), July | 8. | | | | | | |

| | DISCHARGE, CUBIC FEET PER SECOND, WATER TEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MRAN VALUES | | | | | | | | | | | |
|-------|--|--------------|-------|-------|-------|-------|-------|-------|------|-------|--------------|------|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| DAI | oci | WOA | DEC | UAN | FED | MAK | APK | MAI | UUM | OOL | AUG | OAF |
| 1 | 954 | 512 | 280 | 623 | 155 | 146 | 162 | 157 | 179 | 252 | 106 | 110 |
| 2 | 970 | 447 | 278 | 438 | 157 | 140 | 153 | 284 | 140 | 133 | 99 | 505 |
| 3 | 360 | 413 | 1090 | 311 | 151 | 134 | 258 | 292 | 132 | 105 | 96 | 192 |
| 4 | 524 | 3 8 3 | 1220 | 258 | 156 | 132 | 645 | 376 | 127 | 97 | 94 | 143 |
| 5 | 521 | 650 | 609 | 235 | 206 | 128 | 2350 | 275 | 125 | 94 | 192 | 124 |
| 6 | 446 | 401 | 446 | 306 | 260 | 127 | 347 | 181 | 124 | 90 | 119 | 113 |
| 7 | 809 | 363 | 369 | 265 | 350 | 129 | 251 | 152 | 121 | 87 | 103 | 187 |
| 8 | 1940 | 341 | 320 | 238 | 240 | 125 | 218 | 225 | 118 | 94 | 97 | 536 |
| 9 | 1720 | 309 | 288 | 225 | 193 | 122 | 231 | 203 | 117 | 596 | 96 | 188 |
| 10 | 3980 | 291 | 276 | 221 | 180 | 118 | 196 | 160 | 113 | 169 | 93 | 140 |
| 11 | 1340 | 274 | 272 | 221 | 247 | 119 | 176 | 186 | 110 | 118 | 92 | 124 |
| 12 | 702 | e267 | 276 | 209 | 244 | 122 | 180 | 158 | 109 | 105 | 89 | 117 |
| 13 | 751 | e 259 | 303 | 200 | 398 | 117 | 249 | 958 | 109 | 101 | 90 | 264 |
| 14 | 2880 | 246 | 285 | 194 | 313 | 114 | 213 | 2150 | 108 | 95 | 90 | 152 |
| 15 | 4440 | 232 | 285 | 186 | 282 | 110 | 180 | 1770 | 107 | . 99 | 114 | 121 |
| 16 | 4400 | 237 | 366 | 180 | 219 | 103 | 193 | 411 | 105 | 3020 | 116 | 129 |
| 17 | 5930 | 252 | 270 | 177 | 266 | 101 | 165 | 264 | 103 | 1480 | 16 6 | 117 |
| 18 | 4360 | 235 | 248 | 171 | 249 | 107 | 155 | 225 | 100 | 362 | 139 | 121 |
| 19 | 4420 | 241 | 234 | 167 | 787 | 119 | 150 | 205 | 103 | 247 | 120 | 114 |
| 20 | 2070 | 310 | 226 | 165 | 1060 | 116 | 145 | 191 | 104 | 193 | 104 | 146 |
| 21 | 5220 | 1170 | 223 | 162 | 418 | 133 | 137 | 755 | 110 | 159 | 119 | 162 |
| 22 | 2970 | 707 | 221 | 158 | 303 | 232 | 132 | 259 | 114 | 142 | e 300 | 123 |
| 23 | 1270 | 742 | 221 | 157 | 246 | 756 | 127 | 196 | 135 | 134 | e450 | 111 |
| 24 | 919 | 447 | 234 | 158 | 210 | 235 | 120 | 173 | 109 | 127 | e540 | 112 |
| 25 | 1100 | 341 | 225 | 156 | 189 | 149 | 118 | 159 | 101 | 124 | e190 | 107 |
| 26 | 2320 | 317 | 208 | 153 | 175 | 406 | 120 | 156 | 94 | 120 | e140 | 155 |
| 27 | 2000 | 331 | 197 | 151 | 157 | 2330 | 116 | 158 | 91 | 117 | 122 | 106 |
| 28 | 1140 | 334 | 199 | 149 | 154 | 417 | 113 | 149 | 88 | 114 | 487 | 210 |
| 29 | e985 | 261 | 196 | 145 | | 253 | 117 | 143 | 87 | 162 | 189 | 142 |
| 30 | 693 | 302 | 230 | 145 | | 199 | 112 | 136 | 94 | 137 | 138 | 116 |
| 31 | 636 | | 417 | 146 | | 175 | | 134 | | 119 | 119 | |
| TOTAL | 62770 | 11615 | 10512 | 6670 | 7965 | 7714 | 7829 | 11241 | 3377 | 8992 | 5009 | 4987 |
| MBYN | 2025 | 387 | 339 | 215 | 284 | 249 | 261 | 363 | 113 | 290 | 162 | 166 |
| MAX | 5930 | 1170 | 1220 | 623 | 1060 | 2330 | 2350 | 2150 | 179 | 3020 | 540 | 536 |
| MIN | 360 | 232 | 196 | 145 | 151 | 101 | 112 | 134 | 87 | 87 | 89 | 106 |
| AC-FT | 124500 | 23040 | 20850 | 13230 | 15800 | 15300 | 15530 | 22300 | 6700 | 17840 | 9940 | 9890 |
| CF SM | 10.3 | 1.97 | 1.72 | 1.09 | 1.44 | 1.26 | 1.32 | 1.84 | .57 | 1.47 | . 82 | . 84 |
| IN. | 11.85 | 2.19 | 1.99 | 1.26 | 1.50 | 1.46 | 1.48 | 2.12 | . 64 | 1.70 | . 95 | . 94 |

CAL YR 1990 TOTAL 137860 MEAN 378 MAX 5930 MIN 62 AC-FT 273400 CFSM 1.92 IN. 26.03 WTR YR 1991 TOTAL 148681 MEAN 407 MAX 5930 MIN 87 AC-FT 294900 CFSM 2.07 IN. 28.08

e Estimated

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR--Continued (National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | SOLVI | CENT ED SATUR | FORM, | FECAL, (COLS. / PER | HARD- NESS TOTAL (MG/L AS CACO3) |
|----------------|--|--|---|---|---|---|--|---|---|--|--|
| OCT 1990 03 | 1015 | 250 | 210 | 7.7 | 25.0 | 130 | 6.5 | . , | 7 250 | D 6900 | 88 |
| DEC | | | | /./ | 25.0 | | 0.: | , | | | |
| 03 FRB 1991 | 1100 | 817 | 255 | 8.1 | 24.0 | 60 | 8.0 | | K91 | D K2500 | 110 |
| 05 APR | 0945 | 188 | 306 | 7.8 | 24.0 | 9.5 | 8.9 | 5 9 | 9 K650 | 0 2600 | 130 |
| 02 | 1300 | 153 | 301 | 7.7 | 26.5 | 6.5 | 7.1 | . 8 | 6 60 | 0 K130 | 130 |
| JUN 05 | 1030 | 125 | 304 | 7.8 | 27.5 | 4.1 | . 8.0 |) 9 | 9 310 | 0 280 | 140 |
| AUG 02 | 1020 | 101 | 344 | 7.8 | 28.5 | 5.1 | | | 7 450 | | |
| V4 | 1020 | 101 | 344 | 7.8 | 28.5 | 5.1 | . 0.3 | , | 57 4 50 | 0 420 | 140 |
| DATE | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WE TOT FE FIELD MG/L J CACO3 | (SULFA! T DIS- SOLVI AS (MG/) | DIS- ED SOLVI (MG/I | RIDE, DIS- ED SOLVE (MG/L | | SOLIDS, RESIDUR AT 180 DEG. C DIS- SOLVED (MG/L) |
| OCT 1990 03 | 26 | 5.5 | 8.6 | 0.4 | 3.2 | 7 | 19 8.0 | 5 13 | <0.1 | 0 18 | 145 |
| DEC 03 | 31 | 6.8 | 11 | 0.5 | | 10 | | | 0.2 | | 142 |
| FRB 1991 | | | | | 2.0 | | | | | | |
| 05 APR | 40 | 8.2 | 12 | 0.5 | 1.6 | 12 | 10 12 | 13 | 0.1 | 0 16 | 171 |
| 02 Jun | 39 | 7.9 | 11 | 0.4 | 1.8 | 17 | 10 9.7 | 14 | 0.1 | 0 22 | 164 |
| 05 | 41 | 8.7 | 13 | 0.5 | 2.3 | 12 | 10 9.0 | 15 | <0.1 | 0 22 | 179 |
| 02 | 42 | 7.9 | 11 | 0.4 | 2.0 | 13 | 10 8.5 | 15 | 0.1 | 0 21 | 187 |
| | | | | | | | | | | | |
| 1 | SUI COI TUI DATE S | NSTI- ENTS, SO DIS- (') OLVED | LIDS, G DIS- NO2 DLVED D FONS SO PER (M | EN, G +NO3 AMM IS- D LVED SO G/L (M | EN, G ONIA AMM IS- D LVED SO G/L (M | en, c | NITRO- JEN, AM- JONIA + JORGANIC I TOTAL (MG/L AS N) | PHOS- PHORUS TOTAL (MG/L AS P) | PHOS-PHORUS DIS-SOLVED SG/L (1 | HORUS PORTHO, ODIS- OLVED S MG/L (| HOS- HATE, RTHO, DIS- OLVED MG/L PO4) |
| OCT : | | 405 | | | • • • | | | | | | |
| DEC | • • • | | | | | 0.08 | 0.50 | 0.140 | 0.060 | 0.070 | 0.21 |
| 03. Feb : | | 159 3: | 13 0 | .800 0 | .070 | 0.09 | <0.20 | 0.170 | 0.060 | 0.060 | 0.18 |
| 05. APR | ••• | 179 | 86.8 0 | .700 0 | .040 | 0.05 | 0.20 | 0.070 | 0.070 | 0.070 | 0.21 |
| | ••• | 179 | 57.7 0 | .400 0 | .030 | 0.04 | 0.20 | 0.080 | 0.070 | <0.010 | |
| 05 | ••• | 186 | 60.4 0 | .630 0 | .030 | 0.04 | 0.70 | 0.150 | 0.090 | 0.070 | 0.21 |
| AUG 02 | ••• | 188 ! | 51.0 0 | .520 0 | .020 | 0.03 | 0.50 | 0.110 | 0.070 | 0.060 | 0.18 |
| | non-ideal | count | | | | - | | | | | |

K = non-ideal count

103

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR--Continued (National stream-quality accounting network station) WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | _ | | | | | | | | |
|----------------|---|--|--|---|--|---|--|--|--|--|
| DATE | ALUM- INUM, DIS- SOLVED (UG/L AS AL) | ARSENIC DIS- SOLVED (UG/L AS AS) | BARIUM, DIS- SOLVED (UG/L AS BA) | BERYL- LIUM, DIS- SOLVED (UG/L AS BE) | CADMIUM DIS- SOLVED (UG/L AS CD) | CHRO- MIUM, DIS- SOLVED (UG/L AS CR) | COBALT, DIS- SOLVED (UG/L AS CO) | COPPER, DIS- SOLVED (UG/L AS CU) | IRON, DIS- SOLVED (UG/L AS FE) | LEAD, DIS- SOLVED (UG/L AS PB) |
| OCT 1990 | | | | | | | | | | |
| 03 Dec | 120 | <1 | 43 | <0.5 | 1.0 | 1 | <3 | 4 | 110 | 2 |
| 03 FRB 1991 | | | | | | | | | | |
| 05 | 20 | <1 | 46 | <0.5 | <1.0 | <1 | <3 | 2 | 9 | <1 |
| APR 02 | | | | | | | | | | |
| JUN 05 | <10 | 1 | 46 | <0.5 | <1.0 | <1 | <3 | 6 | 12 | 5 |
| AUG 02 | 20 | 1 | 47 | 0.6 | <1.0 | 2 | <3 | 2 | 12 | <1 |
| V4 | 40 | • | •/ | 0.6 | ₹1.0 | • | ₹3 | • | 14 | ₹1 |
| DATE | LITHIUM DIS- SOLVED (UG/L AS LI) | MANGA- NESE, DIS- SOLVED (UG/L AS MN) | MERCURY DIS- SOLVED (UG/L AS HG) | MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) | NICKEL, DIS- SOLVED (UG/L AS NI) | SELE - NIUM, DIS - SOLVED (UG/L AS SE) | SILVER, DIS- SOLVED (UG/L AS AG) | STRON- TIUM, DIS- SOLVED (UG/L AS SR) | VANA- DIUM, DIS- SOLVED (UG/L AS V) | ZINC, DIS- SOLVED (UG/L AS ZN) |
| OCT 1990 | | | | | | | | | | |
| 03 DEC | <4 | 16 | <0.1 | <10 | 3 | <1 | <1.0 | 140 | 8 | 13 |
| 03 | | | | | | | | | | |
| FEB 1991 05 | <4 | 22 | <0.1 | <10 | 1 | <1 | <1.0 | 180 | 6 | <3 |
| APR 02 | | | | | | | | | | |
| JUN 05 | <4 | 26 | <0.1 | <10 | <1 | <1 | <1.0 | 200 | 8 | 16 |
| AUG 02 | <4 | 27 | <0.1 | <10 | <1 | <1 | <1.0 | 190 | 8 | 5 |
| 53 | • | •, | ٧٠.1 | | | | 11.0 | 130 | • | • |
| | | | | PESTICID | e analyse: | 8 | | | | |
| DATE | Time | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- BLDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
| JUN 1991 | | | | | | | | | | |
| 05 | 1030 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| | | | HBPTA- | HEPTA- CHLOR | | MALA- | METH- OXY- | MRTHYL PARA- | MRTHYL Tri- | |
| DATE | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | CHLOR, TOTAL (UG/L) | EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | THION, TOTAL (UG/L) | CHLOR, TOTAL (UG/L) | THION, TOTAL (UG/L) | THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
| JUN 1991 05 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| | | | IA- | | | | | | | |
| | | IA- POI | OR. THA | NE APHE | | I- 2,4 | | 5-T 2, 4 | | |
| DA | | AL TOI | | | AL THI | | | FAL TOT. | | AL (/L) |

<0.1 <1 <0.01 <0.01 <0.01 <0.01 <0.01

JUN 1991 05...

<0.01 <0.10

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR--Continued (National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | STRRAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|--|
| OCT 1990 | | | | | |
| 03 | 1045 | 250 | 182 | 123 | |
| DEC 1991 | | | | | |
| 03 | 1000 | 817 | 137 | 302 | 95 |
| FRB | | | | | |
| 05 | 0945 | 188 | 29 | 15 | |
| APR | | | | | |
| 02 | 1300 | 153 | 43 | 18 | 87 |
| JUN | | | | | |
| 05 | 1030 | 125 | 705 | 238 | 48 |
| AUG | | | | | |
| 02 | 1020 | 101 | 29 | 7.9 | 75 |

50038200 LAGUNA TORTUGUERO OUTLET NEAR VEGA BAJA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°28'29", long 66°26'50", at bridge on Highway 686, 4.2 mi (6.8 km) northeast of Manatí, and 4.4 mi (7.1 km) northwest of Vega Baja plaza.

DRAINAGE AREA . -- Indeterminate.

PERIOD OF RECORD. -- Water years 1964-66, 1969-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|---|--|---|---|---|---|--|--|---|--|
| OCT 1990 | 44.45 | 14 | 4254 | | 22.5 | | | 20 | 2000 | |
| 18 Dec | 1145 | | 1350 | 7.9 | 29.5 | 6.5 | 84 | 30 | 2000 | K39 |
| 04 FEB 1991 | 0845 | 25 | 1200 | 8.3 | 0.5 | 6.4 | 76 | 28 | K25 | K57 |
| 07 APR | 1245 | 14 | 1250 | 8.1 | 27.0 | 7.7 | 95 | 31 | K16 | K4 |
| 08 JUN | 0930 | 8.4 | 1250 | 8.0 | 27.0 | 6.4 | 79 | 31 | 140 | 100 |
| 10 | 0800 | 5.1 | 1290 | 8.0 | 29.0 | 5.5 | 70 | 32 | 3300 | 120 |
| 06 | 0840 | 7.8 | 1320 | 8.0 | 29.5 | 6.1 | 78 | 32 | 92 | 80 |
| DATE | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | MITRO- GEN, ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) |
| OCT 1990 | | | | | | | | | | |
| 18 Dec | 120 | <0.5 | 5 | 0.680 | 0.020 | 0.700 | 0.370 | 0.73 | 1.1 | 1.8 |
| 04 FEB 1991 | 120 | | <1 | 0.490 | 0.010 | 0.500 | 0.320 | 0.48 | 0.80 | 1.3 |
| 07 | 120 | | 4 | 0.480 | 0.020 | 0.500 | 0.190 | 0.61 | 0.80 | 1.3 |
| APR 08 | 120 | <0.5 | 1 | 0.530 | 0.020 | 0.550 | 0.180 | 0.82 | 1.0 | 1.5 |
| JUN 10 | 110 | | 1 | 0.540 | 0.010 | 0.550 | 0.220 | 0.88 | 1.1 | 1.6 |
| λŪĠ 06 | 100 | | 1 | 0.340 | 0.010 | 0.350 | 0.200 | 0.90 | 1.1 | 1.4 |
| | | | | | | | | | | |
| DATE | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | MRTHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | | | | | | | | | | |
| 18 Dec | 8.0 | 0.050 | 70 | 20 | 90 | 20 | <10 | <0.010 | 1 | 0.09 |
| 04 FEB 1991 | 5.8 | 0.030 | | | | | | | | |
| 07 | 5.8 | <0.010 | | | | | | | | |
| APR 08 | 6.9 | 0.020 | 110 | 10 | 60 | <10 | <10 | <0.010 | ∢1 | 0.08 |
| JUN 10 | 7.3 | <0.010 | | | | | | | | |
| AUG 06 | 6.4 | <0.010 | | | | | | | | |

K = non-ideal count

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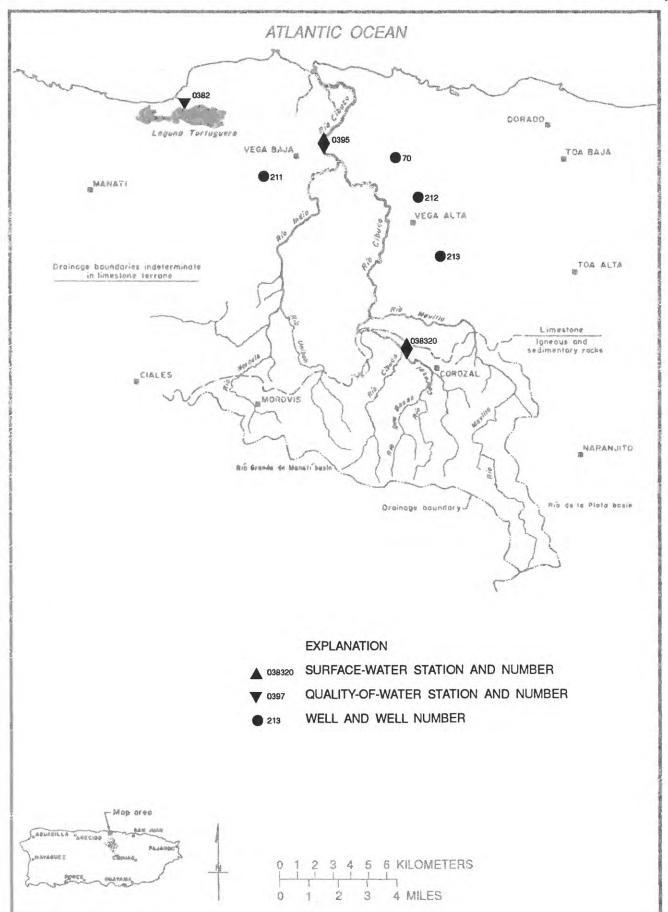


Figure 16 .-- Río Cibuco basin.

50038320 RTO CIRUCO BRIOW COROZAL, PR

LOCATION.--Lat 18°21'13", long 66°20'07", Hydrologic Unit 21010001, on right bank, 150 ft (46 m) downstream from Río Corosal, and 1.4 mi (2.3 km) northwest of Corosal.

DRAINAGE AREA .-- 15.1 ml 2 (39.1 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- May 1969 to current year.

GAGE. -- Water-stage recorder. Elevation of gage is 195 ft (59 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--22 years (1970-91), 29.5 ft 3 /s (0.835 m^3 /s), 26.53 in/yr (674 mm/yr), 21,370 acre-ft/yr (26.3 hm 3 /yr), median of yearly mean discharges, 32 ft 3 /s (0.91 m^3 /yr), 23,200 acre-ft/yr (29 hm 3 /yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,600 ft³/s (385 m²/s), Nov. 7, 1979, gage height, 19.80 ft (6.035 m), from rating curve extended above 100 ft³/s (2.83 m³/s) on basis of float and slope-area measurements of peak flow; minimum daily discharge, 1.3 ft³/s (0.037 m²/s), July 24-26, 1977.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 2,500 ft3/s (70.8 m3/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | Discl | harge | Gage | height | | | Disc | harge | Gage height | | |
|--------|------|---------|--------|-------|--------|---------|------|---------|--------|-------------|-------|--|
| Date | Time | (ft3/s) | (m3/s) | (ft) | (m) | Date | Time | (ft3/s) | (m3/s) | (ft) | (m) | |
| Oct. 7 | 1740 | 4,280 | 121 | 13.03 | 3.972 | Oct. 17 | 1700 | 3,110 | 88.1 | 11.62 | 3.542 | |
| Oct. 9 | 1700 | 2,760 | 78.2 | 11.15 | 3.398 | Mar. 26 | 1730 | *4,700 | 133 | *13.49 | 4.112 | |

Minimum daily discharge, 4.7 ft3/s (0.133 m3/s), Sept. 11.

| | | | | | DAIL | y mran va | LURS | 2.000 | | | | |
|-------|------------|------|------|------|------|-----------|------|-------|-------|-------|-------|-------|
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 106 | 32 | 50 | 109 | 19 | 19 | 17 | 12 | 18 | 8.7 | 9.2 | 6.2 |
| 2 | 34 | 29 | 73 | 54 | 17 | 17 | 16 | 12 | 13 | 7.8 | 7.7 | 7.9 |
| 3 | 28 | 27 | 230 | 37 | 16 | 17 | 16 | 19 | 12 | 12 | 7.4 | 6.8 |
| 4 | 57 | 41 | 71 | 30 | 148 | 17 | 16 | 18 | 11 | 10 | 7.3 | 6.6 |
| 5 | 37 | 32 | 46 | 31 | 46 | 17 | 16 | 13 | 11 | 8.1 | 7.6 | 6.6 |
| 6 | 30 | 28 | 34 | 37 | 33 | 16 | 14 | 11 | 9.9 | 7.7 | 7.6 | 4.8 |
| 7 | 310 | 24 | 28 | 30 | 32 | 16 | 17 | 15 | 9.5 | 12 | 7.2 | 5.5 |
| 8 | 92 | 23 | 25 | 28 | 22 | 16 | 26 | 20 | 9.3 | 14 | 7.1 | 7.0 |
| 9 | 253 | 23 | 23 | 27 | 18 | 15 | 21 | 15 | 9.0 | 9.7 | 6.7 | 5.4 |
| 10 | 97 | 21 | 22 | 28 | 21 | 14 | 16 | 12 | 9.0 | 8.5 | 6.1 | 5.1 |
| 11 | 125 | 20 | 23 | 24 | 41 | 16 | 16 | 11 | 9.0 | 8.1 | 6.1 | 4.7 |
| 12 | 61 | 20 | 30 | 22 | 36 | 16 | 25 | 56 | 8.6 | 8.2 | 6.2 | 8.2 |
| 13 | 55 | 19 | 25 | 20 | 39 | 17 | 58 | 49 | 9.0 | 7.7 | 6.5 | 8.3 |
| 14 | 179 | 19 | 21 | 20 | 25 | 16 | 28 | 66 | 9.2 | 7.2 | 5.9 | 6.0 |
| 15 | 192 | 19 | 53 | 20 | 18 | 14 | 74 | 31 | 9.2 | 20 | 6.8 | 5.3 |
| 16 | 214 | 27 | 31 | 20 | 33 | 14 | 31 | 19 | 8.8 | 280 | 6.6 | 7.3 |
| 17 | 402 | 21 | 22 | 20 | 25 | 13 | 21 | 16 | 8.3 | 32 | 7.0 | 9.6 |
| 18 | 535 | 40 | 20 | 19 | 56 | 18 | 17 | 17 | 7.2 | 18 | 5.7 | 7.6 |
| 19 | 252 | 33 | 18 | 19 | 152 | 14 | 16 | 16 | 7.8 | 13 | 5.1 | 6.9 |
| 20 | 141 | 44 | 18 | 19 | 96 | 12 | 15 | 15 | 8.1 | 12 | 5.3 | 6.9 |
| 21 | e370 | 38 | 18 | 20 | 46 | 13 | 14 | 14 | 8.6 | 11 | 5.7 | 7.3 |
| 22 | e140 | 50 | 21 | 19 | 34 | 61 | 14 | 14 | 8.3 | 11 | 13 | 7.7 |
| 23 | e80 | 33 | 19 | 17 | 27 | 24 | 14 | 13 | 12 | 10 | 10 | 7.7 |
| 24 | e55 | 26 | 18 | 16 | 23 | 15 | 13 | 12 | 8.9 | 9.2 | 6.5 | 6.9 |
| 25 | 64 | 22 | 16 | 16 | 22 | 13 | 13 | 19 | 7.3 | 8.9 | 8.3 | 6.3 |
| 26 | 84 | 43 | 15 | 16 | 21 | 290 | 13 | 13 | 6.6 | 8.5 | 5.8 | 6.0 |
| 27 | e50 | 37 | 20 | 16 | 20 | 56 | 12 | 13 | 6.8 | 9.4 | 11 | 6.2 |
| 28 | 040 | 30 | 33 | 16 | 21 | 27 | 11 | 11 | 7.0 | 9.3 | 8.9 | 7.3 |
| 29 | e30 | 66 | 44 | 15 | | 20 | 11 | 11 | 7.9 | 9.8 | 6.4 | 9.2 |
| 30 | e30 | 86 | 48 | 15 | | 21 | 11 | 12 | 9.2 | 8.2 | 5.7 | 12 |
| 31 | e30 | | 171 | 20 | | 18 | | 27 | | 8.9 | 5.4 | |
| TOTAL | 4173 | 973 | 1286 | 800 | 1107 | 872 | 602 | 602 | 279.5 | 608.9 | 221.8 | 209.3 |
| MEAN | 135 | 32.4 | 41.5 | 25.8 | 39.5 | . 28.1 | 20.1 | 19.4 | 9.32 | 19.6 | 7.15 | 6.98 |
| MAX | 535 | 86 | 230 | 109 | 152 | 290 | 74 | 66 | 18 | 280 | 13 | 12 |
| MIN | 28 | 19 | 15 | 15 | 16 | 12 | 11 | 11 | 6.6 | 7.2 | 5.1 | 4.7 |
| AC-PT | 8280 | 1930 | 2550 | 1590 | 2200 | 1730 | 1190 | 1190 | 554 | 1210 | 440 | 415 |
| CFSM | 8.91 | 2.15 | 2.75 | 1.71 | 2.62 | 1.86 | 1.33 | 1.29 | .62 | 1.30 | .47 | .46 |
| IN. | 10.28 | 2.40 | 3.17 | 1.97 | 2.73 | 2.15 | 1.48 | 1.48 | .69 | 1.50 | .55 | .52 |

CAL YR 1990 TOTAL 12278.5 MEAN 33.6 MAX 535 MIN 6.7 AC-FT 24350 CFSM 2.23 IN. 30.25 WTR YR 1991 TOTAL 11734.5 MEAN 32.1 MAX 535 MIN 4.7 AC-FT 23280 CFSM 2.13 IN. 28.91

e Estimated

RIO CIBUCO BASIN

50038320 RIO CIBUCO BELOW COROZAL, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1969-76, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | | TIMB | DIS CHARG INST CUBI FRE PER SECO | E, SPI C COI T DUC ANG | FIC N- CT- (£ | PH STAND- ARD JNITS) | TEMPE ATUE WATE (DEG | R E | UR- (ID- TY TU) | DIYGEN, DIS- SOLVED (MG/L) | OXYGEN DIS- SOLVE (PER- CENT SATUR | DEMAND, D CHEM- ICAL (HIGH - LEVEL) | COLI- FORM, FECAL 0.45 UM-MF (COLS. 100 MI | STREP- TOCOCCI FECAL, (COLS. / PER |
|----------------------------|--------|-----------------------------------|---|---------------------------------------|--|---|--|---|----------------------------------|---|---|-------------------------------------|--|--|
| 1000 | | | | | - | - | - | | - | | | | | |
| OCT 1990 05 JAN 1991 | | 1100 | 46 | | 282 | 8.0 | 25 | 5.5 4 | 7 | 8.0 | 9 | 2 2: | L 200 | 0 4800 |
| 02 | | 0930 | 56 | | 255 | 7.8 | 21 | 1.5 3 | 0 | 8.4 | 9 | 4 10 | 51 | .0 1400 |
| FRB 08 APR | | 0830 | 23 | | 314 | 8.0 | 20 |).0 2 | 7 | 8.5 | 9 | 3 19 | 400 | 0 2200 |
| 10 JUN | | 1140 | 15 | | 3 67 | 7.9 | 24 | 1.0 | 3.5 | 8.1 | 9 | 4 10 | 320 | 0 840 |
| 17 | | 1220 | 8. | 9 | 363 | 8.0 | 28 | 3.5 | 1.0 | 7.8 | 10 | 0 <10 | 60 | 0 380 |
| 16 | | 1425 | 6. | 4 | 369 | 8.2 | 30 | .0 | 1.0 | 7.9 | 10 | 4 1: | L 20 | 0 220 |
| DATE | n T | ARD- ESS OTAL MG/L AS | HARD NESS NONCA WH WA TOT F MG/L CACO | RB CALC I' DIS LD SOI AS (MC | CIUM S- LVED & S/L (| AGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIU DIS- SOLVE (MG/ AS) | M, SO ID T L RA | DIUM AD- RP- ION TIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FE FIELD MG/L A CACO3 | TOTAL | SULFAT DIS- SOLVE (MG/L AS SO4 | DIS- (MG/L |
| OCT 1990 05 | | 110 | 2 | 20 | 5 | 12 | 15 | | 0.6 | 3.1 | 9: | 2 <0.5 | 20 | 20 |
| JAN 1991 02 | | | | | | | | | | | 27 | 0 | | |
| FRB 08 | | | | | | | | | | | 10 | 0 | | |
| APR 10 | | 140 | 8 | 3' | , | 12 | 19 | | 0.7 | 3.5 | 11 | 0 <0.5 | 19 | 24 |
| JUN 17 | | | | | | | | - | | | 11 | 0 | | |
| AUG 16 | | 130 | 5 | 3 | 6 | 10 | 21 | | 0.8 | 3.7 | 10 | 0 | 17 | 29 |
| | | RI D SO | DE, IS- LVED | SILICA, DIS- SOLVED (MG/L | SOLIDS SUM OF CONSTI TUENTS DIS- | r soi [- I 5, so - (1 | ONS | RESIDUE TOTAL AT 105 DEG. C, SUS- | NITI GEI NITRI TOTI | N, G ATB NIT AL TO | EN, RITE N TAL | GEN, 02+NO3 AN TOTAL 1 | GEN, IMONIA C POTAL | NITRO- GEN, RGANIC TOTAL |
| | DATE | | g/L F) | AS SIO2) | SOLVE (MG/I | | PER DAY) | PENDED (MG/L) | (MG, AS 1 | | | | (MG/L AS N) | (MG/L AS N) |
| | 1990 | < | 0.10 | 27 | 17 | 18 2 | 2.0 | 15 | 1.6 | 14 0 | .060 | 1.50 | 0.170 | 0.43 |
| JAN | 1991 | | | | | _ | | 33 | | | .040 | 1.50 | 0.140 | 0.46 |
| FRB | B | | | | | | | 26 | | | .020 | 1.40 | 0.030 | 0.57 |
| APR 10 |) | | 0.10 | 27 | 20 | 8 | 8.29 | 1 | 2.1 | 88 0 | .020 | 2.90 | 0.010 | 0.39 |
| | 7 | | | | | | | 3 | | | .020 | 2.90 | 0.030 | 0.27 |
| AUG 10 | 5 | | 0.20 | 35 | 21 | LO | 3.63 | <1 | 4.2 | 28 0 | .020 | 4.30 | 0.010 | 0.69 |

50038320 RIO CIBUCO BELOW COROZAL, PR--Continued
WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|------------------------|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 05 JAN 1991 | 0.60 | 2.1 | 9.3 | 0.340 | 1 | <100 | 20 | <1 | 8 | 20 |
| 02 | 0.60 | 2.1 | 9.3 | 0.140 | | | | | | |
| PEB 08 APR | 0.60 | 2.0 | 8.9 | 0.150 | | | | | | |
| 10 JUN | 0.40 | 3.3 | 15 | 0.540 | 1 | <100 | 50 | <1 | 1 | <10 |
| 17 | 0.30 | 3.2 | 14 | 0.630 | | | | | | |
| 16 | 0.70 | 5.0 | 22 | 0.780 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | | | | | | | | | | |
| 05 JAN 1991 | 2700 | 2 | 100 | 0.10 | <1 | <1 | 20 | <0.010 | 3 | 0.06 |
| 02 | | | | | | | | | | |
| FRB 08 APR | | | | | | | | | | |
| AFR. | | | | | | | | | | |
| 10 JUN | 260 | 2 | 30 | <0.10 | <1 | <1 | <10 | <0.010 | <1 | 0.08 |
| 10 JUN 17 AUG | 260 | | 30 | <0.10 | <1 | <1 | <10 | <0.010 | <1 | 0.08 |

RIO CIBUCO BASIN 111

50039500 RIO CIBUCO AT VEGA BAJA, PR

LOCATION.--Lat 18°26'53", long 66°22'29", Hydrologic Unit 21010002, on left bank, at bridge on Hwy 2, 0.6 mi (1.0 km) downstream from Río Indio, and 0.8 mi (1.3 km) east of Vega Baja.

DRAINAGE AREA. -- 99.1 mi² (256.7 km²), of which 25.4 mi² (65.8 km²), does not contribute directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- January 1973 to current year.

GAGE. -- Water-stage recorder. Datum of gage is 7.79 ft (2.374 m) above maan sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--18 years (1974-91), 131 ft³/s (3.710 m³/s), 17.95 in/yr (456 mm/yr), 94,910 acre-ft/yr (117 hm³/yr); median of yearly maan discharges, 128 ft²/s (3.62 m³/s), 92,700 acre-ft/yr (114 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,000 ft²/s (963 m²/s), Apr. 12, 1987, gage height, 19.10 ft (5.822 m), from rating curve extended above 3,000 ft³/s (85.0 m²/s) on basis of indirect measurements; minimum discharge, 6.1 ft³/s (0.173 m³/s), July 24, 25, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 11, 1965 reached a stage of 26.2 ft (7.99 m), datum unknown, discharge about 28,000 ft³/s (793 m³/s).

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 3,200 ft3/s (90.6 m3/s) and maximum (*):

| | | Disch | arge | Gage | height | | | | charge | | height |
|---------|------|---------|--------|--------|--------|------|----------|------------|---------------------|---------|--------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft^3/s) | (m ³ /s) | (ft) | (m) |
| Oct. 17 | 2100 | *12,300 | 348 | *17.29 | 5.270 | No | other pe | ak greate: | r than base | dischar | ge . |

Minimum daily discharge, 17 ft³/s (0.481 m³/s), Aug. 14, Sept. 12.

| | | DI SCHARGE | CUBIC | FEET PER | SECOND, DAIL | WATER Y | YEAR OCTOBER VALUES | 1990 TO | September | 1991 | | |
|-------|-------|------------|-------|----------|-----------------|---------|------------------------|---------|-----------|-------------|------|------|
| DAY | OCT | NOV | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 184 | 169 | 242 | 528 | 89 | 140 | 66 | 44 | 148 | 62 | 33 | 18 |
| 2 | 253 | 160 | 180 | 352 | 70 | 103 | | 46 | 62 | 41 | 28 | 18 |
| 3 | 111 | 152 | 946 | 222 | 67 | 95 | | 142 | 53 | 37 | 31 | 24 |
| ă. | 235 | 142 | 454 | 180 | 104 | 91 | | 255 | 46 | e61 | 28 | 20 |
| 5 | 199 | 176 | 262 | 166 | 427 | 88 | | 82 | 45 | e45 | 28 | 19 |
| 6 | 141 | 136 | 197 | 220 | 206 | 78 | 61 | 65 | 42 | e34 | 30 | 18 |
| 7 | 224 | 127 | 163 | 173 | 197 | 80 | | 59 | 42 | e35 | 29 | 28 |
| 8 | 593 | 122 | 143 | 148 | 195 | 77 | | 117 | 39 | e52 | 24 | 91 |
| 9 | 390 | 110 | 130 | 143 | 94 | 73 | | 175 | 38 | e64 | 19 | 26 |
| 10 | 960 | 92 | 123 | 152 | 78 | 69 | | 86 | 36 | e4 0 | 23 | 21 |
| 11 | 358 | 88 | | 4 | | | | 65 | 36 | - 0.4 | 21 | |
| | | | 114 | 153 | 120 | 71 | | | | e34 | | 18 |
| 12 | 240 | 86 | 138 | 128 | 182 | 77 | | 67 | 35 | 32 | 23 | 17 |
| 13 | 191 | 82 | 151 | 120 | 178 | 68 | | 450 | 34 | 32 | 21 | 33 |
| 14 | 539 | 78 | 110 | 109 | 118 | 67 | | 376 | 35 | 29 | 17 | 23 |
| 15 | 520 | 79 | 146 | 102 | 89 | 64 | 175 | 348 | 31 | 40 | 21 | 19 |
| 16 | 688 | 93 | 213 | 98 | 75 | 61 | | 147 | 31 | 1030 | 21 | 23 |
| 17 | 2200 | 102 | 122 | 95 | 132 | 62 | | 102 | 30 | 319 | 29 | 30 |
| 18 | 1770 | 91 | 104 | 88 | 160 | 89 | 75 | 96 | 30 | 87 | 26 | 40 |
| 19 | 1650 | 310 | 97 | 85 | 577 | 76 | 66 | 96 | 33 | 49 | 21 | 28 |
| 20 | 612 | 196 | 91 | 82 | 738 | 64 | 62 | 85 | 28 | 38 | 21 | 26 |
| 21 | 1040 | 202 | 91 | 80 | 289 | 62 | 59 | 85 | 30 | 34 | 27 | 45 |
| 22 | 508 | 218 | 99 | 79 | 216 | 172 | | 68 | 31 | 34 | 28 | 31 |
| 23 | 359 | 166 | 93 | 81 | 170 | 192 | | 60 | 30 | 35 | 82 | 35 |
| 24 | 296 | 110 | 103 | 79 | 146 | 91 | | 55 | 58 | 31 | 31 | 28 |
| 25 | 290 | 122 | 92 | 75 | 132 | 72 | | 146 | 37 | 32 | 22 | 26 |
| 26 | 428 | 161 | 80 | 74 | 100 | 156 | | 116 | 30 | 30 | 29 | 21 |
| | | | | | 123 | | | | | | 30 | 21 |
| 27 | 300 | 290 | 80 | 72 | 111 | 333 | | 71 | 30 | 33 | | |
| 28 | 239 | 220 | 128 | 69 | 153 | 124 | | 55 | 32 | 36 | 56 | 19 |
| 29 | 212 | 138 | 140 | 66 | : | 87 | | 52 | 44 | 46 | 29 | 23 |
| 30 | 195 | 307 | 255 | 64 | | 75. | | 47 | 57 | 35 | 22 | 30 |
| 31 | 181 | | 414 | 68 | | 68 | | 68 | | 37 | 19 | |
| TOTAL | 16106 | | 5701 | 4151 | 5236 | 3025 | | 3726 | 1253 | 2544 | 869 | 819 |
| WRYN | 520 | 151 | 184 | 134 | 187 | 97.6 | | 120 | 41.8 | 82.1 | 28.0 | 27.3 |
| MAX | 2200 | 310 | 946 | 528 | 738 | 333 | 224 | 450 | 148 | 1030 | 82 | 91 |
| MIN | 111 | 78 | 80 | 64 | 67 | 61 | . 44 | 44 | 28 | 29 | 17 | 17 |
| AC-FT | 31950 | 8980 1 | 1310 | 8230 | 10390 | 6000 | 4830 | 7390 | 2490 | 5050 | 1720 | 1620 |
| CFSM | 5.24 | 1.52 | 1.86 | 1.35 | 1.89 | .98 | . 82 | 1.21 | .42 | . 83 | .28 | .28 |
| IN. | 6.05 | | 2.14 | 1.56 | 1.97 | 1.14 | | 1.40 | .47 | . 95 | .33 | .31 |

CAL YR 1990 TOTAL 52750 MEAN 145 MAX 2200 MIN 21 AC-FT 104600 CFSM 1.46 IN. 19.80 WTR YR 1991 TOTAL 50389 MEAN 138 MAX 2200 MIN 17 AC-FT 99950 CFSM 1.39 IN. 18.91

e Estimated

RIO CIBUCO BASIN

50039500 RIO CIBUCO AT VEGA BAJA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|---|---|---|--|--|---|---|---|---|---|---|
| OCT 1990 | | | | | | | | | | | |
| 18 DEC | 0915 | 1000 | 286 | 7.5 | 24.0 | 22 | 6.2 | 72 | 44 | 1000 | 59000 |
| 06 FEB 1991 | 0800 | 202 | 441 | 8.2 | 22.5 | 19 | 7.5 | 85 | 12 | 2500 | 470 |
| 07 | 1440 | 121 | 348 | 7.8 | 23.0 | 53 | 7.6 | 87 | 23 | K15000 | 20000 |
| 08 JUN | 1155 | 54 | 421 | 7.9 | 25.5 | 4.8 | 7.1 | 85 | 11 | 600 | 330 |
| 14 AUG | 1030 | 35 | 423 | 7.9 | 28.5 | 3.1 | 5.3 | 67 | 12 | 320 | K150 |
| 06 | 1115 | 30 | 437 | 7.9 | 28.5 | 3.0 | 5.5 | 70 | <10 | 510 | 350 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATR DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 | | | | | | | | | | | |
| 18 Dec | 130 | 1 | 44 | 4.6 | 7.5 | 0.3 | 4.6 | 120 | <0.5 | 8.2 | 8.0 |
| 06 FEB 1991 | | | | | | | | 180 | | | |
| 07 | | | | | | | | 130 | | | |
| 08 JUN | 180 | 1 | 54 | 10 | 18 | 0.6 | 3.0 | . 160 | <0.5 | 14 | 22 |
| 14 | | | | | | | | 170 | | | |
| 06 | 190 | 7 | 59 | 9.6 | 17 | 0.5 | 2.6 | 170 | | 13 | 23 |

| DATE | FLUO- RIDR, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RRSIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|--|---|---|---|---|--|--|--|--|--|
| OCT 1990 | | | | | | | | | | |
| 18 | <0.10 | 11 | 160 | 432 | 201 | 0.880 | 0.120 | 1.00 | 0.160 | 1.0 |
| DEC | | | | | | | | | | |
| 06 | | | | | 17 | 1.15 | 0.050 | 1.20 | 0.060 | 0.44 |
| FEB 1991 | | | | | | | | | | |
| 07 | | | | | 81 | 1.27 | 0.030 | 1.30 | 0.030 | 0.67 |
| APR | | | | | | | | | | |
| 08 | <0.10 | 21 | 238 | 34.6 | 10 | 1.59 | 0.110 | 1.70 | 0.060 | 0.54 |
| JUN | | | | | | | | | | _ |
| 14 | | | | | 5 | 1.36 | 0.040 | 1.40 | 0.030 | 0.97 |
| AUG | | | | | | | | | | |
| 06 | 0.10 | 19 | 245 | 19.6 | 1 | 1.08 | 0.020 | 1.10 | <0.010 | |

K = non-ideal count

50039500 RIO CIBUCO AT VEGA BAJA, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|------------------|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 18 | 1.2 | 2.2 | 9.7 | 0.300 | 1 | <100 | <10 | <1 | 24 | 50 |
| DEC 06 | 0.50 | 1.7 | 7.5 | 0.160 | | | | | | |
| FRB 1991 07 | 0.70 | 2.0 | 8.9 | 0.190 | | | | | | |
| APR 08 | 0.60 | 2.3 | 10 | 0.250 | <1 | <100 | 10 | <1 | 2 | 10 |
| JUN 14 | 1.0 | 2.4 | 11 | 0.350 | | | | | | |
| AUG 06 | 0.40 | 1.5 | 6.6 | 0.280 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDR TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | MRTHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | | _ | | | _ | _ | | | _ | |
| 18 Dec | 11000 | 6 | 350 | <0.10 | <1 | <1 | 20 | <0.010 | <1 | <0.01 |
| 06 FEB 1991 | | | | | | | | | | |
| 07 | | | | | | | | | | |
| APR 08 | 530 | 1 | 40 | <0.10 | <1 | <1 | <10 | <0.010 | <1 | 0.03 |
| JUN 14 AUG | | | | | | | | | | |
| | | | | | | | | | | |

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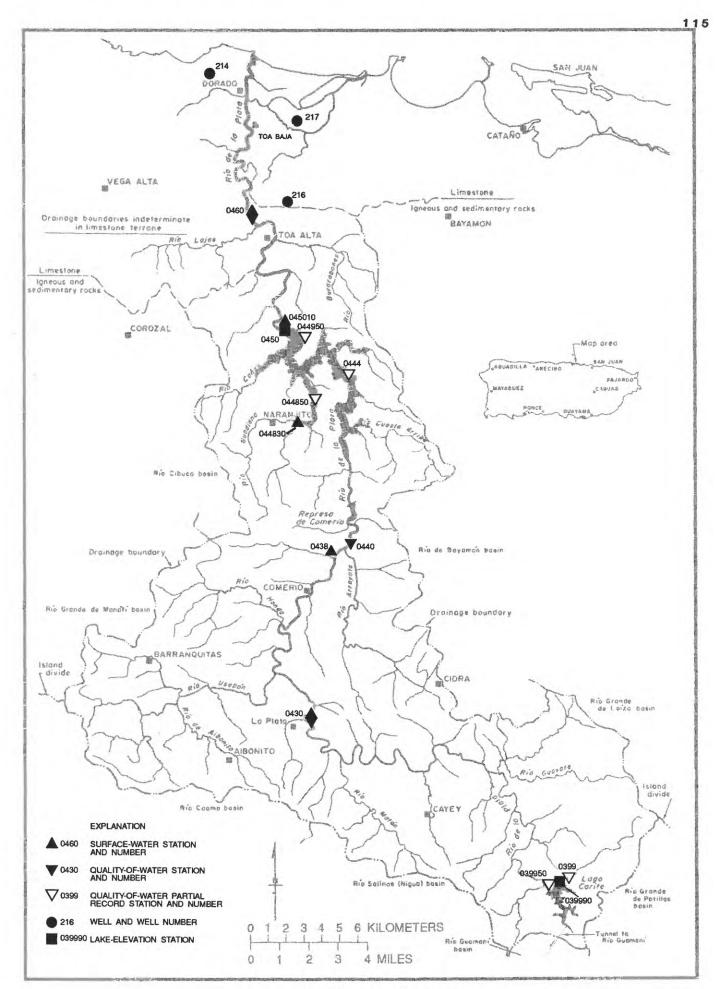


Figure 17.--Río de la Plata basin.

50039990 LAGO CARITE AT GATE TOWER

LOCATION.--Lat 18°03'46", long 66°05'58", Hydrologic Unit 21010005, on top of a concrete tower at diversion tunnel on Carite Reservoir, 0.7 mi (1.1 km) northwest from Escuela Carite Chino, 1.2 mi (1.9 km) northeast from Central Hidroeléctrica de Carite Num. 1 and 1.8 mi (2.9 km) northeast from Escuela Segunda Unidad.

DRAINAGE AREA. -- 8.20 mi2 (21.24 km2).

ELEVATION RECORDS

PERIOD OF RECORD .-- May 1989 to current year.

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

REMARKS.--Lago Carite Dam was completed in 1913. The operation of the reservoir is controlled by the utilization of water to meet the demands for domestic, industrial and agricultural purposes in the Guayama Area. The dam is an earthfill with crest elevation of 1,806 ft (550 m) above mean sea level, with a structural height of 104 ft (32 m) and a lenght of 500 ft (152 m). The dam has a capacity of approximately 11,310 acre-feet (13.9 hm). The Dam is operated by the Puerto Rico Electric and Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD. --Maximum elevation 1,782.02 ft (543.16 m), Feb. 12, 1991; minimum elevation, 1,761.48 ft (536.90 m); June 13, 14 1990.

EXTREMES FOR CURRENT YEAR.--Maximum elevation 1,782.02 ft (543.16 m), Feb. 12; minimum elevation, 1,765.94 ft (538.26 m), Oct. 7, 8.

Capacity Table

(based on Data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 1,746 | 0 | 1,775 | 6, 194 |
| 1,760 | 2,471 | 1,780 | 7,704 |
| 1,769 | 4,561 | 1,784 | 8,996 |
| | | | |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | PRB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 1766.16 | 1781.66 | 1781.53 | 1781.64 | 1781.21 | 1781.44 | 1780.06 | 1777.96 | 1775.31 | 1774.30 | 1774.39 | 1773.73 |
| 2 | 1766.10 | 1781.63 | 1781.50 | 1781.56 | 1781.19 | 1781.44 | 1779.98 | 1777.94 | 1775.16 | 1774.31 | 1774.37 | 1773.67 |
| 3 | 1766.04 | 1781.60 | 1781.54 | 1781.51 | 1781.20 | 1781.48 | 1779.90 | 1777.91 | 1775.04 | 1774.31 | 1774.35 | 1773.61 |
| 4 | 1766.04 | 1781.65 | 1781.52 | 1781.49 | 1781.18 | 1781.47 | 1779.85 | 1777.89 | 1774.91 | 1774.31 | 1774.33 | 1773.63 |
| 5 | 1766.01 | 1781.63 | 1781.46 | 1781.47 | 1781.29 | 1781.48 | 1779.73 | 1777.86 | 1774.81 | 1774.31 | 1774.30 | 1773.64 |
| 6 | 1765.97 | 1781.59 | 1781.44 | 1781.45 | 1781.71 | 1781.48 | 1779.66 | 1777.70 | 1774.72 | 1774.27 | 1774.29 | 1773.65 |
| 7 | 1765.95 | 1781.60 | 1781.42 | 1781.48 | 1781.60 | 1781.49 | 1779.59 | 1777.62 | 1774.63 | 1774.25 | 1774.26 | 1773.66 |
| 8 | 1766.00 | 1781.62 | 1781.41 | 1781.54 | 1781.52 | 1781.47 | 1779.56 | 1777.53 | 1774.50 | 1774.22 | 1774.23 | 1773.66 |
| 9 | 1766.39 | 1781.62 | 1781.39 | 1781.54 | 1781.48 | 1781.45 | 1779.47 | 1777.45 | 1774.37 | 1774.20 | 1774.19 | 1773.70 |
| 10 | 1766.45 | 1781.59 | 1781.38 | 1781.54 | 1781.50 | 1781.43 | 1779.40 | 1777.27 | 1774.25 | 1774.11 | 1774.16 | 1773.70 |
| 11 | 1766.46 | 1781.56 | 1781.36 | 1781.50 | 1781.57 | 1781.41 | 1779.39 | 1777.25 | 1774.16 | 1774.06 | 1774.13 | 1773.70 |
| 12 | 1766.60 | 1781.53 | 1781.34 | 1781.51 | 1782.01 | 1780.95 | 1779.33 | 1777.14 | 1774.09 | 1774.00 | 1774.09 | 1773.68 |
| 13 | 1766.88 | 1781.51 | 1781.36 | 1781.50 | 1781.74 | 1780.80 | 1779.24 | 1777.01 | 1773.95 | 1773.93 | 1774.06 | 1773.66 |
| 14 | 1766.93 | 1781.49 | 1781.50 | 1781.50 | 1781.60 | 1780.69 | 1779.17 | 1776.90 | 1773.81 | 1773.85 | 1774.04 | 1773.64 |
| 15 | 1767.04 | 1781.48 | 1781.50 | 1781.51 | 1781.54 | 1781.00 | 1779.15 | 1776.78 | 1773.69 | 1774.07 | 1773.97 | 1773.62 |
| 16 | 1767.73 | 1781.48 | 1781.47 | 1781.49 | 1781.50 | 1781.04 | 1779.05 | 1776.66 | 1773.57 | 1774.75 | 1773.92 | 1773.59 |
| 17 | 1767.92 | 1781.47 | 1781.44 | 1781.46 | 1781.46 | 1781.07 | 1778.96 | 1776.58 | 1773.42 | 1774.75 | 1774.01 | 1774.32 |
| 18 | 1770.05 | 1781.47 | 1781.41 | 1781.43 | 1781.50 | 1781.05 | 1778.92 | 1776.50 | 1773.31 | 1774.72 | 1773.99 | 1774.37 |
| 19 | 1770.46 | 1781.46 | | 1781.40 | 1781.48 | 1780.95 | 1778.81 | 1776.40 | 1773.16 | 1774.70 | 1773.93 | 1774.46 |
| 20 | 1772.74 | 1781.48 | 1781.38 | 1781.38 | 1781.56 | 1780.88 | 1778.76 | 1776.26 | 1773.03 | 1774.66 | 1773.92 | 1774.47 |
| 21 | 1775.52 | 1781.47 | 1781.35 | 1781.38 | 1781.57 | 1780.80 | 1778.69 | 1776.18 | 1772.93 | 1774.62 | 1773.89 | 1774.52 |
| 22 | 1775.81 | 1781.46 | 1781.32 | 1781.36 | 1781.52 | 1780.80 | 1778.60 | 1776.06 | 1773.06 | 1774.57 | 1774.11 | 1774.88 |
| 23 | 1776.04 | 1781.45 | 1781.31 | 1781.35 | 1781.48 | 1780.74 | 1778.52 | 1775.93 | 1773.09 | 1774.60 | 1774.10 | 1775.11 |
| 24 | 1776.63 | 1781.44 | 1781.30 | 1781.33 | 1781.48 | 1780.66 | 1778.45 | 1775.80 | 1773.11 | 1774.65 | 1774.06 | 1775.15 |
| 25 | 1777.99 | 1781.42 | 1781.28 | 1781.30 | 1781.49 | 1780.60 | 1778.37 | 1776.14 | 1773.08 | 1774.65 | 1773.99 | 1775.17 |
| 26 | 1779.46 | 1781.44 | 1781.24 | 1781.28 | 1781.46 | 1780.54 | 1778.28 | 1776.03 | 1773.04 | 1774.65 | 1773.93 | 1775.22 |
| 27 | 1780.45 | 1781.49 | 1781.23 | 1781.24 | 1781.44 | 1780.45 | 1778.18 | 1775.89 | 1773.10 | 1774.53 | 1773.96 | 1775.34 |
| 28 | 1780.94 | 1781.46 | 1781.27 | 1781.26 | 1781.44 | 1780.37 | 1778.10 | 1775.75 | 1773.08 | 1774.47 | 1773.94 | 1775.42 |
| 29 | 1781.22 | 1781.46 | 1781.31 | 1781.23 | | 1780.29 | 1778.00 | 1775.63 | 1773.06 | 1774.47 | 1773.88 | 1776.11 |
| 30 | 1781.59 | 1781.58 | 1781.36 | 1781.20 | | 1780.20 | 1777.92 | 1775.53 | 1774.13 | 1774.46 | 1773.83 | 1776.25 |
| 31 | 1781.65 | | 1781.68 | 1781.22 | | 1780.14 | | 1775.39 | | 1774.39 | 1773.78 | |
| MEAN | 1771.33 | 1781.53 | 1781.40 | 1781.42 | 1781.49 | 1780.97 | 1779.04 | 1776.74 | 1773.85 | 1774.39 | 1774.08 | 1774.31 |
| MAX | 1781.65 | 1781.66 | 1781.68 | 1781.64 | 1782.01 | 1781.49 | 1780.06 | 1777.96 | 1775.31 | 1774.75 | 1774.39 | 1776.25 |
| MIN | 1765.95 | 1781.42 | 1781.23 | 1781.20 | 1781.18 | 1780.14 | 1777.92 | 1775.39 | 1772.93 | 1773.85 | 1773.78 | 1773.59 |

CAL YR 1990 MEAN 1770.10 MAX 1781.68 MIN 1761.49 WTR YR 1991 MEAN 1777.52 MAX 1782.01 MIN 1765.95

50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR

LOCATION.--Lat 18°09'37", long 66°13'44", Hydrologic Unit 21010005, at upstream side of bridge on Highway 173, 0.4 mi (0.6 km) northeast of Proyecto La Plata, and 2.5 mi (4.0 km) upstream from Río Usabón.

DRAINAGE AREA.--63.0 mi² (163.2 km²), excludes 8.2 mi² (21.1 km²) upstream from Carite Reservoir, the flow of which is diverted to Río Guamaní.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- 1958 (occasional measurements only), February 1959 to March 1960 (monthly measurements only), April 1960 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 850 ft (259 m), from topographic map. Prior to Mar. 29, 1961, wire-weight gage read twice daily at same site and datum.

REMARKS.--Records poor. The Puerto Rico Aqueduct and Sewer Authority operates a pumping plant about 5 mi (8 km) upstream which can divert as much as 23 ft³/s (0.65 m³/s) into Cidra Reservoir. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--31 years (1961-91), 106 ft³/s (3.002 m²/s), 26.27 in/yr (667 mm/yr), 76,800 acre-ft/yr (94.7 hm²/yr); median of yearly mean discharges, 80 ft³/s (2.26 m³/s), 58,000 acre-ft/yr (72 hm²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,600 ft³/s (1,690 m³/s), Aug. 27, 1961, gage height, 22.21 ft (9.818 m), from rating curve extended above 7,000 ft³/s (198 m³/s) on basis of slope-area measurement; minimum daily discharge, 2.6 ft³/s (0.074 m³/s), July 25, 1974.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,100 ft³/s (144 m³/s), Oct. 21, gage-height, unknown; minimum daily discharge, 3.1 ft³/s (0.088 m³/s), Aug. 14.

| DAILY MEAN VALUES | | | | | | | | | | | | |
|-------------------|--------------|-------------|-------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|---------------|
| DAY | OCT | MOA | DRC | JAN | yeb | MAR | APR | MAY | JUN | JUL | AUG | grp |
| 1 | e250 | e110 | e 60 | e100 | e10 | e22 | e11 | e100 | e4.8 | e 60 | e9.8 | e6.0 |
| 2 | e1 00 | e100 | e45 | e 60 | e11 | e19 | e11 | e150 | e7.0 | e15 | e9.6 | e5.4 |
| 3 | e45 | e90 | e5 0 | e45 | e8.0 | e17 | e1 0 | e 30 | e8.0 | e9.0 | e8. 6 | e 5.0 |
| 4 | e 30 | e 80 | e70 | e35 | e15 | e1 6 | e9.6 | e2 0 | e6.8 | e7.6 | e7.5 | e4. 7 |
| 5 | e2 5 | e100 | e50 | e 30 | e50 | e16 | e9.4 | e12 | e 6.6 | e6. 0 | e 7.0 | e4 . 5 |
| 6 | e20 | e 90 | e35 | e45 | e45 | e20 | e9.0 | e10 | e6.0 | e5.4 | e6.2 | e5.0 |
| 7 | e3 0 | e70 | e 30 | e35 | e100 | e 30 | e1 0 | e9. 0 | e5.2 | e5.2 | e5.4 | e45 |
| 8 | e70 | e 60 | e27 | e35 | e50 | e45 | e12 | e8. 6 | e5.4 | e5.8 | e 5.0 | e50 |
| 9 | e110 | e 70 | e25 | e4 0 | e21 | e 26 | e15 | e9.4 | e6.2 | e7.2 | e4.5 | e10 |
| 10 | e8 0 | e 60 | e2 3 | e33 | e2 0 | e3 4 | e 16 | e8.2 | e5.8 | e7.2 | e4.0 | e 9.0 |
| 11 | e 60 | e 56 | e20 | e35 | e150 | e4 0 | e12 | e7.8 | e5.2 | e6.0 | e3.7 | e7.0 |
| 12 | e4 0 | e52 | e2 0 | e31 | e4 70 | e31 | e 9.6 | e9. 0 | e5.0 | e5.8 | e3.5 | e6.8 |
| 13 | e500 | e50 | e22 | e30 | e500 | e25 | e12 | e12 | e6.4 | e5.4 | e3.3 | e 9.0 |
| 14 | e250 | e4 8 | e21 | e25 | e70 | e2 0 | e11 | e7.4 | e6.4 | e5.3 | e3.1 | e8.2 |
| 15 | e4 50 | e4 6 | e25 | e 20 | e 60 | e17 | e10 | e 7.0 | e5.8 | e10 | e10 | e7 · 4 |
| 16 | e800 | e45 | e30 | e17 | e35 | e15 | e11 | e7.6 | e5.4 | e900 | e7.6 | e6.4 |
| 17 | e350 | 044 | e27 | e15 | e30 | e14 | e1 0 | e 6.6 | e5.0 | e250 | e6.0 | e90 |
| 18 | e 900 | e42 | e2 0 | e12 | e27 | e1 6 | e9.0 | e7.0 | e4 .6 | e4 0 | e5.0 | e 80 |
| 19 | e1000 | e42 | e16 | e1 0 | e 50 | e20 | e8.6 | e8.1 | e4 .5 | e22 | e4.5 | e25 |
| 20 | e350 | 041 | e15 | e12 | e45 | e21 | e8.4 | e10 | e5.0 | e 16 | e4. 0 | e15 |
| 21 | e2500 | e58 | e14 | e9.0 | e 60 | e15 | e8.0 | e7.2 | e5.2 | 014 | e4.5 | e25 |
| 22 | e4 00 | 044 | e1 3 | e7.0 | e50 | e2 0 | e7.8 | e6.2 | e5.2 | e13 | e 9.0 | e15 |
| 23 | e200 | e49 | e12 | e6.8 | e30 | e4 0 | e7.6 | e5.8 | e6.2 | e12 | e50 | e60 |
| 24 | e150 | e 38 | 014 | e7.0 | e25 | e25 | e7.4 | e7.0 | e 5.6 | e10 | e25 | e50 |
| 25 | e500 | e34 | e1 3 | e 6.9 | e22 | e15 | e7.4 | e6. 0 | e5.4 | e9. 0 | e15 | e25 |
| 26 | e1500 | e33 | e12 | e6.8 | e27 | e13 | e7.2 | e9. 0 | e5.2 | e8.0 | e10 | e14 |
| 27 | e 900 | e33 | e11 | e6.4 | e21 | e 31 | e7.2 | e7.0 | e 5.0 | e7.5 | e 6.0 | e1 0 |
| 28 | e4 00 | e41 | e11 | e8. 0 | e20 | e18 | e7.0 | e6.0 | e4 .9 | e1 0 | e35 | e13 |
| 29 | e250 | e 36 | e12 | e6.4 | | e14 | e6.8 | e5.6 | e4.8 | 014 | e15 | e17 |
| 30 | e150 | e35 | e 60 | e7.2 | | e13 | e25 | e5.2 | e1 3 | e11 | e12 | e 60 |
| 31 | e130 | | e300 | e8. 0 | | e12 | | e5.0 | | e9.8 | e1 0 | |
| TOTAL | 12540 | 1697 | 1103 | 744.5 | 2022.0 | 680 | 306.0 | 509.7 | 175.6 | 1507.2 | 309.8 | 688.4 |
| MBYN | 405 | 56.6 | 35.6 | 24.0 | 72.2 | 21.9 | 10.2 | 16.4 | 5.85 | 48.6 | 9.99 | 22.9 |
| MAX | 2500 | 110 | 300 | 100 | 500 | 45 | 25 | 150 | 13 | 900 | 50 | 90 |
| MIN | 20 | 33 | 11 | 6.4 | 8.0 | 12 | 6.8 | 5.0 | 4.5 | 5.2 | 3.1 | 4.5 |
| AC-FT | 24870 | 3370 | 2190 | 1480 | 4010 | 1350 | 607 | 1010 | 348 | 2990 | 614 | 1370 |
| CFSM | 7.38 | 1.03 | . 65 | . 44 | 1.32 | .40 | .19 | .30 | .11 | . 89 | .18 | . 42 |
| IN. | 8.51 | 1.15 | .75 | .51 | 1.37 | .46 | .21 | . 35 | .12 | 1.02 | .21 | . 47 |

CAL YR 1990 TOTAL 35878.1 MEAN 98.3 MAX 3060 MIN 3.0 AC-FT 71160 CFSM 1.79 IN. 24.36 WTR YR 1991 TOTAL 22283.2 MEAN 61.0 MAX 2500 MIN 3.1 AC-FT 44200 CFSM 1.11 IN. 15.13

e Estimated

50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FERT PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUI BII ITY (NTU | - DI | D: SO: EN, (P: S- C: VED SA' | IS- LVED ER- ENT TUR- | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|---|---|---|--|--|---|---|---|--|---|---|---|
| OCT 1990 22 | 1600 | 363 | 224 | 7.9 | 24.0 | 40 | 7 | .3 | 88 | 22 | 3100 | 6700 |
| DEC 18 | 0825 | | 387 | | | | | | | | K80 | K190 |
| FBB 1991 | | 18 | | 8.2 | 22.0 | | _ | . 9 | 104 | <10 | | |
| 13 APR | 1400 | 542 | 180 | 7.7 | 22.0 | 85 | 8 | .0 | 92 | 30 | K10000 | 6800 |
| 12 JUN | 1030 | 9.3 | 484 | 8.3 | 23.5 | 2. | 7 7 | . 8 | 92 | 16 | 100 | K150 |
| 18 AUG | 1015 | 4.1 | 499 | 7.9 | 27.5 | 2. | 1 5 | .0 | 64 | 14 | 130 | K61 |
| 14 | 1130 | 2.9 | 546 | 8.2 | 29.5 | 3. | 2 5 | . 6 | 74 | 17 | K54 | K22 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- MESS MONCARB WH WAT TOT FLD 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) | SODI AI SORI TIC RATI | - SI - DI | AS- LIN UM, WAT S- TOT VED FI | MH | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 22 | 80 | 5 | 20 | 7.2 | 15 | | .7 2 | . 0 | 70 | <0.5 | 17 | 21 |
| DEC 18 | | | | | | | | - | 150 | | | |
| FEB 1991 13 | | | | | | | | | | | | |
| APR | | | | | | | | · - | 54 | | | |
| 12 Jun | 170 | 0 | 43 | 16 | 33 | 1 | . 2 | .4 | 180 | <0.5 | 21 | 33 |
| 18 AUG | | | | | | | • | - | 170 | | | |
| 14 | 180 | 1 | 43 | 17 | 39 | 1 | . 3 | .2 | 180 | | 27 | 50 |
| ג ם | RI D SO ATE (M AS | DE, DI IS- SC LVED (M G/L A F) SI | ICA, SUM S- CON LVED TUR G/L D S SO O2) (M | STI- D NTS, SO IS- (T LVED P G/L) D | IDS, TO IS- AT IVED DE ONS S ER PE AY) (1 | SIDUE TAL 105 G. C, US- NDED MG/L) 0530) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615) | NIT GE NO2+ TOT (MG As: | N, G NO3 AMM AL TO /L (M N) AS | EN, CONIA ORGINAL TO G/L () N) As | TRO- BEN, BANIC DTAL BG/L BN) |
| OCT 19 | | 0.10 2 | 1 | 145 14 | 2 | 23 | 1.36 | 0.040 | 1. | 40 0 | . 060 | 0.64 |
| DEC 18. | | | | | | 8 | | <0.010 | 0. | 700 0 | . 050 | 0.25 |
| FRB 19 | | | | | | 72 | 1.15 | 0.050 | 1. | 20 0 | . 100 | 0.80 |
| APR 12. | | 0.10 2 | 1 | 277 | 6.97 | 15 | 0.670 | 0.020 | ٥. | 690 0 | . 030 | 0.47 |
| JUN 18 | | | | | | 1 | 0.890 | 0.030 | 0. | 920 0 | . 060 | 0.54 |
| AUG 14 | | 0.20 2 | 7 | 314 | 2.46 | 4 | 1.08 | 0.020 | 1. | | . 030 | 0.57 |
| | on-ideal c | | - | 721 | -11V | • | 2.00 | J. 020 | 1. | | | |

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50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | MITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | , | | | | |
| 22 DEC | 0.70 | 2.1 | 9.3 | 0.110 | <1 | <100 | <10 | <1 | 3 | 20 |
| 18 FRB 1991 | 0.30 | 1.0 | 4.4 | 0.250 | | | | | | |
| 13 | 0.90 | 2.1 | 9.3 | 0.160 | | | | | | |
| APR 12 JUN | 0.50 | 1.2 | 5.3 | 0.680 | 1 | <100 | 70 | <1 | <1 | 10 |
| 18 | 0.60 | 1.5 | 6.7 | 0.820 | | | | | | |
| 14 | 0.60 | 1.7 | 7.5 | 1.00 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA - NESE, TOTAL RECOV - ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SRLE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- BRABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | Lene Blue Active Sub- Stance (MG/L) |
| | TOTAL RECOV- BRABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- BRABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| OCT 1990 22 DEC 18 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- BRABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | Lene Blue Active Sub- Stance (MG/L) |
| OCT 1990 22 DEC 18 FEB 1991 13 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- BRABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 22 DEC 18 FEB 1991 | TOTAL RECOV- ERABLE (UG/L AS FE) 3500 | TOTAL RECOV- ERABLE (UG/L AS PB) 7 | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.07 |
| OCT 1990 22 DEC 18 FRB 1991 13 APR 12 | TOTAL RECOV- BRABLE (UG/L AS FE) 3500 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) 70 | TOTAL RECOV- ERABLE (UG/L AS HG) 0.20 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- REABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) 10 | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.07 |

50043800 RIO DE LA PLATA AT COMERIO, PR

LOCATION.--Lat 18°13'23", long 66°13'30", Hydrologic Unit 21010005, on right bank 50 ft (15 m) upstream from bridge off Highway 167 in the Town of Comerío, 0.4 mi (0.6 km) southwest of Comerío High School, and 0.2 mi (0.3 km) notheast of Plaza de Comerío.

DRAINAGE AREA. -- 109 mi 2 (282 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- December 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 604.2 ft (184.160 m) above mean sea level.

REMARKS. -- Records fair. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft³/s (906 m³/s), Sept. 18, 1989, gage-height, 17.36 ft (5.291 m), from flodmark, from rating curve extended above 1,000 ft³/s (28.3 m³/s) on basis of step-backwater analysis; minimum discharge, 10 ft³/s (0.283 m³/s), Aug. 28, 29, 1990.

EXTREMES FOR CURRENT YEAR, -- Peak discharges greater than base discharge of 4,000 oft/s (113 m3/s) and maximum (*):

| | | Disc | Discharge Gage height | | | | | Disc | harge | Gage height | |
|---------|------|------------|-----------------------|--------|-------|---------|------|---------|---------------------|-------------|-------|
| Date | Time | (ft^3/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) |
| Oct. 16 | 1650 | 8,980 | 254 | 10.67 | 3.252 | Oct. 26 | 0005 | 8,820 | 250 | 10.60 | 3.231 |
| Oct. 18 | 2345 | 9,140 | 259 | 10.74 | 3.274 | July 16 | 0730 | 7,220 | 205 | 9.90 | 3.018 |
| Oct. 21 | 0225 | *13,000 | 368 | *12.24 | 3.731 | - | | | | | |

Minimum discharge, 11.0 ft3/s (0.312 m3/s), July 13-15.

| | | DISCHARG | R, CUBIC | FRET PER | SECOND, DAIL | WATER YEA MEAN VA | ar october Lues | 1990 TO | September | 1991 | | |
|-------|-------|----------|----------|----------|-----------------|----------------------|--------------------|---------|-----------|------|------|------|
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 484 | 194 | 100 | 382 | 37 | 44 | 24 | 175 | 18 | 176 | 22 | 17 |
| 2 | 151 | 166 | 79 | 152 | 40 | 41 | 24 | 271 | 20 | 37 | 21 | 17 |
| 3 | 65 | 145 | 97 | 92 | 35 | 36 | 23 | 117 | 21 | 20 | 19 | 16 |
| 4 | 65 | 133 | 152 | 73 | 33 | 34 | 21 | 39 | 19 | 16 | 18 | 16 |
| 5 | 58 | 154 | 79 | 63 | 128 | 41 | 21 | 27 | 18 | 13 | 18 | 16 |
| 6 | 46 | 140 | 58 | 96 | 99 | 44 | 20 | 23 | 16 | 12 | 17 | 14 |
| 7 | 41 | 116 | 51 | 74 | 273 | 48 | 20 | 26 | 16 | 12 | 16 | 88 |
| 8 | 92 | 105 | 47 | 73 | 91 | 52 | 24 | 31 | 18 | 13 | 15 | 113 |
| 9 | 242 | 127 | 45 | 86 | 57 | 43 | 36 | 28 | 19 | 16 | 15 | 33 |
| 10 | 156 | 100 | 42 | 72 | 53 | 46 | 33 | 22 | 18 | 16 | 15 | 24 |
| 11 | 109 | 94 | 41 | 75 | 303 | 45 | 26 | 20 | 16 | 13 | 14 | 21 |
| 12 | 66 | 87 | 44 | 67 | 615 | 43 | 25 | 22 | 16 | 13 | 14 | 21 |
| 13 | 1010 | 80 | 43 | 67 | 965 | 42 | 32 | 137 | 19 | 12 | 14 | 28 |
| 14 | 434 | 75 | 41 | 63 | 187 | 42 | 27 | 149 | 19 | 11 | 14 | 24 |
| 15 | 1060 | 71 | 53 | 63 | 96 | 39 | 22 | 49 | 16 | 16 | 32 | 19 |
| 16 | 1990 | 72 | 60 | 58 | 66 | 38 | 24 | 34 | 14 | 2500 | 21 | 17 |
| 17 | 759 | 69 | 49 | 55 | 66 | 36 | 27 | 30 | 14 | 349 | 18 | 210 |
| 18 | 1720 | 66 | 37 | 50 | 57 | 38 | 20 | 27 | 13 | 92 | 17 | 171 |
| 19 | 2150 | 63 | 32 | 44 | 102 | 43 | 19 | 27 | 12 | 49 | 16 | 46 |
| 20 | 419 | 60 | 29 | 39 | 97 | 44 | 18 | 29 | 13 | 36 | 17 | 28 |
| 21 | 6380 | 101 | 29 | 39 | 119 | 37 | 17 | 26 | 13 | 32 | 22 | 56 |
| 22 | 806 | 72 | 30 | 35 | 79 | 73 | 17 | 23 | 13 | 28 | 26 | 28 |
| 23 | 317 | 80 | 32 | 32 | 62 | 83 | 16 | 22 | 16 | 26 | 125 | 130 |
| 24 | 246 | 62 | 32 | 31 | 52 | 45 | 16 | 22 | 15 | 22 | 55 | 90 |
| 25 | 1460 | 55 | 36 | 30 | 49 | 31 | 15 | 22 | 14 | 19 | 31 | 41 |
| 26 | 3520 | 55 | 33 | 29 | 52 | 45 | 15 | 76 | 14 | 18 | 21 | 24 |
| 27 | 1560 | 57 | 35 | 32 | 49 | 64 | 15 | 37 | 14 | 19 | 24 | 19 |
| 28 | 570 | 66 | 34 | 31 | 40 | 37 | 14 | 22 | 14 | 22 | 78 | 29 |
| 29 | 329 | 59 | 34 | 32 | | 28 | 14 | 20 | 12 | 31 | 45 | 38 |
| 30 | 267 | 58 | 53 | 30 | | 26 | 45 | 18 | 21 | 24 | 24 | 142 |
| 31 | 260 | | 655 | 30 | | 24 | | 18 | | 22 | 19 | |
| TOTAL | 26832 | 2782 | 2182 | 2095 | 3902 | 1332 | 670 | 1589 | 481 | 3685 | 823 | 1536 |
| MBAN | 866 | 92.7 | 70.4 | 67.6 | 139 | 43.0 | 22.3 | 51.3 | 16.0 | 119 | 26.5 | 51.2 |
| MAX | 6380 | 194 | 655 | 382 | 965 | 83 | 45 | 271 | 21 | 2500 | 125 | 210 |
| MIN | 41 | 55 | 29 | 29 | 33 | 24 | 14 | 18 | 12 | 11 | 14 | 14 |
| AC-FT | 53220 | 5520 | 4330 | 4160 | 7740 | 2640 | 1330 | 3150 | 954 | 7310 | 1630 | 3050 |
| CFSM | 7.98 | . 85 | . 65 | . 62 | 1.28 | .40 | .21 | .47 | .15 | 1.10 | .24 | .47 |
| IN. | 9.20 | . 95 | .75 | . 72 | 1.34 | . 46 | .23 | . 54 | .16 | 1.26 | .28 | . 53 |

CAL YR 1990 TOTAL 42315 MEAN 116 MAX 6320 MIN 11 AC-FT 83930 CFSM 1.07 IN. 14.51 WTR YR 1991 TOTAL 47909 MEAN 131 MAX 6380 MIN 11 AC-FT 95030 CFSM 1.21 IN. 16.43

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS .-- Water years 1989 to current year.

INSTRUMENTATION .-- USD-77 and automatic sediment sampler.

PERIOD OF DAILY RECORD. --

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to September 1991

EXTREMES FOR PERIOD OF DAILY RECORD .--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,300 mg/L Oct. 16, 1990; Minimum daily mean, 2 mg/L few days.

SEDIMENT LOADS: Maximum daily mean, 22,600tons (20,500tonnes) Oct. 21, 1990; Minimum daily mean, 0.06 ton (0.05 tonne) Aug 20, 1990.

EXTREMES FOR WATER YEARS 1990-91.--

| Water | Suspended-sediment | concentration (mg/L) | Suspended-sediment discharge maximum | (tons per day) |
|-------|--------------------|----------------------|--------------------------------------|----------------|
| Year | maximum | minimum | | minimum |
| 1990 | 259 (Sep. 25) | 2 (Aug. 20) | 686 (Oct. 23) | .06 (Aug. 20) |
| 1991 | 1,300 (Oct. 16) | 2 (Dec. 22-23) | 22,600 (Oct. 21) | |

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | OCTOBER | | 1 | NOVEMBER | | 1 | DECEMBER | |
| 1 | 106 | 62 | 18 | 57 | 37 | 5.6 | 30 | 22 | 1.8 |
| 2 | 161 | 85 | 41 | 52 | 34 | 4.7 | 30 | 23 | 1.8 |
| 3 | 145 | 76 | 36 | 49 | 31 | 4.1 | 27 | 24 | 1.8 |
| 4 | 144 | 79 | 34 | 47 | 31 | 3.9 | 26 | 20 | 1.4 |
| 5 | 118 | 67 | 22 | 52 | 35 | 5.0 | 27 | 21 | 1.5 |
| 6 | 95 | 56 | 15 | 57 | 38 | 5.8 | 26 | 20 | 1.4 |
| 7 | 83 | 50 | 11 | 53 | 35 | 5.0 | 26 | 20 | 1.4 |
| 8 | 79 | 44 | 9.2 | 63 | 39 | 6.9 | 26 | 21 | 1.5 |
| 9 | 75 | 45 | 9.0 | 53 | 34 | 4.8 | 27 | 21 | 1.5 |
| 10 | 70 | 44 | 8.4 | 47 | 31 | 3.9 | 28 | 21 | 1.5 |
| 11 | 69 | 42 | 7.7 | 44 | 30 | 3.6 | 25 | 19 | 1.3 |
| 12 | 67 | 41 | 7.3 | 44 | 29 | 3.5 | 24 | 19 | 1.2 |
| 13 | 67 | 41 | 7.3 | 42 | 28 | 3.1 | 24 | 19 | 1.2 |
| 14 | 67 | 42 | 7.5 | 42 | 28 | 3.1 | 24 | 18 | 1.2 |
| 15 | 68 | 42 | 7.7 | 43 | 28 | 3.2 | 22 | 18 | 1.1 |
| 16 | 62 | 40 | 6.9 | 42 | 27 | 3.1 | 23 | 18 | 1.1 |
| 17 | 68 | 43 | 8.4 | 40 | 27 | 2.9 | 25 | 18 | 1.2 |
| 18 | 58 | 36 | 5.5 | 40 | 28 | 3.0 | 23 | 17 | 1.0 |
| 19 | 55 | 40 | 6.3 | 39 | 27 | 2.9 | 22 | 17 | 1.0 |
| 20 | 153 | 72 | 87 | 38 | 26 | 2.7 | 22 | 17 | 1.0 |
| 21 | 214 | 113 | 80 | 37 | 26 | 2.5 | 21 | 17 | . 97 |
| 22 | 203 | 104 | 61 | 36 | 25 | 2.4 | 21 | 17 | .91 |
| 23 | 506 | 201 | 686 | 35 | 25 | 2.3 | 21 | 17 | .93 |
| 24 | 184 | 96 | 66 | 34 | 25 | 2.2 | 22 | 17 | 1.0 |
| 25 | 160 | 78 | 79 | 34 | 25 | 2.2 | 22 | 17 | 1.0 |
| 26 | 181 | 95 | 56 | 33 | 24 | 2.1 | 21 | 17 | . 93 |
| 27 | 121 | 73 | 26 | 32 | 23 | 2.0 | 21 | 17 | . 93 |
| 28 | 71 | 44 | 8.7 | 32 | 23 | 2.0 | 21 | 16 | . 88 |
| 29 | 84 | 49 | 15 | 31 | 23 | 1.9 | 21 | 15 | . 87 |
| 30 | 91 | 56 | 16 | 31 | 23 | 1.8 | 22 | 16 | . 91 |
| 31 | 68 | 42 | 7.5 | | | | 20 | 17 | . 92 |
| TOTAL | 3693 | | 1456.4 | 1279 | | 102.2 | 740 | | 37.15 |

RIO DE LA PLATA BASIN 50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

| DAY | MRAN DISCHARGE (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | Sediment Discharge (Tons/Day) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JANUARY | | 1 | PEBRUARY | | | MARCH | |
| 1 | 21 | 18 | 1.0 | 20 | 16 | .86 | 25 | 20 | 1.5 |
| 2 | 24 | 18 | 1.2 | 19 | 15 | .74 | 24 | 19 | 1.2 |
| 3 | 25 | 19 | 1.2 | 18 | 15 | .72 | 21 | 17 | . 94 |
| 4 | 23 | 18 | 1.1 | 18 | 15 | .68 | 19 | 15 | .74 |
| 5 | 20 | 16 | . 86 | 17 | 14 | . 64 | 18 | 15 | . 68 |
| 6 | 19 | 15 | .76 | 17 | 14 | . 64 | 17 | 14 | . 64 |
| 7 | 19 | 15 | .76 | 18 | 15 | .78 | 17 | 14 | . 64 |
| 8 | 20 | 15 | . 81 | 24 | 19 | 1.2 | 17 | 14 | . 64 |
| 9 | 19 | 15 | .74 | 28 | 22 | 1.6 | 26 | 19 | 1.4 |
| 10 | 19 | 15 | .74 | 30 | 22 | 1.8 | 40 | 27 | 2.9 |
| 11 | 19 | 15 | .80 | 22 | 18 | 1.1 | 41 | 27 | 2.9 |
| 12 | 22 | 16 | . 93 | 19 | 16 | .79 | 83 | 49 | 12 |
| 13 | 20 | 16 | . 84 | 18 | 15 | .72 | 202 | 99 | 55 |
| 14 | 20 | 17 | .88 | 32 | 21 | 2.1 | 367 | 160 | 165 |
| 15 | 18 | 15 | .70 | 34 | 28 | 2.6 | 158 | 86 | 42 |
| 16 | 19 | 17 | . 85 | 30 | 21 | 1.7 | 70 | 48 | 9.4 |
| 17 | 25 | 19 | 1.3 | 21 | 17 | .98 | 64 | 40 | 6.9 |
| 18 | 22 | 18 | 1.1 | 22 | 17 | 1.0 | 46 | 31 | 3.9 |
| 19 | 20 | 16 | .89 | 23 | 19 | 1.2 | 33 | 24 | 2.1 |
| 20 | 21 | 17 | 1.0 | 23 | 18 | 1.1 | 25 | 20 | 1.3 |
| 21 | 22 | 17 | 1.0 | 22 | 18 | 1.0 | 24 | 18 | 1.1 |
| 22 | 24 | 17 | 1.1 | 26 | 20 | 1.4 | 21 | 17 | . 93 |
| 23 | 20 | 17 | . 92 | 28 | 22 | 1.7 | 20 | 16 | . 86 |
| 24 | 23 | 20 | 1.2 | 35 | 24 | 2.5 | 20 | 16 | . 81 |
| 25 | 22 | 17 | .98 | 48 | 33 | 4.6 | 19 | 15 | .76 |
| 26 | 25 | 19 | 1.3 | 29 | 22 | 1.7 | 19 | 15 | .76 |
| 27 | 30 | 24 | 2.0 | 22 | 18 | 1.1 | 20 | 16 | . 81 |
| 28 | 40 | 27 | 2.9 | 21 | 17 | .93 | 19 | 16 | . 83 |
| 29 | 33 | 24 | 2.2 | | | | 19 | 15 | .76 |
| 30 | 29 | 21 | 1.6 | | | | 18 | 15 | .73 |
| 31 | 23 | 18 | 1.1 | | | | 18 | 15 | . 68 |
| TOTAL | 706 | | 34.76 | 684 | | 37.88 | 1530 | | 320.81 |

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 17 | 14 | . 64 | 17 | 14 | .60 | 15 | 12 | .48 |
| 2 | 17 | 14 | . 64 | 17 | 14 | .64 | 15 | 12 | .47 |
| 3 | 17 | 14 | . 64 | 19 | 15 | .70 | 15 | 12 | .47 |
| 4 | 17 | 14 | . 64 | 18 | 15 | .70 | 14 | 12 | .46 |
| 5 | 17 | 14 | . 60 | 18 | 14 | . 64 | 14 | 12 | .46 |
| 6 | 16 | 13 | .59 | 16 | 14 | .60 | 15 | 12 | .46 |
| 7 | 17 | 14 | . 64 | 47 | 27 | 14 | 17 | 14 | .59 |
| 8 | 16 | 14 | . 61 | 115 | 68 | 39 | 17 | 15 | . 68 |
| 9 | 16 | 14 | . 60 | 72 | 43 | 11 | 21 | 14 | .77 |
| 10 | 16 | 13 | . 56 | 69 | 40 | 10 | 40 | 27 | 3.4 |
| 11 | 16 | 14 | . 60 | 58 | 37 | 6.6 | 27 | 21 | 1.6 |
| 12 | 17 | 14 | . 64 | 33 | 24 | 2.2 | 17 | 15 | .71 |
| 13 | 20 | 16 | . 82 | 26 | 20 | 1.4 | 16 | 13 | . 52 |
| 14 | 19 | 16 | . 86 | 24 | 19 | 1.2 | 18 | 19 | . 99 |
| 15 | 18 | 15 | .72 | 25 | 19 | 1.3 | 350 | 117 | 158 |
| 16 | 17 | 14 | . 64 | 24 | 18 | 1.1 | 171 | 74 | 38 |
| 17 | 74 | 42 | 24 | 22 | 17 | .98 | 56 | 40 | 6.5 |
| 18 | 34 | 24 | 2.6 | 22 | 17 | .98 | 31 | 28 | 2.4 |
| 19 | 36 | 29 | 2.8 | 21 | 17 | .96 | 23 | 18 | 1.1 |
| 20 | 70 | 43 | 8.8 | 21 | 17 | .98 | 20 | 16 | . 84 |
| 21 | 50 | 36 | 5.3 | 22 | 17 | .98 | 17 | 14 | .60 |
| 22 | 28 | 21 | 1.7 | 23 | 17 | 1.0 | 15 | 66 | 2.5 |
| 23 | 21 | 16 | . 88 | 22 | 17 | .98 | 17 | 15 | .71 |
| 24 | 18 | 15 | .70 | 21 | 17 | .91 | 24 | 19 | 1.3 |
| 25 | 25 | 19 | 1.5 | 20 | 16 | .81 | 29 | 23 | 1.8 |
| 26 | 35 | 26 | 2.4 | 18 | 15 | .74 | 66 | 40 | 7.7 |
| 27 | 36 | 24 | 2.4 | 18 | 15 | .68 | 33 | 25 | 2.3 |
| 28 | 24 | 19 | 1.3 | 18 | 14 | .66 | 21 | 13 | .71 |
| 29 | 19 | 15 | .75 | 17 | 14 | .64 | 15 | 13 | .51 |
| 30 | 17 | 14 | . 60 | 16 | 14 | .60 | 13 | 11 | .38 |
| 31 | | | | 15 | 12 | .50 | | | |
| TOTAL | 760 | | 66.17 | 894 | | 104.08 | 1162 | | 237.41 |

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

| | MRAN | Mean Concen- | SEDIMENT | MEAN | MEAN CONCEN- | SEDIMENT | MRAN | MRAN CONCEN- | SEDIMENT |
|-------|--------------------|-----------------|-------------------------|--------------------|-------------------|-------------------------|--------------------|-------------------|-------------------------|
| DAY | DISCHARGE (CFS) | TRATION (MG/L) | DISCHARGE (TONS/DAY) | DISCHARGE (CFS) | TRATION (MG/L) | DISCHARGE (TONS/DAY) | DISCHARGE (CFS) | TRATION (MG/L) | DISCHARGE (TONS/DAY) |
| | • | JULY | | | AUGUST | ,, | | PTEMBER | |
| 1 | 13 | 11 | .38 | 13 | 6 | .23 | 27 | 34 | 2.5 |
| 2 | 14 | 12 | .42 | 14 | 7 | .17 | 19 | 26 | 1.3 |
| 3 | 13 | 11 | .40 | 15 | 5 | .20 | 22 | 15 | .94 |
| 4 | 15 | 11 | .45 | 14 | 5 | .18 | 17 | 10 | .47 |
| 5 | 14 | 12 | .42 | 13 | 5 | .20 | 20 | 14 | 1.1 |
| 6 | 19 | 13 | . 65 | 15 | 14 | .56 | 64 | 40 | 7.7 |
| 7 | 44 | 29 | 3.8 | 15 | 20 | .79 | 93 | 55 | 16 |
| 8 | 32 | 25 | 2.2 | 14 | 16 | .60 | 89 | 50 | 13 |
| 9 | 23 | 18 | 1.2 | 13 | 11 | .40 | 47 | 31 | 4.1 |
| 10 | 15 | 13 | . 53 | 15 | 13 | .50 | 41 | 28 | 3.2 |
| 11 | 13 | 11 | .40 | 149 | 78 | 42 | 33 | 28 | 2.5 |
| 12 | 13 | 11 | .38 | 54 | 35 | 5.6 | 35 | 26 | 2.5 |
| 13 | 21 | 17 | 1.5 | 30 | 24 | 2.0 | 80 | 44 | 32 |
| 14 | 18 | 16 | . 83 | 40 | 27 | 3.3 | 141 | 45 | 31 |
| 15 | 132 | 62 | 82 | 35 | 25 | 2.5 | 85 | 48 | 13 |
| 16. | 303 | 134 | 167 | 17 | 17 | .78 | 116 | 72 | 25 |
| 17 | 57 | 32 | 5.5 | 13 | 13 | .45 | 54 | 54 | 7.9 |
| 18 | 105 | 57 | 19 | 14 | 10 | .39 | 38 | 47 | 4.8 |
| 19 | 60 | 40 | 7.3 | 13 | 5 | .17 | 35 | 43 | 3.9 |
| 20 | 61 | 25 | 4.5 | 12 | 2 | .06 | 25 | 42 | 2.8 |
| 21 | 30 | 16 | 1.3 | 12 | 6 | .18 | 22 | 42 | 2.4 |
| 22 | 18 | 17 | . 80 | 12 | 10 | .31 | 36 | 44 | 4.8 |
| 23 | 15 | 17 | . 66 | 13 | 10 | .35 | 33 | 42 | 3.9 |
| 24 | 15 | 17 | .70 | . 25 | 18 | 1.3 | 126 | 73 | 79 |
| 25 | 19 | 19 | . 95 | 17 | 15 | .69 | 427 | 259 | 463 |
| 26 | 43 | 30 | 4.2 | 14 | 13 | .49 | 322 | 164 | 161 |
| 27 | 152 | 98 | 44 | 13 | 11 | .38 | 100 | 127 | 36 |
| 28 | 50 | 70 | 9.8 | 11 | 10 | .31 | 51 | 104 | 15 |
| 29 | 25 | 50 | 3.6 | 431 | 173 | 560 | 35 | 82 | 7.8 |
| 30 | 19 | 30 | 1.5 | 212 | 99 | 100 | 48 | 69 | 18 |
| 31 | 14 | 14 | . 55 | 48 | 40 | 5.1 | | | |
| TOTAL | 1385 | | 366.92 | 1326 | | 730.19 | 2281 | | 966.61 |
| YEAR | 16440 | | 4460.58 | | | | | | |

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|--|
| | OCTOBER | | | | NOVEMBER | | | DECEMBER | | |
| 1 | 484 | 189 | 324 | 194 | 12 | 6.1 | 100 | 46 | 13 | |
| 2 | 151 | 190 | 80 | 166 | 11 | 4.7 | 79 | 49 | 11 | |
| 3 | 65 | 107 | 20 | 145 | 77 | 30 | 97 | 58 | 17 | |
| 4 | 65 | 74 | 13 | 133 | 7 | 2.5 | 152 | 83 | 35 | |
| 5 | 58 | 61 | 9.4 | 154 | 8 | 3.3 | 79 | 52 | 11 | |
| 6 | 46 | 32 | 3.9 | 140 | 9 | 3.5 | 58 | 40 | 6.2 | |
| 7 | 41 | 30 | 3.5 | 116 | 10 | 3.1 | 51 | 30 | 4.1 | |
| 8 | 92 | 54 | 15 | 105 | 10 | 2.8 | 47 | 20 | 2.6 | |
| 9 | 242 | 115 | 88 | 127 | 10 | 3.4 | 45 | 15 | 1.8 | |
| 10 | 156 | 92 | 42 | 100 | 10 | 2.7 | 42 | 14 | 1.6 | |
| 11 | 109 | 62 | 19 | 94 | 55 | 14 | 41 | 12 | 1.4 | |
| 12 | 66 | 46 | 8.5 | 87 | 11 | 2.5 | 44 | 13 | 1.5 | |
| 13 | 1010 | 42 | 55 | 80 | 11 | 2.4 | 43 | 14 | 1.7 | |
| 14 | 434 | 185 | 273 | 75 | 15 | 3.1 | 41 | 15 | 1.7 | |
| 15 | 1060 | 386 | 1420 | 71 | 12 | 2.3 | 53 | 15 | 2.3 | |
| 16 | 1990 | 1300 | 14900 | 72 | 11 | 2.1 | 60 | 16 | 2.7 | |
| 17 | 759 | 427 | 1230 | 69 | 10 | 1.8 | 49 | 17 | 2.2 | |
| 18 | 1720 | 903 | 12000 | 66 | 8 | 1.4 | 37 | 20 | 1.9 | |
| 19 | 2150 | 1000 | 11700 | 63 | 4 | .75 | 32 | 20 | 1.8 | |
| 20 | 419 | 199 | 303 | 60 | 4 | . 64 | 29 | 17 | 1.3 | |
| 21 | 6380 | 1090 | 22600 | 101 | 66 | 20 | 29 | 4 | .35 | |
| 22 | 806 | 162 | 481 | 72 | 51 | 9.7 | 30 | 2 | .16 | |
| 23 | 317 | 50 | 43 | 80 | 18 | 3.7 | 32 | 2 | .21 | |
| 24 | 246 | 56 | 37 | 62 | 13 | 2.1 | 32 | 3 | .31 | |
| 25 | 1460 | 448 | 2920 | 55 | 8 | 1.2 | 36 | 5 | . 45 | |
| 26 | 3520 | 900 | 10600 | 55 | 10 | 1.4 | 33 | 6 | .49 | |
| 27 | 1560 | 539 | 2660 | 57 | 10 | 1.6 | 35 | 8 | .76 | |
| 28 | 570 | 263 | 425 | 66 | 10 | 1.8 | 34 | 9 | .79 | |
| 29 | 329 | 156 | 144 | 59 | 10 | 1.6 | 34 | 8 | .71 | |
| 30 | 267 | 122 | 93 | 58 | 10 | 1.5 | 53 | 8 | 1.2 | |
| 31 | 260 | 33 | 26 | | | | 655 | 241 | 590 | |
| TOTAL | 26832 | | 82536.3 | 2782 | | 137.69 | 2182 | | 717.23 | |

RIO DE LA PLATA BASIN
50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|--|
| | | JANUARY | | 1 | PEBRUARY | | | MARCH | | |
| 1 | 382 | 163 | 199 | 37 | 15 | 1.5 | 44 | 6 | .70 | |
| 2 | 152 | 80 | 34 | 40 | 16 | 1.7 | 41 | 6 | . 67 | |
| 3 | 92 | 53 | 14 | 35 | 14 | 1.3 | 36 | 6 | . 58 | |
| 4 | 73 | 43 | 8.4 | 33 | 12 | 1.0 | 34 | 6 | . 55 | |
| 5 | 63 | 38 | 6.4 | 128 | 65 | 42 | 41 | 6 | . 64 | |
| 6 | 96 | 38 | 11 | 99 | 67 | 20 | 44 | 6 | .73 | |
| 7 | 74 | 8 | 1.7 | 273 | 130 | 118 | 48 | 5 | .72 | |
| 8 | 73 | 7 | 1.4 | 91 | 80 | 20 | 52 | 5 | .70 | |
| 9 | 86 | 6 | 1.4 | 57 | 55 | 8.8 | 43 | 5 | . 60 | |
| 10 | 72 | 6 | 1.1 | 53 | 35 | 5.6 | 46 | 6 | .78 | |
| 11 | 75 | 5 | 1.0 | 303 | 142 | 139 | 45 | 8 | .96 | |
| 12 | 67 | 5 | . 92 | 615 | 256 | 1540 | 43 | 10 | 1.2 | |
| 13 | 67 | 5 | . 91 | 965 | 375 | 1600 | 42 | 13 | 1.4 | |
| 14 | 63 | 5 | . 86 | 187 | 69 | 39 | 42 | 15 | 1.6 | |
| 15 | 63 | 8 | 1.3 | 96 | 40 | 11 | 39 | 16 | 1.6 | |
| 16 | 58 | 10 | 1.6 | 66 | 26 | 4.9 | 38 | 16 | 1.6 | |
| 17 | 55 | 15 | 2.2 | 66 | 22 | 3.9 | 36 | 16 | 1.5 | |
| 18 | 50 | 10 | 1.3 | 57 | 32 | 5.4 | 38 | 14 | 1.4 | |
| 19 | 44 | 10 | 1.2 | 102 | 61 | 17 | 43 | 13 | 1.5 | |
| 20 | 39 | 9 | . 95 | 97 | 54 | 15 | 44 | 10 | 1.2 | |
| 21 | 39 | 7 | .74 | 119 | 58 | 20 | 37 | 7 | .72 | |
| 22 | 35 | 5 | . 52 | 79 | 20 | 4.5 | 73 | 40 | 9.5 | |
| 23 | 32 | 5 | . 43 | 62 | 13 | 2.1 | 83 | 53 | 12 | |
| 24 | 31 | 5 | .43 | 52 | 18 | 2.5 | 45 | 40 | 5.3 | |
| 25 | 30 | 6 | . 50 | 49 | 20 | 2.6 | 31 | 14 | 1.2 | |
| 26 | 29 | 7 | .58 | 52 | 17 | 2.3 | 45 | 25 | 5.1 | |
| 27 | 32 | 9 | .73 | 49 | 12 | 1.5 | 64 | 45 | 8.0 | |
| 28 | 31 | 10 | . 85 | 40 | 8 | .86 | 37 | 39 | 3.7 | |
| 29 | 32 | 12 | 1.0 | | | | 28 | 37 | 2.9 | |
| 30 | 30 | 21 | 1.8 | | | | 26 | 36 | 2.5 | |
| 31 | 30 | 15 | 1.2 | | | | 24 | 34 | 2.2 | |
| TOTAL | 2095 | | 299.42 | 3902 | | 3631.46 | 1332 | | 73.75 | |

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMMERIO, PR--Continued

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 24 | 27 | 1.7 | 175 | 96 | 95 | 18 | 30 | 1.5 |
| 2 | 24 | 17 | 1.1 | 271 | 127 | 151 | 20 | 27 | 1.4 |
| 3 | 23 | 10 | . 59 | 117 | 66 | 28 | 21 | 20 | 1.1 |
| 4 | 21 | 10 | .58 | 39 | 28 | 3.2 | 19 | 14 | .72 |
| 5 | 21 | 16 | . 87 | 27 | 22 | 1.6 | 18 | 10 | .46 |
| 6 | 20 | 20 | 1.0 | 23 | 20 | 1.3 | 16 | 7 | .30 |
| 7 | 20 | 21 | 1.1 | 26 | 20 | 1.4 | 16 | 5 5 | .23 |
| 8 | 24 | 29 | 2.0 | 31 | 20 | 1.8 | 18 | 5 | .25 |
| 9 | 36 | 44 | 4.3 | 28 | 20 | 1.5 | 19 | 5 | . 27 |
| 10 | 33 | 36 | 3.2 | 22 | 20 | 1.3 | 18 | 5 | .24 |
| 11 | 26 | 23 | 1.6 | 20 | 20 | 1.1 | 16 | 5 | .22 |
| 12 | 25 | 12 | . 83 | , 22 | 19 | 1.2 | 16 | 5 | . 22 |
| 13 | 32 | 10 | . 83 | 137 | 65 | 72 | 19 | 5 5 5 | . 26 |
| 14 | 27 | 10 | .76 | 149 | 118 | 57 | 19 | 5 | . 27 |
| 15 | 22 | 10 | . 61 | 49 | 46 | 6.9 | 16 | 5 | .21 |
| 16 | 24 | 11 | .76 | 34 | 21 | 2.0 | 14 | 5 5 | . 18 |
| 17 | 27 | 13 | . 95 | 30 | 13 | 1.1 | 14 | 5 | .18 |
| 18 | 20 | 15 | . 85 | 27 | 13 | .94 | 13 | 5 | . 17 |
| 19 | 19 | 16 | .78 | 27 | 14 | 1.0 | 12 | 5 | .18 |
| 20 | 18 | 15 | .72 | 29 | 21 | 1.6 | 13 | 11 | .36 |
| 21 | 17 | 15 | .70 | 26 | 29 | 2.1 | 13 | 15 | .52 |
| 22 | 17 | 14 | . 60 | 23 | 35 | 2.2 | 13 | 15 | . 53 |
| 23 | 16 | 10 | .41 | 22 | 36 | 2.1 | 16 | 15 | . 62 |
| 24 | 16 | 6 | .26 | 22 | 27 | 1.6 | 15 | 15 | . 65 |
| 25 | 15 | 5 | .21 | 22 | 18 | 1.0 | 14 | 16 | . 61 |
| 26 | 15 | 5 | .20 | 76 | 50 | 11 | 14 | 16 | .60 |
| 27 | 15 | 5 | .20 | 37 | 38 | 4.1 | 14 | 16 | . 59 |
| 28 | 14 | 5 | .20 | 22 | 27 | 1.7 | 14 | 16 | . 57 |
| 29 | 14 | 5 | .20 | 20 | 23 | 1.2 | 12 | 15 | .51 |
| 30 | 45 | 21 | 10 | 18 | 25 | 1.2 | 21 | 20 | 1.5 |
| 31 | | | | 18 | 29 | 1.4 | | | |
| TOTAL | 670 | | 38.11 | 1589 | | 460.54 | 481 | | 15.42 |

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

| DAY | MRAN DISCHARGE (CFS) | MBAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|--|
| | | JULY | | | AUGUST | | September | | | |
| 1 | 176 | 99 | 64 | 22 | 6 | .38 | 17 | 8 | .39 | |
| 2 | 37 | 49 | 5.2 | 21 | 7 | .40 | 17 | 8 | . 37 | |
| 3 | 20 | 45 | 2.6 | 19 | 7 | .36 | 16 | 7 | . 33 | |
| 4 | 16 | 43 | 1.8 | 18 | 7 | .34 | 16 | 7 | . 30 | |
| 5 | 13 | 39 | 1.3 | 18 | 7 | .33 | 16 | 7 | .29 | |
| 6 | 12 | 27 | . 85 | 17 | 7 | .32 | 14 | 7 | . 27 | |
| 7 | 12 | 17 | .56 | 16 | 7 | .32 | 88 | 39 | 46 | |
| 8 | 13 | 17 | . 57 | 15 | 9 | .36 | 113 | 176 | 67 | |
| 9 | 16 | 18 | .74 | 15 | 10 | .40 | 33 | 130 | 13 | |
| 10 | 16 | 18 | .78 | 15 | 11 | .41 | 24 | 80 | 5.3 | |
| 11 | 13 | 17 | .60 | 14 | 11 | .42 | 21 | 58 | 3.2 | |
| 12 | 13 | 16 | .53 | 14 | 11 | .42 | 21 | 53 | 3.2 | |
| 13 | 12 | 14 | .45 | 14 | 11 | .39 | 28 | 50 | 3.6 | |
| 14 | 11 | 12 | .36 | 14 | 10 | .38 | 24 | 49 | 3.2 | |
| 15 | 16 | 13 | . 67 | 32 | 21 | 2.1 | 19 | 45 | 2.3 | |
| 16 | 2500 | 824 | 9640 | 21 | 11 | . 65 | 17 | 36 | 1.6 | |
| 17 | 349 | 157 | 173 | 18 | 8 | .42 | 210 | 99 | 178 | |
| 18 | 92 | 90 | 23 | 17 | 7 | .35 | 171 | 90 | 60 | |
| 19 | 49 | 73 | 10 | 16 | 7 | .31 | 46 | 29 | 4.0 | |
| 20 | 36 | 70 | 7.0 | 17 | 8 | .38 | 28 | 20 | 1.6 | |
| 21 | 32 | 70 | 6.0 | 22 | 10 | .60 | 56 | 37 | 6.4 | |
| 22 | 28 | 67 | 5.2 | 26 | 13 | .91 | 28 | 22 | 1.8 | |
| 23 | 26 | 65 | 4.5 | 125 | 65 | 29 | 130 | 71 | 32 | |
| 24 | 22 | 30 | 1.9 | 55 | 32 | 5.4 | 90 | 65 | 16 | |
| 25 | 19 | 13 | . 67 | 31 | 13 | 1.2 | 41 | 52 | 5.9 | |
| 26 | 18 | 7 | . 36 | 21 | 10 | .59 | 24 | 38 | 2.7 | |
| 27 | 19 | 5 | . 25 | 24 | 17 | 1.4 | 19 | 23 | 1.3 | |
| 28 | 22 | 5 5 | .28 | 78 | 42 | 9.6 | 29 | 22 | 1.9 | |
| 29 | 31 | 5 | .41 | 45 | 18 | 2.6 | 38 | 28 | 3.0 | |
| 30 | 24 | 5 | .35 | 24 | 12 | .82 | 142 | 75 | 33 | |
| 31 | 22 | 5 | .33 | 19 | 10 | .49 | | | | |
| TOTAL | 3685 | | 9954.26 | 823 | | 62.05 | 1536 | | 497.95 | |
| YEAR | 47909 | | 98424.18 | | | | | | | |

50043800 RIO DE LA PLATA AT COMBRIO, PR--Continued WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | Time | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|--|--|--|--|--|--|--|
| OCT 1990 | | | | | | | |
| 13 | 0723 | 2190 | 1210 | 7150 | | | |
| 16 | 1718 | 8370 | 3700 | 83600 | | | |
| 18 | 2242 | 7620 | 4250 | 87400 | | | |
| 21 | 0125 | 10700 | 810 | 23400 | 30 | 31 | 36 |
| JUL 1991 | | | | | | | |
| 16 | 0702 | 6764 | 2700 | 49300 | 22 | 34 | 48 |
| 16 | 1241 | 4060 | 7880 | 86400 | 16 | 21 | 28 |
| 16 | 2010 | 1520 | 4200 | 17200 | 20 | 32 | 43 |
| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FAIL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 | | | | | | | |
| 13 | | | 99 | 100 | 100 | 100 | 100 |
| 16 | | | 92 | 96 | 98 | 99 | 100 |
| 18 | | | 77 | 86 | 91 | 99 | 96 |
| 21 | 44 | 49 | 91 | 95 | 97 | 99 | 100 |
| JUL 1991 | - | 70 | | | •• | | 400 |
| 16 | 60 | 72 | 93 | 97 | 98 | 99 | 100 |
| 16 | 40 | 59 | 91 | 94 | 98 | 99 | 100 |
| 16 | 54 | 70 | 91 | 96 | 99 | 100 | 100 |

50043800 RIO DE LA PLATA AT COMERIO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|---|
| OCT 1990 | | | | | |
| 02 | 1650 | 107 | 250 | 72 | 99 |
| 13 | 0833 | 2090 | 730 | 4120 | 99 |
| 13 | 1115 | 1730 | 767 | 3580 | 99 |
| 18 | 1803 | 2510 | 1360 | 9220 | 87 |
| 18 | 1930 | 4040 | 1780 | 19400 | 99 |
| 20 | 1118 | 385 | 844 | 877 | 78 |
| 21 | 0027 | 2410 | 5050 | 32900 | 88 |
| 21 | 0415 | 9850 | 12500 | 332000 | 92 |
| 25 | 0112 | 1840 | 450 | 2230 | 77 |
| 25 | 0250 | 1620 | 550 | 2400 | 92 |
| FRB 1991 | | | | | |
| 12 | 2040 | 3260 | 1040 | 9150 | 71 |
| 13 | 0014 | 2927 | 1170 | 9250 | 94 |
| MAY | | | | | |
| 01 | 1510 | 51 | 108 | 14 | 100 |
| 14 | 1320 | 107 | 184 | 53 | 95 |
| JUL | | | | | |
| 16 | 1321 | 4130 | 890 | 9920 | 83 |
| 16 | 1451 | 754 | 750 | 1530 | 92 |
| SEP | | | | | |
| 18 | 1230 | 127 | 308 | 106 | 99 |

rio de la plata basin 131

50044000 RIO DE LA PLATA NEAR COMERIO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'33", long 66°12'28", at bridge on Highway 156, 0.56 mi (0.9 km) upstream from dam, about 2.0 mi (3.2 km) northeast of Comerío plaza.

DRAINAGE AREA.--139 $\rm mi^2$ (360 km²), excludes 8.2 $\rm mi^2$ (21.1 km²) upstream from Carite Reservoir, the flow of which is diverted to Río Guamaní.

PERIOD OF RECORD. -- Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | | WATER- | QUALITY | DATA, | WATER YE | IAR OCTO | BR 1990 | TO SEPT | 'EMBER 1 | 991 | | |
|------------------|---------------------------------------|--|---|--|---|------------------------------------|---|--|--|---|---|---|---|
| DATE | ŦI | CHA IN CU P MB P | ST. BIC EET ER | SPE- CIFIC CON- DUCT- ANCE US/CM) | PH (STAND ARD UNITS | WATE | R I | D- D | GEN, IS- LVED | XYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 | | | | | | | | | | | | | |
| 15 DEC | 13 | 00 3 | 00 | 245 | 7.9 | 26 | .0 100 |) | 8.1 | 100 | 29 | K11000 | 3900 |
| 17 FEB 1991 | 09 | 50 | 77 | 459 | 8.6 | 24 | .0 1 | 5 | 8.8 | 105 | 15 | K1500 | 20 |
| 12 | 09 | 00 1 | 77 | 316 | 8.0 | 23 | .0 27 | • | 7.8 | 92 | 25 | 3400 | 2100 |
| APR 05 JUN | 08 | 45 | 36 | 433 | 8.2 | 23 | .5 2 | .5 | 8.0 | 93 | 11 | 2800 | 440 |
| 07 | 07 | 45 | 26 | 430 | 8.1 | 25 | .5 3 | .7 | 7.1 | 87 | 14 | 530 | 200 |
| AUG 12 | 10 | 30 | 23 | 438 | 8.4 | 28 | .0 1 | 7 | 8.3 | 105 | 12 | K150 | 220 |
| DATE | HAR NES TOT (MG AS CAC | D- NE S NON AL WH S/L TOT S MG/ | WAT FLD L AS | ALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM DIS- SOLVE (MG/L AS MG | , SODIU DIS- D SOLVE (MG/ | M, SOI D TI L RAT | AD- S AP- D CON SO PIO (M | TAS- L IUM, W IS- T LVED G/L M | ALKA- INITY IAT WH OT FET FIELD IG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 15 | | 78 | 0 | 19 | 7.4 | 17 | | 0.8 | 3.2 | 67 | <0.5 | 17 | 24 |
| DEC 17 | | - | | | | | | | | - | | | |
| FEB 1991 | | | | | | | • | · - | | 160 | | | |
| 12 APR | - | - | | | | | | - | | 110 | | | |
| 05 Jun | | 170 | 1 | 40 | 16 | 25 | | 0.8 | 2.4 | 160 | <0.5 | 19 | 29 |
| 07 | - | · - | | | | | | · - | | 150 | | | |
| 12 | | 160 | 0 | 37 | 17 | 29 | | 1 | 2.9 | 150 | | 18 | 30 |
| | DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILIC DIS- SOLV (MG/ AS SIO2 | CONS ED TUEN L DI SOI | OF SO STI- VTS, | OLIDS, DIS- | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | MITE GEN NITRI TOTA (MG/ AS N | I, G TE NO2 L TO L (M | EN, G +NO3 AMM TAL TO G/L (M | EN, C ONIA ORC TAL TO G/L (1 | ITRO- SEN, SANIC STAL 4G/L 8 N) |
| 15 DBC | ••• | 0.20 | 23 | | 151 | 122 | 21 | 1.52 | 0.0 | 80 1 | .60 0 | .100 | 1.0 |
| 17 | 1991 | | | - | | | 11 | 1.66 | 0.0 | 40 1 | .70 0 | .030 | 0.37 |
| | ••• | | | - | | | 43 | 1.15 | 0.0 | 50 1 | .20 0 | .080 | 0.62 |
| | ••• | 0.10 | 30 | | 257 | 25.1 | 5 | 0.450 | 0.0 | 10 0 | .460 0 | .360 | 0.0 |
| | ••• | | | - | | | 3 | 0.340 | 0.0 | 10 0 | .350 0 | . 020 | 0.78 |
| | ••• | 0.20 | 28 | | 252 | 15.6 | 4 | 0.87 | <0.0 | 10 0 | .088 0 | . 020 | 0.38 |

K = non-ideal count

RIO DE LA PLATA BASIN

50044000 RIO DE LA PLATA NEAR COMERIO, PR--Continued

| DATE | MITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|--|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 15 DEC | 1.1 | 2.7 | 12 | 0.270 | <1 | <100 | 30 | <1 | 8 | 30 |
| 17 FEB 1991 | 0.40 | 2.1 | 9.3 | 0.460 | | | | | | |
| 12 APR | 0.70 | 1.9 | 8.4 | 0.270 | | | | | | |
| 05 JUN | 0.30 | 0.76 | 3.4 | 0.270 | 1 | <100 | 40 | ∢1 | <1 | 10 |
| 07 AUG | 0.80 | 1.2 | 5.1 | 0.290 | | | | | | |
| 12 | 0.40 | 0.49 | 2.2 | 0.290 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RBCOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA - NESE, TOTAL RECOV - ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| OCT 1990 15 DEC 17 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 15 DEC 17 FEB 1991 12 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 15 DEC 17 FEB 1991 12 APR 05 | TOTAL RECOV- ERABLE (UG/L AS FE) 6300 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) 20 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.03 |
| OCT 1990 15 DEC 17 FEB 1991 12 | TOTAL RECOV- ERABLE (UG/L AS FE) 6300 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- REABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) 20 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.03 |

50044830 RIO GUADIANA AT GUADIANA, PR

LOCATION.--Lat 18°18'08", long 66°13'24", Hydrologic Unit 21010005, at left bank downstream side of river, 1.3 mi (2.1 km) East of Plaza de Naranjito, 0.9 mi (1.4 km) west from intersection of roads 167 and 164 at km 8.9 and 2.9 mi (4.7 km) norwest from Represa Comerio.

DRAINAGE AREA. -- 9.19 mi 2 (23.80 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- July 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,600 ft²/s (130 m²/s), Feb. 5, 1991, gage height, 11.54 ft (3.517 m), from rating curve extended above 500 ft²/s (14.2 m²/s) on basis of step-backwater analysis; minimum daily discharge, 2.6 ft³/s (0.074 m²/s), June 27, 28, 1991.

EXTREMES FOR PERIOD JULY TO SEPTEMBER 1990 AND WATER YEAR 1991.--Peak discharges greater than base discharge of 1,800 ft³/s (51.0 m³/s) and maximum (*):

| | | Discharge | | Gage height | | | | Dis | charge | Gage height | |
|-----------|----------|------------|---------------------|-------------|-------|----------|----------|------------|---------------------|-------------|-------|
| Date | Time | (ft^3/s) | (m ³ /s) | (ft) | (m) | Date | Time | (f^3t/s) | (m ³ /s) | (ft) | (m) |
| Sept.3, 1 | 990 1745 | +471 | 13.3 | *6.41 | 1.954 | Oct. 18 | 1940 | 2,120 | 60.0 | 8.92 | 2.719 |
| Oct. 9, 1 | 990 1640 | 1,800 | 51.0 | 8.55 | 2.606 | Oct. 19 | 1735 | 1,800 | 51.0 | 8.55 | 2.606 |
| Oct. 15 | 1550 | 2,340 | 66.3 | 9.20 | 2.804 | Feb. 5,1 | 991 1630 | *4,600 | 130 | *11.54 | 3.517 |
| Oct. 16 | 1400 | 1.870 | 53.0 | 8.63 | 2.630 | - | | | | | |

Minimum daily discharge, 4.0 ft³/s (0.113 m³/s), Aug. 21, 1990; 2.6 ft³/s (0.074 m³/s), June 27, 28, 1991.

| DISCHARGE, | CUBIC | Pert | PER | SECOND, | WATER | YEAR | OCTOBER | 1989 | TO | September | 1990 |
|------------|-------|------|-----|---------|-------|-------|---------|------|----|-----------|------|
| | | | | DAIL | MRYN | VALUI | 22 | | | | |

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|--------------|
| 1 | | | | | | | | | | | 04.1 | 6.6 |
| 1 2 3 4 5 | | | | | | | | | | | e5.8 | 5.7 |
| 3 | | | | | | | | | | | e5.4 | 66 |
| 4 | | | | | | | | | | | e4.3 | 22 |
| 5 | | | | | | | | | | | e5.0 | 38 |
| 6 7 8 9 | | | | | | | | | | | e6. 8 | 15 |
| 7 | | | | | | | | | | | e 8.8 | 59 |
| 8 | | | | | | | | | | | e 6.2 | 28 |
| . 9 | | | | | | | | | | | e6.0 e8.2 | 13 |
| | | | | | | | | | | | e8.2 | 9.8 |
| 11 12 13 | | | | | | | | | | | e6.4 | 13 |
| 12 | | | | | | | | | | | e7.0 | 8.4 |
| 13 | | | | | | | | | | | e10 | 7.3 |
| 14 15 | | | | | | | | | | | e 9.0 | 30 14 |
| | | | | | | | | | | | e 6.0 | 14 |
| 16 | | | | | | | | | | | 5.1 | 8.6 |
| 17 | | | | | | | | | | | 4.6 | 7.2 |
| 18 | | | | | | | | | | | 4.6 | 13 |
| 19 20 | | | | | | | | | | | 4.2 | 8.4 |
| 20 | | | | | | | | | | | 4.2 | 7.0 |
| 21 | | | | | | | | | | | 4.0 | 6.5 |
| 22 23 | | | | | | | | | | | 5.8 | 6.7 |
| 23 | | | | | | | | | | | 4.9 | 14 |
| 24 25 | | | | | | | | | | | 4.3 | 7.9 |
| 25 | | | | | | | | | | | 6.2 | 23 |
| 26 | | | | | | | | | | | 4.5 | 11 9.2 |
| 27 | | | | | | | | | | | 4.1 | 9.2 |
| 28 | | | | | | | | | | | 24 | 8.2 |
| 29 30 | | | | | | | | | | | 14 | 8.5 |
| 30 | | | | | | | | | | | 5.5 | 8.5 |
| 31 | | | | | | | | | | | 4.8 | |
| TOTAL | | | | | | | | | | | 203.8 | 483.5 |
| MEAN | | | | | | | | | | | 6.57 | 16.1 |
| MAX | | | | | | | | | | | 24 | _66 |
| MIN | | | | | | | | | | | 4.0 | 5.7 |
| AC-PT | | | | | | | | | | | 404 | 959 |
| CPSM | | | | | | | | | | | .72 | 1.75 1.96 |
| IN. | | | | | | | | | | | .82 | 1.96 |

e Estimated

RIO DE LA PLATA BASIN
50044830 RIO GUADIANA AT GUADIANA, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES

| DAILY MEAN VALUES | | | | | | | | | | | | |
|-------------------|--------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| DAY | OCT | MOA | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 7.9 | 16 | 25 | 58 | 9.6 | 11 | 7.6 | 5.8 | 5.1 | 6.4 | 7.1 | 3.5 |
| 2 | 5.7 | 15 | 37 | 29 | 8.5 | 11 | 8.7 | 7.2 | 3.9 | 3.7 | 5.1 | 3.6 |
| 3 4 | 15 | 15 | 105 | 19 | 8.3 | 10 | 7.5 | 7.1 | 3.6 | 4.6 | 4.4 | 3.2 |
| 4 | 56 | 16 | 39 | 15 | 23 | 12 | 7.1 | 6.0 | 3.6 | 4.0 | 4.1 | 3.0 |
| 5 | 33 | 15 | 21 | 21 | 335 | 10 | 7.1 | 5.9 | 3.5 | 3.3 | 4.0 | 3.1 |
| 6 | 19 | 14 | 16 | 25 | 58 | 11 | 7.0 | 5.9 | 3.8 | 3.0 | 3.8 | 3.1 |
| 7 | 108 | 13 | 14 | 21 | 23 | 11 | 9.1 | 7.6 | 3.7 | 7.4 | 3.8 | 3.5 |
| 8 | 46 | 13 | 13 | 18 | 16 | 10 | 21 | 19 | 3.3 | 4.4 | 4.1 | 3.1 |
| 9 | 194 | 13 | 12 | 19 | 14 | 9.5 | 11 | 9.5 | 3.1 | 3.2 | 3.7 | 3.0 |
| 10 | 186 | 12 | 12 | 20 | 15 | 9.1 | 8.9 | 7.1 | 3.0 | 2.9 | 3.5 | 3.0 |
| 11 | 68 | 12 | 12 | 18 | 14 | 10 | 10 | 7.6 | 3.0 | 3.0 | 3.5 | 2.8 |
| 12 | 30 | 12 | 14 | 16 | 17 | 8.8 | 16 | 11 | 3.0 | 2.9 | 3.6 | 6.9 |
| 13 | 20 | 11 | 11 | 14 | 18 | 9.2 | 24 | 11 | 2.8 | 2.9 | 3.7 | 3.7 |
| 14 15 | 146 | 11 | 11 | 13 | 14 | 8.9 | 19 | 9.7 | 2.8 | 2.7 | e3.6 | 2.9 |
| | 234 | 10 | 11 | 12 | 12 | 8.1 | 56 | 7.1 | 2.8 | 27 | e3.4 | 2.7 |
| 16 | 225 | 13 | 10 | 12 | 13 | 7.3 | 18 | 6.1 | 2.7 | 250 | e3.9 | 3.3 |
| 17 | 208 | 11 | 9.5 | 11 | 12 | 7.2 | 12 | 5.7 | 2.7 | 22 | 4.6 | 6.8 |
| 18 | 306 | 11 | 9.4 | 11 | 45 | 10 | 11 | 6.8 | 3.0 | 9.0 | 4.0 | 4.0 |
| 19 | 281 | 11 | 9.3 | 11 | 59 | 7.6 | 9.6 | 9.5 | 3.3 | 6.5 | 3.2 | 3.3 |
| 20 | 102 | 12 | 9.3 | 10 | 44 | 7.0 | 8.6 | 7.6 | 3.2 | 5.3 | 3.7 | 3.3 |
| 21 | 322 | 12 | 9.3 | 9.7 | 30 | 8.1 | 8.0 | 5.8 | 3.1 | 4.7 | 3.5 | 3.3 |
| 22 | 81 | 26 | 11 | 9.2 | 20 | 101 | 7.7 | 5.1 | 3.1 | 4.4 | 41 | 4.8 |
| 23 | 44 | 14 | 13 | 9.5 | 16 | 24 | 7.4 | 4.8 | 29 | 4.1 | 9.6 | 5.2 |
| 24 | 38 | 11 | 13 | 8.9 | 14 | 12 | 6.9 | 4.8 | 4.4 | 4.3 | 5.1 | 3.9 |
| 25 | 73 | 10 | 9.9 | 8.9 | 12 | 9.7 | 6.7 | 18 | 3.3 | 3.9 | 4.4 | 3.4 |
| 26 | 87 | 11 | 9.2 | 8.9 | 11 | 11 | 6.5 | 5.9 | 2.8 | 4.0 | 4.1 | 3.3 |
| 27 | 40 | 14 | 9.2 | 8.6 | 11 | 12 | 6.4 | 4.9 | 2.6 | 4.2 | 11 | 3.3 |
| 28 | 27 | 11 | 10 | 7.9 | 14 | 9.3 | 6.3 | 4.5 | 2.6 | 4.5 | 6.7 | 3.2 |
| 29 | 22 | 33 | 18 | 7.9 | | 8.3 | 5.8 | 4.3 | 7.5 | 4.0 | 4.6 | 4.3 |
| 30 | 19 | 25 | 42 | 7.9 | | 7.9 | 5.8 | 5.7 | 32 | 4.2 | 4.0 | 12 |
| 31 | 17 | | 66 | 10 | | 7.6 | | 5.2 | | 17 | 3.9 | |
| TOTAL | 3060.6 | 423 | 611.1 | 470.4 | 886.4 | 399.6 | 346.7 | 232.2 | 156.3 | 433.5 | 178.7 | 118.5 |
| MRYN | 98.7 | 14.1 | 19.7 | 15.2 | 31.7 | 12.9 | 11.6 | 7.49 | 5.21 | 14.0 | 5.76 | 3.95 |
| MAX | 322 | 33 | 105 | 58 | 335 | 101 | 56 | 19 | 32 | 250 | 41 | 12 |
| MIN | 5.7 | 10 | 9.2 | 7.9 | 8.3 | 7.0 | 5.8 | 4.3 | 2.6 | 2.7 | 3.2 | 2.7 |
| AC-FT | 6070 | 839 | 1210 | 933 | 1760 | 793 | 688 | 461 | 310 | 860 | 354 | 235 |
| CFSM | 10.7 | 1.53 | 2.15 | 1.65 | 3.44 | 1.40 | 1.26 | . 82 | .57 | 1.52 | . 63 | .43 |
| IN. | 12.39 | 1.71 | 2.47 | 1.90 | 3.59 | 1.62 | 1.40 | . 94 | . 63 | 1.75 | .72 | .48 |

WTR YR 1991 TOTAL 7317.0 MEAN 20.0 MAX 335 MIN 2.6 AC-FT 14510 CFSM 2.18 IN. 29.62

e Estimated

50044850 RIO GUADIANA NEAR NARANJITO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'39", long 66°13'28", at steel-cross-bridge 0.8 mi (1.3 km) northwest of Highway 164, 1.2 mi (1.9 km) upstream from mouth and about 2.0 mi (3.2 km) northeast of Naranjito plaza.

DRAINAGE AREA.--4.0 mi2 (10.3 km2).

PERIOD OF RECORD. -- Water year 1979 to current year.

| DATE | TIM | DIS- CHARGE INST. CUBIC FER PER SECON | CIFIC CON- DUCT- ANCE | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR BID ITY (NTU | - DI | SOI EN, (PE S- CE VED SAI | S- DE VED C R- I INT (UR- LE | YGEN EMAND, CHEM- ICAL (HIGH EVEL) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|--|---|---|--|--|--|--|--|--|---|---|---|
| OCT 1990 17 | 0945 | 72 | 237 | 8.0 | 23.5 | 32 | | . 6 | 100 | 15 | 27000 | 2700 |
| DEC | | | | | | | | | | | | |
| 17 FEB 1991 | 0820 | 11 | 326 | 8.1 | 21.5 | 1. | 2 8 | .1 | 101 | 10 | K6000 | 2600 |
| 12 APR | 1110 | 12 | 297 | 8.1 | 23.0 | 3. | 3 8 | . 0 | 91 | 11 | K730 | 500 |
| 05 | 1130 | 7.9 | 338 | 8.3 | 24.5 | 12 | 9 | .2 | 108 | <10 | 340 | K170 |
| 07 | 1000 | 8.0 | 335 | 8.1 | 26.0 | 1. | 0 7 | .3 | 88 | 10 | 3000 | K1200 |
| AUG 12 | 1245 | 4.4 | 377 | 8.2 | 29.0 | 1. | 4 7 | .1 | 90 | 12 | 470 | 350 |
| DATE | HARD- NESS TOTAL (MG/I AS CACO3 | NONCAR WH WAT TOT FL MG/L A | DIS- D SOLVED | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODI AD SORP TIO RATI | - Si - Di N Sol | VED FIE | TY WH FET SU LLD T | JLFIDE POTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| 17 | 8 | 7 | 19 | 9.6 | 13 | 0 | .6 2 | . 5 | 73 | <0.5 | 11 | 14 |
| DEC 17 | | | | | | | - | - | 110 | | | |
| FRB 1991 12 | | | | | | | _ | _ | 110 | | | |
| APR 05 | 13 | 10 | 30 | 14 | 16 | 0 | .6 2 | . 2 | 110 | <0.5 | 15 | 22 |
| JUN 07 | | | | | | | | _ | 120 | | | |
| AUG 12 | 15 | ia | 35 | 16 | 19 | | .7 2 | . 6 | 130 | | 13 | 25 |
| 14 | | | 33 | 10 | 1,5 | | ., 4 | | 130 | | 13 | 45 |
| | DATE | RIDE, DIS- SOLVED (MG/L | ILICA, SUI DIS- COI SOLVED TUI (MG/L I | nsti- i ents, so dis- (1 olved i | LIDS, TO DIS- AT DLVED DE TONS ST PER PE | SIDUR TAL 105 G. C, US- NDED MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO GEN, NO2+NO TOTAI (MG/I AS N) | , GI D3 AMM L TO: L (M | EN, CONIA ORGINAL TO | ITRO- BEN, BANIC DTAL MG/L B N) |
| OCT | | | | | | | | | | | | |
| 17 Dec | • • • | <0.10 | 24 | 137 2 | 16.6 | 33 | 1.58 | 0.020 | 1.60 | 0 | .040 | 0.16 |
| 17 FRB | 1991 | | | | | 2 | 1.28 | 0.020 | 1.30 | 0 | .030 | |
| 12 APR | ••• | | | | | 9 | 1.69 | 0.010 | 1.70 | 0 | .010 | 0.29 |
| | ••• | 0.10 | 25 | 190 | 4.06 | 67 | | <0.010 | 1.20 | 0 > | .010 | |
| 07 | • • • | | | | | 7 | 1.18 | 0.020 | 1.20 | 0 | . 030 | 0.47 |
| AUG 12 | ••• | 0.10 | 26 | 215 | 2.55 | 8 | 1.09 | 0.010 | 1.10 | 0 | . 030 | 0.27 |
| K = | non-ideal | count | | | | | | | | | | |

50044850 RIO GUADIANA NEAR NARANJITO, PR--Continued

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | MITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 17 DEC | 0.20 | 1.8 | 8.0 | 0.150 | <1 | <100 | <10 | <1 | 8 | 30 |
| 17 FRB 1991 | <0.20 | | | 0.140 | | | | | | |
| 12 APR | 0.30 | 2.0 | 8.9 | 0.160 | | | | | | |
| 05 JUN | 0.30 | 1.5 | 6.6 | 0.210 | <1 | <100 | 30 | <1 | <1 | <10 |
| 07 | 0.50 | 1.7 | 7.5 | 0.250 | | | | | | |
| 12 | 0.30 | 1.4 | 6.2 | 0.320 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | MBTHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 17 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- BRABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | LENE BLUE ACTIVE SUB- STANCE |
| OCT 1990 17 DEC 17 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 17 DEC 17 FEB 1991 12 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 17 DEC 17 FEB 1991 12 APR 05 | TOTAL RECOV- ERABLE (UG/L AS FR) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 17 DEC 17 FEB 1991 12 | TOTAL RECOV- ERABLE (UG/L AS FR) 2500 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.03 |

50045000 LAGO LA PLATA AT DAMSITE, PR

LOCATION.--Lat 18°20'40", long 66°14'10", Hydrologic Unit 21010005, 2.9 mi (4.7 km) at northeast of Plaza de Naranjito, 2.7 mi (4.3 km) West of Road 167, km 15.3, Buena Vista, Bayamón, 5.2 mi (8.4 km) east of Plaza de Coroxal.

DRAINAGE AREA. -- 181 mi (469 km²).

Elevation, in feet

ELEVATION RECORDS

PERIOD OF RECORD .-- February 1989 to current year.

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

REMARKS.--Lago La Plata first construction phase was completed in 1974 and the second construction phase to provide the spillway with bascule gates was completed in October 1989. The maximum storage is 37,000 ac-ft (45.6 hm²) and its purpose is the supply of water for domestic and industrial use. La Plata Dam is a concrete gravity structure located across the Rio de la Plata, the dam has an overall length of 774 ft (236 m) and a maximum height of about 131 ft (40 m). The dam spillway is provided with 6 bascule gates. The spillway creat has a total clear length of 690 ft (210 m), an elevation of 155 ft (47 m). The Dam is owned and operated by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD. -- Maximum elevation, 159.41 ft (48.59 m), May 8, 1990; minimum elevation, 146.96 ft (44.79 m), Aug. 4, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 158.15 ft (48.59 m), Oct.21; minimum elevation, 146.70 ft (45.16 m), July 15.

Contents, in acre-feet

Capacity Table (based on data from Puerto Rico Aqueduct and Sewer Authority)

Rievation, in feet

Contents, in acre-feet

| | | | | | | | | | | , | | |
|-----|-----|------|-----------|-----|-----|-----|-------------------------|------------|---------|----------|-----|---|
| | 98 | .43 | | 2, | 760 | | 164. | .05 | | 28,5 | 50 | |
| | 131 | .24 | | 11, | 360 | | 170. | 61 | | 33,1 | 60 | |
| | 154 | . 60 | | 22, | 720 | | 175. | 52 | | 37,0 | 40 | |
| | | | ELEVATION | | | | OBER 1990 4:00 VALUI | TO SEPTEME | ER 1991 | | | |
| DAY | OCT | NOV | DEC | Jan | FEB | MAR | APR | MAY | JUN | JUL | AUG | 1 |

| DAY | OCT | NOA | DEC | Jan | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 | 155.12 | 155.09 | 154.97 | 155.05 | 154.47 | 154.84 | 154.48 | 153.08 | 153.44 | 148.98 | 153.66 | 149.88 |
| 2 | 155.01 | 155.11 | 155.00 | 154.99 | 154.44 | 154.95 | 154.45 | 153.79 | 153.28 | 148.99 | 153.52 | 149.70 |
| 3 | 154.98 | 155.07 | 155.12 | 154.95 | 154.41 | 154.86 | 154.36 | 154.24 | 153.12 | 148.96 | 153.36 | 149.51 |
| 4 | 155.03 | 155.06 | 154.96 | 154.92 | 154.48 | 154.81 | 154.27 | 154.25 | 152.95 | 148.82 | 153.19 | 149.25 |
| 5 | 154.99 | 155.11 | 154.88 | 154.98 | 155.59 | 154.78 | 154.17 | 154.18 | 152.78 | 148.61 | 153.03 | 149.02 |
| 6 | 154.90 | 155.08 | 154.81 | 155.04 | 155.14 | 154.79 | 154.07 | 154.09 | 152.60 | 148.37 | 152.86 | 148.82 |
| 7 | 155.27 | 155.02 | 154.78 | 154.94 | 155.14 | 154.79 | 153.98 | 154.04 | 152.41 | 148.34 | 152.70 | 148.60 |
| 8 | 155.06 | 154.99 | 154.75 | 154.97 | 155.03 | 154.83 | 154.10 | 154.59 | 152.23 | 148.16 | 152.50 | 148.85 |
| 9 | 155.31 | 155.01 | 154.74 | 155.02 | 154.91 | 154.80 | 154.08 | 154.61 | 152.05 | 147.98 | 152.29 | 148.72 |
| 10 | 155.28 | 154.97 | 154.73 | 155.01 | 154.89 | 154.78 | 154.04 | 154.52 | 151.86 | 147.78 | 152.07 | 148.52 |
| 11 | 155.06 | 154.95 | 154.71 | 154.98 | 155.20 | 154.79 | 154.01 | 154.41 | 151.66 | 147.56 | 151.87 | 148.30 |
| 12 | 154.96 | 154.94 | 154.74 | 154.95 | 155.59 | 154.79 | 154.25 | 154.37 | 151.44 | 147.31 | 151.68 | 148.17 |
| 13 | 155.23 | 154.91 | 154.75 | 154.94 | 155.13 | 154.80 | 154.40 | 154.35 | 151.23 | 147.07 | 151.44 | 148.01 |
| 14 | 155.20 | 154.90 | 154.73 | 154.92 | 155.04 | 154.78 | 154.46 | 154.83 | 151.06 | 146.83 | 151.21 | 147.82 |
| 15 | 155.58 | 154.89 | 154.77 | 154.92 | 154.94 | 154.76 | 155.00 | 154.78 | 150.89 | 146.91 | 151.05 | 147.62 |
| 16 | 155.95 | 154.92 | 154.79 | 154.90 | 154.94 | 154.73 | 154.82 | 154.66 | 150.63 | 155.52 | 150.94 | 147.39 |
| 17 | 155.29 | 154.91 | 154.80 | 154.89 | 155.00 | 154.67 | 154.74 | 154.54 | 150.41 | 154.92 | 150.77 | 147.51 |
| 18 | 157.21 | 154.99 | 154.77 | 154.85 | 155.18 | 154.70 | 154.65 | 154.49 | 150.30 | 154.78 | 150.58 | 148.18 |
| 19 | 155.37 | 154.93 | 154.72 | 154.83 | 155.16 | 154.73 | 154.52 | 154.43 | 150.10 | 154.71 | 150.32 | 148.18 |
| 20 | 155.44 | 154.92 | 154.67 | 154.79 | 155.11 | 154.71 | 154.40 | 154.39 | 149.87 | 154.65 | 150.14 | 148.09 |
| 21 | 155.82 | 154.99 | 154.63 | 154.76 | 155.09 | 154.69 | 154.29 | 154.27 | 149.63 | 154.55 | 150.03 | 148.03 |
| 22 | 155.17 | 155.00 | 154.61 | 154.74 | 155.00 | 155.08 | 154.14 | 154.13 | 149.40 | 154.45 | 150.17 | 147.98 |
| 23 | 155.18 | 154.95 | 154.63 | 154.74 | 154.92 | 155.02 | 154.01 | 153.97 | 149.54 | 154.30 | 150.46 | 148.12 |
| 24 | 155.19 | 155.01 | 154.66 | 154.74 | 154.86 | 154.85 | 153.87 | 153.82 | 149.39 | 154.16 | 150.53 | 148.34 |
| 25 | 156.32 | 154.90 | 154.63 | 154.76 | 154.84 | 154.72 | 153.72 | 154.10 | 149.19 | 154.02 | 150.45 | 148.36 |
| 26 | 156.22 | 154.91 | 154.62 | 154.70 | 154.82 | 154.78 | 153.56 | 154.15 | 148.96 | 153.86 | 150.29 | 148.40 |
| 27 | 155.25 | 154.92 | 154.58 | 154.64 | 154.82 | 154.88 | 153.41 | 154.12 | 148.74 | 153.72 | 150.34 | 148.44 |
| 28 | 155.10 | 154.91 | 154.74 | 154.57 | 154.88 | 154.79 | 153.24 | 154.01 | 148.50 | 153.67 | 150.43 | 148.34 |
| 29 | 155.05 | 155.03 | 154.99 | 154.51 | | 154.71 | 153.09 | 153.85 | 148.34 | 153.55 | 150.42 | 148.33 |
| 30 | 155.14 | 154.97 | 154.93 | 154.45 | | 154.66 | 152.93 | 153.69 | 148.62 | 153.48 | 150.26 | 148.53 |
| 31 | 155.10 | | 155.48 | 154.46 | | 154.58 | | 153.58 | | 153.71 | 150.06 | |
| MEAN | 155.35 | 154.98 | 154.80 | 154.84 | 154.96 | 154.79 | 154.12 | 154.20 | 150.82 | 151.25 | 151.37 | 148.43 |
| MAX | 157.21 | 155.11 | 155.48 | 155.05 | 155.59 | 155.08 | 155.00 | 154.83 | 153.44 | 155.52 | 153.66 | 149.88 |
| MIN | 154.90 | 154.89 | 154.58 | 154.45 | 154.41 | 154.58 | 152.93 | 153.08 | 148.34 | 146.83 | 150.03 | 147.39 |

WTR YR 1991 MEAN 153.33 MAX 157.21 MIN 146.83

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR

LOCATION.--Lat 18°20'45", long 66°14'17", Hydrologic Unit 21010005, 2.8 mi (4.5 km) west of Road 167, km 15.3, Buena Vista, Bayamón, 5.0 mi (8.0 km) east of Plaza de Coroxal, 3.0 mi (4.8 km) northeast of Plaza de Naranjito.

DRAINAGE AREA. -- 173 mi2 (448 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- July 1989 to current year.

GAGE .-- Water-stage recorder. Elevation of gage 164 ft (30 m), from topographic map.

RRMARKS.--Records poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,800 ft³/s (1,380 m³/s), Sept. 18, 1989, gage height 22.98 ft (7.00 m), from rating curve extended above 10,000 ft³/s (283 m³/s), on basis of step-backwater analysis; minimum discharge, no flow many days.

EXTREMES FOR CURRENT YEAR. -- Maximum discharge, 16,200 ft³/s (459 m³/s), Oct. 21, gage-height 16.30 ft (4.97 m), from rating curve extended above 10,000 ft³/s (283 m³/s) on basis of step-backwater analysis; minimum discharge, no flow many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | | | | DAI | LY MEAN VA | LUES | | | | | |
|-------|-------|------|--------|--------|--------|------------|-------|-------|------|---------|--------------|----------------|
| DAY | OCT | NOV | DEC | JAN | PRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 110 | 218 | 166 | 686 | 2.2 | 75 | 2.0 | 1.1 | .46 | .45 | .39 | |
| 2 | 140 | 182 | 152 | 224 | 2.1 | 91 | 1.9 | 1.1 | .41 | .27 | .17 | 00 |
| 3 | 88 | 178 | 377 | 123 | 2.0 | 92 | 2.7 | 1.2 | .29 | .20 | .08 | e .00 |
| 4 | 107 | 154 | 298 | 81 | 3.3 | 54 | 2.9 | 1.6 | .23 | .21 | .03 | e .00 |
| 5 | 95 | 155 | 152 | 56 | 1020 | 37 | 3.0 | 1.2 | .17 | .16 | .01 | •.00 |
| 6 | 65 | 171 | 86 | 108 | 452 | 34 | 2.9 | 1.1 | .15 | .09 | .01 | e. 00 |
| 7 | 629 | 149 | 53 | 121 | 337 | 38 | 2.9 | 1.0 | . 15 | . 25 | .00 | a. 00 |
| 8 | 218 | 124 | 37 | 69 | 202 | 44 | 3.8 | 2.5 | . 12 | .44 | .00 | e. 00 |
| 9 | 579 | 125 | 28 | 71 | 117 | 47 | 4.2 | 1.5 | .10 | .31 | .00 | e. 00 |
| 10 | 1060 | 120 | 22 | 101 | 77 | 35 | 3.2 | . 68 | .07 | .20 | .00 | e. 02 |
| 11 | 410 | 101 | 18 | 88 | 180 | 33 | 3.4 | .49 | .04 | . 13 | .00 | e. 00 |
| 12 | 145 | 92 | 16 | 72 | 291 | 34 | 3.5 | .48 | .04 | .07 | .00 | e. 00 |
| 13 | 417 | 82 | 19 | 55 | 1070 | 31 | 4.5 | . 62 | .03 | .05 | .00 | e. 00 |
| 14 | 521 | 69 | 16 | 48 | 329 | 29 | 3.6 | 14 | .02 | .02 | .00 | e. 00 |
| 15 | 1180 | 62 | 16 | 41 | 207 | 24 | 68 | 22 | .01 | . 05 | .00 | e. 00 . |
| 16 | 2720 | 63 | 31 | 39 | 109 | 15 | 107 | 5.7 | .01 | 1330 | .00 | e. 00 |
| 17 | 1500 | 70 | 35 | 32 | 96 | 7.3 | 38 | .77 | .00 | 507 | .00 | e. 00 |
| 18 | 2050 | 67 | 26 | 26 | 165 | 4.1 | 11 | . 33 | .45 | 121 | .00 | e. 00 |
| 19 | 3470 | 90 | 13 | 21 | 350 | 1.6 | 3.9 | .29 | .47 | 36 | .00 | e. 00 |
| 20 | 484 | 65 | 5.6 | 15 | 289 | 1.2 | 3.3 | . 26 | .28 | 7.0 | .00 | . 00 |
| 21 | 8790 | 78 | 2.1 | 10 | 246 | .50 | 3.3 | . 25 | .17 | 1.0 | .00 | · 00 |
| 22 | 1010 | 110 | 1.5 | 6.7 | 192 | 217 | 3.1 | . 17 | .10 | .38 | .00 | •.00 |
| 23 | 391 | 102 | 1.3 | 5.3 | 135 | 267 | 2.3 | . 14 | .19 | .18 | .00 | e. 00 |
| 24 | 308 | 102 | 1.5 | 6.3 | 91 | 123 | 1.9 | . 12 | . 17 | . 11 | .00 - | e. 00 |
| 25 | 845 | 84 | 1.7 | 7.1 | 68 | 38 | 1.8 | 1.4 | .12 | .08 | .00 | e. 00 |
| 26 | 3810 | 51 | 1.4 | 6.3 | 60 | 9.4 | 1.7 | . 62 | .08 | . 04 | .00 | e.00 |
| 27 | 1670 | 55 | 1.2 | 2.5 | 62 | 86 | 1.5 | . 42 | .03 | . 03 | e.02 | .00 |
| 28 | 572 | 54 | 5.3 | 1.9 | 72 | 74 | 1.4 | . 29 | .02 | . 10 | e.03 | .00 |
| 29 | 374 | 55 | 52 | 1.9 | | 28 | 1.3 | . 23 | .02 | . 15 | e.02 | .01 |
| 30 | 254 | 185 | 182 | 1.7 | | 8.7 | 1.2 | . 19 | .41 | . 07 | e.03 | .01 |
| 31 | 302 | | 813 | 2.1 | | 2.8 | | .26 | | . 39 | e .02 | |
| TOTAL | 34314 | 3213 | 2629.6 | 2128.8 | 6226.6 | 1581.60 | 295.2 | 62.01 | 4.81 | 2006.43 | 0.81 | 0.04 |
| MBAN | 1107 | 107 | 84.8 | 68.7 | 222 | 51.0 | 9.84 | 2.00 | .16 | 64.7 | .026 | .001 |
| MAX | 8790 | 218 | 813 | 686 | 1070 | 267 | 107 | 22 | .47 | 1330 | .39 | .02 |
| MIN | 65 | 51 | 1.2 | 1.7 | 2.0 | .50 | 1.2 | . 12 | .00 | . 02 | .00 | .00 |
| AC-PT | 68060 | 6370 | 5220 | 4220 | 12350 | 3140 | 586 | 123 | 9.5 | 3980 | 1.6 | .08 |
| CPSM | 6.41 | . 62 | .49 | .40 | 1.29 | .30 | .06 | .01 | .00 | . 37 | .00 | .00 |
| IN. | 7.39 | . 69 | .57 | .46 | 1.34 | .34 | .06 | .01 | .00 | .43 | .00 | .00 |

CAL YR 1990 TOTAL 46569.02 MEAN 128 MAX 8790 MIN .00 AC-FT 92370 CFSM .74 IN. 10.03 WTR YR 1991 TOTAL 52462.90 MEAN 144 MAX 8790 MIN .00 AC-FT 104100 CFSM .83 IN. 11.29

e Estimated

50046000 RIO DE LA PLATA AT HIGHWAY 2 MEAR TOA ALTA, PR

LOCATION.--Lat 18°24'41", long 66°15'39", Hydrologic Unit 21010005, on left bank, at downstream side of bridge on Highway 2, 1.3 mi (2.1 km) downstream from Río Lajas, and 1.6 mi (2.6 km) northwest of Toa Alta, 8.0 mi (12.9 km) downstream from Puerto Rico Aqueduct and Sewer Authority reservoir.

DRAINAGE AREA.--208 mi² (539 km²), excludes 8.2 mi² (21.2 km²) upstream from Lago Carite, flow from which is diverted to Río Guamaní. Area at site used prior to September 25, 1984, 200 mi² (518 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- November 1959 (measurement only), January 1960 to current year. Prior to October 1984, published as Río de la Plata at Toa Alta, PR, October 1984 to September 1988 published as 50046900.

GAGE.--Water-stage recorder. Datum of gage is 9.15 ft (2.789 m), above mean sea level. Prior to October, 1984, at site about 1.0 mi (1.6 km) upstream at mean sea level datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--31 years (1961-91), 272 ft³/s (7.703 m²/s), 18.47 in/yr (469 mm/yr), 197,100 acre-ft/yr (243 hm²/yr); median of yearly mean discharges, 234 ft³/s (6.63 m²/s), 170,000 acre-ft/yr (210 hm²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,500 ft³/s (2,700 m²/s), Sept. 6, 1960, gage height, 36.35 ft (11.079m), from floodmark, from rating curve extended above 12,000 ft³/s (340 m²/s) on basis of contracted-opening measurement of peak flow at site 1.0 mi upstream and different datum; minimum discharge, 2.2 ft³/s (0.062 m³/s), Apr. 25, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD. --Approximate discharges and elevations of major floods, as pointed out by local residents are as follows: Sept. 13, 1928, 120,000 ft³/s (3,400 m³/s), gage height, 37.4 ft (11.40 m); June 16, 1943, 82,000 ft³/s (2,322 m³/s), gage height, 34.4 ft (10.48 m), at site 1.0 mi upstream and different datum.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 6,000 ft³/s (170 m³/s) and maximum (*):

| | | Disc | harge | Gage | height | | | | harge | Gage height | |
|---------|------|---------|--------|-------|--------|---------|------|------------|--------|-------------|-------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (f^3t/s) | (m³/s) | (ft) | (m) |
| Oct. 16 | 2215 | 8,400 | 238 | 13.04 | 3.974 | Oct. 21 | 1515 | *18,300 | | *17.64 | 5.377 |
| Oct. 19 | 0245 | 12,100 | 343 | 15.07 | 4.593 | Oct. 26 | 0700 | 6,280 | 178 | 11.60 | 3.536 |

Minimum discharge, 12 ft3/s (0.340 m3/s), Sept. 11, 12.

RIO DE LA PLATA BASIN
50046000 RIO DE LA PLATA AT HIGHWAY 2 NEAR TOA ALTA, PR--Continued

DISCHARGE, CUBIC FERT PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES

| DAILY MEAN VALUES | | | | | | | | | | | | |
|-------------------|---------------|------|------|------|-------|------|------|------|------|------|------|------|
| DAY | OCT | MOA | DEC | JAN | FRB | MAR | APR | NAY | JUN | JOL | AUG | SEP |
| 1 | e450 | 291 | 227 | 1390 | 37 | 103 | 26 | 28 | 41 | 29 | 47 | 20 |
| 2 | e500 | 232 | 211 | 463 | 28 | 66 | 36 | 30 | 31 | 24 | 31 | 19 |
| 3 | e250 | 207 | 771 | 219 | 28 | 83 | 41 | 27 | 25 | 19 | 25 | 16 |
| 4 | e450 | 187 | 501 | 140 | 31 | 64 | 23 | 26 | 24 | 23 | 22 | 14 |
| 5 | e400 | 175 | 239 | 123 | 597 | 51 | 22 | 227 | 25 | 20 | 89 | 15 |
| 6 | e350 | 188 | 130 | 146 | 824 | 42 | 23 | 74 | 30 | 20 | 51 | 16 |
| 7 | e700 | 177 | 91 | 188 | 337 | 40 | 28 | 74 | 30 | 22 | 23 | 31 |
| 8 | e 2000 | 145 | 69 | 124 | 231 | 41 | 30 | 105 | 25 | 25 | 19 | 26 |
| 9 | e1500 | 131 | 59 | 111 | 126 | 44 | 36 | 107 | 25 | 20 | 20 | 15 |
| 10 | e3000 | 134 | 52 | 139 | 88 | 41 | 28 | 48 | 24 | 23 | 19 | 15 |
| 11 | e800 | 113 | 63 | 128 | 92 | 38 | 27 | 41 | 24 | 23 | 19 | 13 |
| 12 | e500 | 104 | 107 | 110 | 314 | 36 | 32 | 27 | 19 | 20 | 18 | 13 |
| 13 | 449 | 93 | 64 | 91 | 1340 | 37 | 59 | 26 | 20 | 18 | 18 | 14 |
| 14 | 760 | 83 | 49 | 79 | 433 | 34 | 42 | 24 | 23 | 20 | 18 | 17 |
| 15 | 1550 | 79 | 47 | 70 | 210 | 30 | 331 | 32 | 26 | 30 | 17 | 18 |
| 16 | 3810 | 74 | 53 | 66 | 120 | 28 | 192 | 32 | 20 | 2020 | 17 | 20 |
| 17 | 3090 | 79 | 52 | 59 | 89 | 26 | 61 | 28 | 18 | 1250 | 33 | 28 |
| 18 | 2640 | 79 | 51 | 52 | 160 | 35 | 38 | 116 | 151 | 290 | 25 | 23 |
| 19 | 6380 | 122 | 46 | 47 | 668 | 27 | 28 | 49 | 57 | 122 | 16 | 16 |
| 20 | 1200 | 111 | 39 | 44 | 498 | 22 | 26 | 35 | 22 | 69 | 16 | 13 |
| 21 | 9890 | 104 | 35 | 37 | 271 | 32 | 26 | 35 | 20 | 49 | 42 | 13 |
| 22 | 2210 | 112 | 42 | 34 | 202 | 168 | 26 | 30 | 18 | 46 | 51 | 14 |
| 23 | 777 | 110 | 39 | 33 | 134 | 311 | 27 | 25 | 30 | 39 | 22 | 19 |
| 24 | 535 | 93 | 42 | 31 | 96 | 137 | 28 | 26 | 24 | 35 | 14 | 16 |
| 25 | 1030 | 114 | 36 | 31 | 76 | 62 | 46 | 145 | 16 | 31 | 14 | 19 |
| 26 | 3540 | 111 | 31 | 31 | 61 | 35 | 48 | 71 | 14 | 30 | 17 | 18 |
| 27 | 2370 | 127 | 31 | 31 | 56 | 36 | 31 | 41 | 18 | 29 | 130 | 18 |
| 28 | 918 | 87 | 47 | 26 | 172 | 73 | 30 | 27 | 23 | 44 | 70 | 29 |
| 29 | 588 | 68 | 102 | 25 | | 48 | 30 | 25 | 25 | 46 | 20 | 33 |
| 30 | 384 | 226 | 262 | 26 | | 29 | 29 | 24 | 43 | 34 | 16 | 35 |
| 31 | 396 | | 1070 | 32 | | 23 | | 26 | | 39 | 17 | |
| TOTAL | 53417 | 3956 | 4658 | 4126 | 7319 | 1842 | 1450 | 1631 | 891 | 4509 | 956 | 576 |
| MBYN | 1723 | 132 | 150 | 133 | 261 | 59.4 | 48.3 | 52.6 | 29.7 | 145 | 30.8 | 19.2 |
| MAX | 9890 | 291 | 1070 | 1390 | 1340 | 311 | 331 | 227 | 151 | 2020 | 130 | 35 |
| MIN | 250 | 68 | 31 | 25 | 28 | 22 | 22 | 24 | 14 | 18 | 14 | 13 |
| AC-PT | 106000 | 7850 | 9240 | 8180 | 14520 | 3650 | 2880 | 3240 | 1770 | 8940 | 1900 | 1140 |
| CFSM | 8.62 | . 66 | .75 | . 67 | 1.31 | .30 | .24 | .26 | . 15 | .73 | .15 | . 10 |
| IN. | 9.95 | .74 | .87 | .77 | 1.36 | . 34 | .27 | .30 | . 17 | . 84 | .18 | .11 |
| | | | | | | | | | | | | |

CAL YR 1990 TOTAL 79734 MEAN 218 MAX 9890 MIN 17 AC-FT 158200 CFSM 1.09 IN. 14.85 WTR YR 1991 TOTAL 85331 MEAN 234 MAX 9890 MIN 13 AC-FT 169300 CFSM 1.17 IN. 15.89

e Estimated

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR (National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'41", long 66°15'39", at Highway 2, 1.3 mi (2.1 km) downstream from Río Lajas, and 1.6 mi (2.6 km) northwest of Toa Alta, 11.3 mi (18.2 km) downstream from Puerto Rico Aqueduct and Sewer Authority reservoir.

DRAINAGE AREA.--208 mi² (539 km²), exclude 8.2 mi²(21.2 km²) upstream from Lago Carite, flow from which is diverted to Río Guamaní.

PERIOD OF RECORD. -- Water years 1958 to current year

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TII | ME PE | GE, SPI T. CII CIC CON | Pic (- Pi T- (St. Ce Ai | AND- A | MPER- Ture Ater eg C) | TU BI IT (NT | D- Y | OXYGEN DIS- SOLVE (MG/L | Cen D satu | FOI FED FEG R- 0.4 FT UM- FR- (COI | CM, CAL, 15 -MF LS./ | STREP TOCOCC FECAL (COLS. PER 100 ML | I NESS , TOTAL (MG/L AS | , |
|------------------|-------------|---|------------------------------|-----------------------------------|---------------------------------|--------------------------------|-----------------------|-----------------------------|----------------------------------|------------------------|--|----------------------------------|---|-----------------------------------|---|
| OCT 1990 09 | 080 | 00 800 | | 302 | 7.7 | 27.0 | 28 | | 4.8 | | 60 3: | L000 | 530 | 0 120 | |
| DEC | | | | | | 27.0 | | | | | | | | | |
| 19 FEB 1991 | 090 | 00 46 | i | 470 | 7.6 | 25.0 | 2 | . 9 | 6.4 | | 76 1 | K780 | 46 | 0 210 | , |
| 11 APR | 10: | 15 76 | ; | 410 | 7.7 | 25.0 | 6 | .4 | 6.5 | | 77 : | 3500 | 98 | 0 160 |) |
| 04 JUN | 083 | 30 24 | i . | 396 | 7.5 | 25.5 | 4 | .0 | 3.4 | | 41 | 300 | 21 | .0 160 |) |
| 06 | 100 | 00 25 | ; | 499 | 7.7 | 27.5 | 1 | . 8 | 5.3 | | 66 | 270 | 21 | .0 220 |) |
| AUG 13 | 123 | 30 19 |) | 484 | 8.0 | 31.0 | 2 | . 0 | 9.2 | : | 122 | 30 | 1 | .0 210 |) |
| | | _ | | | | | ALK | λ- | | | | | | solids, | , |
| | CALC: | IUM SI | INE- IUM, SODI S- DIS | UM, | ND- | OTAS- SIUM, DIS- | LINI WAT TOT | WH | SULFAT | CHLO B RIDE DIS- | , RI | | SILICA DIS- SOLVE | AT 180 | |
| DATE | SOL' (MG | | VED SOLV | | | OLVED MG/L | FIE MG/L | | SOLVE (MG/L | | | LVED | (MG/L | DIS- | |
| DAID | AS (| | | NA) | | SK) | CAC | | AS SO4 | | | | SIO2) | | |
| OCT 1990 | | | | | | | | | | | | | | | |
| 09 DBC | 32 | 10 | 16 | 3 | 0.7 | 3.9 | | 110 | 17 | 21 | (| 10 | 19 | 190 | j |
| 19 FEB 1991 | 63 | 12 | : 20 |) | 0.6 | 2.6 | | 180 | 23 | 29 | • | .30 | 18 | 275 | ; |
| 11 | 45 | 11 | . 19 |) | 0.7 | 2.6 | | 150 | 25 | 24 | (| . 10 | 18 | 227 | 1 |
| APR 04 JUN | 49 | 9 | .9 19 | • | 0.6 | 2.8 | | 150 | 14 | 23 | (| .20 | 15 | 227 | , |
| 06 | 67 | 13 | 2! | ; | 0.7 | 2.2 | | 200 | 18 | 26 | (| .20 | 19 | 300 |) |
| AUG 13 | 62 | 13 | 23 |) | 0.7 | 2.5 | | 180 | 19 | 33 | • | 0.10 | 18 | 279 | , |
| | | | | | | | | | | | | | | | |
| | | SOLIDS, SUM OF CONSTI- TUENTS, | SOLIDS, DIS- SOLVED | NITRO- GEN, NO2+NO3 DIS- | NITRO GEN, AMMONI DIS- | G A A | TRO- EN, ONIA | MIT GEN, MONI ORGA | λ + | PHOS- HORUS | PHOS- PHORUS DIS- | PHO PHOR ORT DIS | US HO, | PHOS- PHATE, ORTHO, DIS- | |
| | DATE | SOLVED | (Tons Per | SOLVED | SOLVE | | LVED | TOT | | TOTAL | SOLVED | SOLV | | SOLVED | |
| | DATE | (MG/L) | DAY) | (MG/L As N) | (MG/L As N) | | g/l nh4) | AS | | (MG/L AS P) | (MG/L As P) | (MG/ As p | | (MG/L S PO4) | |
| OCT | 1990 | | | | | | | | | | | | | | |
| | | 189 | 410 | 0.200 | 0.06 | 0 | 0.08 | C | . 60 | 0.080 | 0.070 | 0. | 050 | 0.15 | |
| 19 | 1991 | 280 | 34.2 | 0.800 | 0.21 | о . | 0.27 | C | .40 | 0.120 | 0.100 | 0. | 100 | 0.31 | |
| 11 | 1991 | 237 | 46.8 | 0.400 | 0.09 | 0 | 0.12 | c | . 30 | 0.140 | 0.110 | 0. | 090 | 0.28 | |
| | ••• | 227 | 14.5 | 0.730 | 0.12 | 0 | 0.15 | o | .50 | 0.150 | 0.110 | 0. | 120 | 0.37 | |
| | | 293 | 19.8 | 0.340 | 0.03 | 0 | 0.04 | O | .70 | 0.130 | 0.100 | 0. | 090 | 0.28 | |
| AUG 15 | ••• | 279 | 14.3 | 0.560 | 0.04 | 0 | 0.05 | 0 | .70 | 0.200 | 0.140 | 0. | 140 | 0.43 | |
| _ | | | _ | | | | _ | | | | | | | | |

K = non-ideal count

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR--Continued (National stream-quality accounting network station)

| DATE | ALUM- INUM, DIS- SOLVED (UG/L AS AL) | ARSENIC DIS- SOLVED (UG/L AS AS) | BARIUM, DIS- SOLVED (UG/L AS BA) | BERYL- LIUM, DIS- SOLVED (UG/L AS BE) | CADMIUM DIS- SOLVED (UG/L AS CD) | CHRO- MIUM, DIS- SOLVED (UG/L AS CR) | COBALT, DIS- SOLVED (UG/L AS CO) | COPPER, DIS- SOLVED (UG/L AS CU) | IRON, DIS- SOLVED (UG/L AS FE) | LRAD, DIS- SOLVED (UG/L AS PB) |
|----------------|---|--|--|---|--|---|--|--|--|--|
| OCT 1990 | | _ | | | | _ | _ | _ | | _ |
| 09 Dec | 110 | 1 | 49 | <0.5 | <1.0 | 7 | <3 | 3 | 120 | 2 |
| 19 FEB 1991 | | | | | | | | | | |
| 11 | 60 | 1 | 45 | <0.5 | <1.0 | <1 | <3 | 3 | 11 | 1 |
| APR 04 | | | | | | | | | | |
| JUN 06 | <10 | 2 | 62 | <0.5 | <1.0 | 1 | <3 | 4 | 10 | 2 |
| AUG 13 | <10 | 2 | 66 | <0.5 | <1.0 | <1 | <3 | 4 | 6 | <1 |
| 25 | 110 | • | 00 | 10.3 | 11.0 | \1 | 43 | • | • | ~- |
| DATE | LITHIUM DIS- SOLVED (UG/L AS LI) | MANGA- NESE, DIS- SOLVED (UG/L AS MN) | MERCURY DIS- SOLVED (UG/L AS HG) | MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) | NICKEL, DIS- SOLVED (UG/L AS NI) | SELE- NIUM, DIS- SOLVED (UG/L AS SE) | SILVER, DIS- SOLVED (UG/L AS AG) | STRON- TIUM, DIS- SOLVED (UG/L AS SR) | VANA- DIUM, DIS- SOLVED (UG/L AS V) | ZINC, DIS- SOLVED (UG/L AS ZN) |
| OCT 1990 | | | | | | | | | | |
| 09 Dec | <4 | 22 | <0.1 | <10 | 7 | <1 | <1.0 | 140 | 10 | 40 |
| 19 FRB 1991 | | | | | | | | | | |
| 11 APR | 5 | 81 | <0.1 | <10 | 1 | <1 | <1.0 | 180 | 6 | 13 |
| 04 | | | | | | | | | | |
| JUN 06 | <4 | 38 | <0.1 | <10 | 1 | <1 | <1.0 | 300 | <6 | 15 |
| AUG 13 | <4 | 67 | <0.1 | <10 | 1 | <1 | <1.0 | 270 | 7 | 5 |
| | | | | | | | | | | |
| | | | | PESTICID | e analyse | g | | | | |
| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
| JUN 1991 06 | 1000 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | 0.04 | <0.010 | <0.010 |
| | | | | | | | | | | |
| | | | | HEPTA- | | | METH- | MRTHYL | MRTHYL | |
| | ENDRIN, | ETHION, | HEPTA- CHLOR, | CHLOR RPOXIDE | LINDANE | MALA- THION, | OXY- CHLOR, | PARA- THION, | TRI- THION, | MIREX, |
| Date | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) |
| JUN 1991 | | | • • • | ** | • • • • • • | | | • • | | |
| 06 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| | 227 | NAP TH LEN | λ- Es, | n == | | | | | | |
| | PAR THI | ON, CHL | OR. THA | NE APHE | | I- 2,4 | | | | |
| DAT | | AL TOT /L) (UG/ | | | AL THIC | | | AL TOTA /L) (UG/I | | |
| JUN 199 | 1 | | | • | | | | | | |
| 06 | <0 | .01 <0 | .10 < | 0.1 < | 1 <0 | .01 0 | .01 <0 | .01 <0 | .01 <0 | .01 |

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR--Continued (National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI - MENT, DIS - CHARGE, SUS - PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|---|--|
| OCT 1990 | | | | | |
| 09 | 0800 | 800 | 53 | 114 | 92 |
| DEC 1991 | | | | | |
| 19 | 0900 | 46 | 3.8 | 0.47 | |
| FRB | | | | | |
| 11 | 1015 | 76 | 15 | 3.1 | 86 |
| APR | | | | | |
| 04 | 0830 | 24 | 22 | 1.4 | 91 |
| JUN | | | | | |
| 06 | 1000 | 25 | 82 | 5.5 | 48 |
| AUG | | | | | |
| 13 | 1230 | 19 | 18 | 0.90 | 90 |

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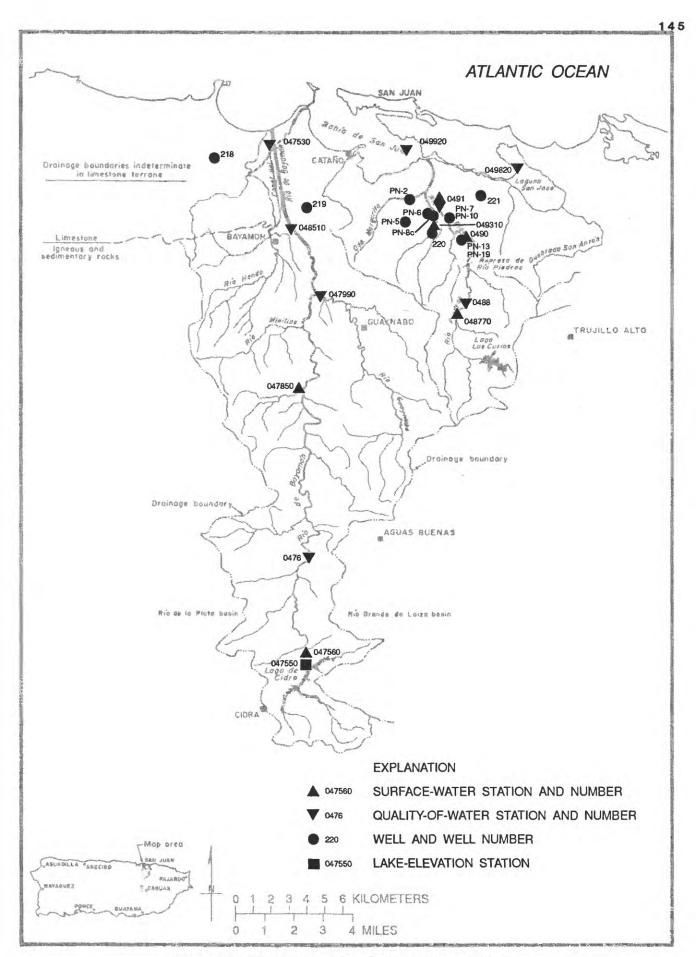


Figure 18.--Río Hondo to Río Puerto Nuevo basins.

RIO HONDO BASIN

50047530 RIO HONDO AT FLOOD CHANNEL NEAR CATANO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°26'13", long 66°09'36", at Río Hondo Channel, 800 ft (245 m) below junction with Río Hondo, 0.9 mi (1.5 km) downstream from bridge on de Diego Expressway and 1.1 mi (1.8 km) above mouth.

DRAINAGE AREA. -- Indeterminate.

PERIOD OF RECORD .-- Water years 1979 to current year.

| | | | DIS- CHARGE INST. CUBIC FEET | SPE- CIPIC CON- DUCT | PH | TEM TEM | | TUR- BID- | OXYGEN | SOI. | B- VRD | OXYGEN DEMAND CHEM- ICAL (HIGH | COLI FORM FECA 0.45 UM-M | , STREP- L, TOCOCCI FECAL, |
|----------------|------|---------------------------------------|--|-------------------------------|--------------------------------------|------------------------------------|---------------------------|--------------------------------------|---|-----------------------------------|-----------------|--|--------------------------------------|------------------------------------|
| DATE | | TIME | PER | ANCE | ARI | WA! | TER : | ITY NTU) | SOLVE (MG/L | D SAT | UR- ON) | LEVEL) (MG/L) | (COLS | ./ PER |
| NOV 1990 | | | | | | | | | | | | | | |
| 20 JAN 1991 | | 0900 | NF | 53 | 10 7 | 4 : | 16.5 | 1.1 | 2.5 | | 30 | 41 | 8 36 | 00 K140 |
| 04 | | 0750 | NF | 63 | 00 7 | 4 : | 2.5 | 4.0 | 7.5 | | 29 | 5 | 8 K990 | 00 8900 |
| 01 | | 0845 | NF | 442 | 00 7 | 4 | 7.0 | 61 | 7.3 | | 90 | 5: | 3 K860 | 00 43000 |
| CAY | | | | | | | | 77 | | | | | | |
| 07 | | 0815 | NF | 260 | 00 7 | . 6 | 16.0 | 24 | 4.6 | | 56 | 4. | 4 200 | 00 1500 |
| 26 | | 0815 | nf | 288 | 00 8 | 2 2 | 18.5 | 2.7 | 8.5 | | 96 | 45 | 0 K69 | 00 K1600 |
| 26 | | 0820 | NF | 176 | 00 7 | 9 : | 0.0 | 3.1 | 2.5 | | 32 | 34 | 0 200 | 00 7200 |
| DATE | 1 | HARD- NESS TOTAL (MG/L AS | HARD- NESS NONCARI WH WAT TOT FLI MG/L AG | DIS- | DIA BOLV | M, SODI S- DIA /RD SOLV | TUM, S- SC TED S | ODIUM AD- ORP- TION ATIO | POTAS SIUM DIS- SOLVE (MG/L | , WAT | TY WH FET | SULFIDE TOTAL (MG/L | SULFA R DIS- SOLV (MG/ | DIS- ED SOLVED |
| DAL | | CACO3) | CAC03 | AS C | | | NA) | ALLO | AS K) | CAC | | AS S) | AS SO | |
| NOV 1990 20 | | 510 | 0 | 54 | 91 | 79 |) | 15 | 33 | | 87 | <0. | 5 160 | 1500 |
| JAN 1991 04 | | | | | | | - | | | | 150 | | | |
| 01 | | | | | | | | | | | 57 | | | |
| KAY | | | | | | | | | 12.2 | | | | | |
| 07 | | 320 | 0 | 44 | 50 | 410 |) | 10 | 24 | | 110 | <0. | 5 100 | 700 |
| 26 | | | | | · · | | - | | | | 150 | | | |
| 26 | | 2100 | 2500 | 190 | 530 | 440 |) | 37 | 200 | | 160 | | 1100 | 8400 |
| | | | | | SOLIDS, | | RESIDU | | | | | | | |
| | | RI | DE, I | ILICA, | SUM OF CONSTI- TUENTS, DIS- | SOLIDS, DIS- SOLVED (TONS | TOTAL AT 105 DEG. C | NI O NII | en, Trate n | NITRO- GEN, ITRITE TOTAL | NO2 | EN, +NO3 A | NITRO- GEN, MMONIA TOTAL | NITRO- GEN, ORGANIC TOTAL |
| | DATE | | G/L F) | AS SIO2) | SOLVED (MG/L) | PER DAY) | PENDED (MG/L | | | (MG/L AS N) | | | (MG/L AS N) | (MG/L AS N) |
| NOV | 1990 | | | | | | | | | | | | | |
| 20 | | | 0.60 | 6.1 | 2690 | | 2 | 1 0 | .340 | 0.060 | 0 | .400 | 0.640 | 0.36 |
| | 1991 | | | | | | 1 | 7 0 | .130 | 0.070 | 0 | .200 | 1.20 | 0.40 |
| MAR | | | | | | | 5 | | .340 | 0.030 | | .370 | 0.140 | 0.86 |
| MAY 07 | | | 0.20 | 9.2 | 1400 | | 2 | | .530 | 0.070 | | .600 | 0.550 | 0.65 |
| | | | | | | | 2: | 2 0 | .090 | 0.070 | 0 | .160 | 0.250 | 1.0 |
| AUG 26 | | | 1.5 | 4.1 | 14900 | | 3: | 2 0 | .180 | 0.060 | 0 | .240 | 0.620 | 0.58 |
| | | flow | | | 100.033 | | | | - CONTRACTOR | -175-275 | - 13 | | 90.657 | |

NF = No flow K = non-ideal count

RIO HONDO BASIN

50047530 RIO HONDO AT FLOOD CHANNEL NEAR CATANO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | MITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| NOV 1990 | | | | | | | | | | |
| 20 Jan 1991 | 1.0 | 1.4 | 6.2 | 0.200 | 1 | <100 | 410 | <1 | 1 | 20 |
| 04 MAR | 1.6 | 1.8 | 8.0 | 0.280 | | | | | | |
| 01 | 1.0 | 1.4 | 6.1 | 0.090 | | | | | | |
| MAY 07 JUN | 1.2 | 1.8 | 8.0 | 0.160 | 1 | <100 | 200 | <1 | 1 | 20 |
| 26 | 1.3 | 1.5 | 6.5 | 0.210 | | | | | | |
| 26 | 1.2 | 1.4 | 6.4 | 0.210 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LRAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA - NESE, TOTAL RECOV - ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENG BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| NOV 1990 20 JAN 1991 04 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 20 JAN 1991 04 MAR 01 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 20 JAN 1991 04 MAR 01 MAY | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.20 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) 20 | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 20 JAN 1991 04 MAR 01 | TOTAL RECOV- ERABLE (UG/L AS FE) 820 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.20 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- REABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.29 |

RIO DE BAYAMON BASIN

50047550 LAGO CIDRA AT DAMSITE NEAR CIDRA, PR

LOCATION.--Lat 18°11'57", long 66°08'29", Hydrologic Unit 21010005, at Lago de Cidra Dam on Río de Bayamón, 1.9 mi (3.0 km) northeast of Plaza de Cidra and 1.8 mi (2.9 km) northwest of Escuela Segunda Unidad de Bayamón.

DRAINAGE AREA .-- 8.26 mi 2 (21.39 km2).

ELEVATION RECORDS

PERIOD OF RECORD. -- January 1988 to current year.

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

REMARKS.--Lago de Cidra was completed in 1946. The maximum storage is 5,300 ac-ft (6.53 hm²) and provides supplemental water to metropolitan San Juan. The dam is a concrete gravity and earthfill structure approximately 541 ft (165 m) long between abutments with a maximum structural height of about 78.7 ft (24.0 m). The spillway portion of the dam, length 131 ft (40 m) and crest elevation 1,322 ft (403 m), is an ungated oges crest located 131 ft (40 m) from the right abutment. This dam is owned by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 1,323.99 ft (403.55 m), Feb. 3, 1988; minimum elevation 1,305.18 ft (397.82 m), Sept. 30, 1990.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 1,323.39 ft (403.37 m), Feb. 5; minimum elevation, 1,305.19 ft (397.82 m), Oct. 1.

Capacity Table (based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 1,305 | 1,970 | 1,319 | 4,400 |
| 1,309 | 2,610 | 1,322 | 5,200 |
| 1,312 | 3,100 | 1,324 | 5,800 |

ELEVATION (FEET MGVD), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | Jan | FEB | MAR | APR | NAY | JUN | JUL | AUG | SEP |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 1305.20 | 1320.01 | 1318.94 | A | 1322.70 | 1322.47 | 1321.77 | 1320.86 | 1319.52 | 1316.85 | 1315.62 | 1311.40 |
| 2 | 1305.21 | 1320.08 | 1319.04 | λ | 1322.71 | 1322.47 | 1321.75 | 1320.82 | 1319.42 | 1316.88 | 1315.56 | 1311.26 |
| 3 | 1305.23 | 1320.14 | 1319.32 | A | 1322.69 | 1322.49 | 1321.73 | 1320.75 | 1319.32 | 1316.82 | 1315.45 | 1311.12 |
| 4 | 1305.24 | 1320.08 | 1319.44 | λ | 1322.74 | 1322.53 | 1321.71 | 1320.69 | 1319.26 | 1316.76 | 1315.34 | 1311.03 |
| 5 | 1305.26 | 1320.02 | 1319.53 | λ | 1323.39 | 1322.55 | 1321.67 | 1320.63 | 1319.16 | 1316.65 | 1315.22 | 1310.90 |
| 6 | 1305.27 | 1319.94 | 1319.59 | A | 1322.87 | 1322.58 | 1321.65 | 1320.59 | 1319.09 | 1316.54 | 1315.11 | 1310.78 |
| 7 | 1305.26 | 1319.87 | 1319.62 | A | 1322.65 | 1322.60 | 1321.61 | 1320.55 | 1319.00 | 1316.45 | 1314.99 | 1310.67 |
| • | 1305.28 | 1319.84 | 1319.64 | λ | 1322.55 | 1322.62 | 1321.61 | 1320.54 | 1318.91 | 1316.37 | 1314.88 | 1310.56 |
| 9 | 1305.50 | 1319.80 | 1319.68 | λ | 1322.49 | 1322.58 | 1321.59 | 1320.50 | 1318.81 | 1316.25 | 1314.75 | 1310.46 |
| 10 | 1305.72 | 1319.76 | 1319.71 | A | 1322.45 | 1322.46 | 1321.61 | 1320.45 | 1318.68 | 1316.12 | 1314.64 | 1310.35 |
| 11 | 1305.96 | 1319.70 | 1319.74 | A | 1322.54 | 1322.39 | 1321.58 | 1320.40 | 1318.58 | 1316.01 | 1314.54 | 1310.25 |
| 12 | 1306.16 | 1319.64 | 1319.77 | A | 1322.98 | 1322.29 | 1321.60 | 1320.42 | 1318.48 | 1315.88 | 1314.42 | 1310.19 |
| 13 | 1306.52 | 1319.56 | 1319.79 | A | 1322.80 | 1322.21 | 1321.62 | 1320.42 | 1318.42 | 1315.75 | 1314.24 | 1310.03 |
| 14 | 1307.01 | 1319.44 | 1319.82 | λ | 1322.64 | 1322.12 | 1321.60 | 1320.36 | 1318.34 | 1315.64 | 1313.95 | 1309.91 |
| 15 | 1308.20 | 1319.32 | 1319.85 | λ | 1322.56 | 1322.03 | 1321.58 | 1320.32 | 1318.24 | 1315.81 | 1313.64 | 1309.76 |
| 16 | 1309.16 | 1319.22 | 1319.87 | λ | 1322.52 | 1321.94 | 1321.58 | 1320.26 | 1318.11 | 1316.90 | 1313.36 | 1309.62 |
| 17 | 1309.47 | 1319.12 | 1319.89 | λ | 1322.46 | 1321.85 | 1321.56 | 1320.18 | 1317.96 | 1316.91 | 1313.17 | A |
| 18 | 1311.16 | 1318.98 | 1319.90 | λ | 1322.53 | 1321.83 | 1321.54 | 1320.14 | 1317.86 | 1316.89 | 1313.06 | A |
| 19 | 1312.46 | 1318.84 | 1319.93 | A | 1322.57 | 1321.75 | 1321.51 | 1320.06 | 1317.76 | 1316.85 | 1312.79 | A |
| 20 | 1312.73 | 1318.74 | λ | λ | 1322.56 | 1321.66 | 1321.47 | 1320.00 | 1317.65 | 1316.75 | 1312.49 | λ |
| 21 | 1316.38 | 1318.63 | A | λ | 1322.55 | 1321.58 | 1321.43 | 1319.94 | 1317.55 | 1316.62 | 1312.22 | λ |
| 22 | 1316.67 | 1318.62 | λ | A | 1322.53 | 1321.82 | 1321.38 | 1319.85 | 1317.44 | 1316.53 | 1312.48 | A |
| 23 | 1316.82 | 1318.57 | λ | 1322.77 | 1322.51 | 1321.88 | 1321.34 | 1319.75 | 1317.40 | 1316.48 | 1312.32 | A |
| 24 | 1317.02 | 1318.50 | λ | 1322.78 | 1322.51 | 1321.90 | 1321.27 | 1319.66 | 1317.30 | 1316.44 | 1312.06 | A |
| 25 | 1317.61 | 1318.41 | λ | 1322.79 | 1322.48 | 1321.91 | 1321.23 | 1319.90 | 1317.17 | 1316.34 | 1311.89 | A |
| 26 | 1319.09 | 1318.38 | λ | 1322.77 | 1322.43 | 1321.92 | 1321.15 | 1319.90 | 1317.06 | 1316.21 | 1311.67 | A |
| 27 | 1319.54 | 1318.34 | λ | 1322.75 | 1322.44 | 1321.91 | 1321.09 | 1319.86 | 1316.96 | 1316.11 | 1311.70 | λ |
| 20 | 1319.68 | 1318.40 | λ | 1322.72 | 1322.44 | 1321.89 | 1321.04 | 1319.82 | 1316.80 | 1316.03 | 1311.72 | A |
| 29 | 1319.77 | 1318.56 | A | 1322.72 | | 1321.87 | 1320.97 | 1319.74 | 1316.71 | 1315.92 | 1311.73 | λ |
| 30 | 1319.85 | 1318.74 | A | 1322.69 | | 1321.85 | 1320.91 | 1319.65 | 1316.80 | 1315.87 | 1311.61 | λ |
| 31 | 1319.93 | | λ | 1322.71 | | 1321.81 | | 1319.60 | | 1315.75 | 1311.50 | |
| MEAN | 1311.11 | 1319.24 | | | 1322.62 | 1322.12 | 1321.47 | 1320.21 | 1318.13 | 1316.37 | 1313.49 | |
| MAX | 1319.93 | 1320.14 | | | 1323.39 | 1322.62 | 1321.77 | 1320.86 | 1319.52 | 1316.91 | 1315.62 | |
| MIN | 1305.20 | 1318.34 | | | 1322.43 | 1321.58 | 1320.91 | 1319.60 | 1316.71 | 1315.64 | 1311.50 | |

A No gage-height record.

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR

LOCATION.--Lat 18°12'04", long 66°08'26", Hydrologic Unit 21010005, 0.2 mi (0.3 km) downstream of Lago Cidra Dam on right bank, 2.1 mi (3.4 km) northwest of Plaza de Cidra.

DRAINAGE AREA. -- 8.31 mi 2 (21.5 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD, -- November 1990 to September 1991.

GAGE.--Water-stage recorder. Elevation of gage is 1,279 ft (390 m), from topographic map.

REMARKS.--Records poor. Regulation al all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 532 ft³/s (15.1 m²/s), Feb. 5, gage-height, 12.32 ft (3.755 m), from rating curve extended above 50 ft³/s (1.42 m³/s) on basis of step-backwater analysis; minimum daily discharge, 9.4 ft³/s (0.266 m²/s), July 17.

| | | DI SCHAR | GE, CUBIC | PERT PER | | WATER YE Y MEAN VA | | R 1990 TO | September | 1991 | | |
|-------|-----|-------------|------------|----------|------|-----------------------|------|-----------|-----------|-------|------|------|
| DAY | OCT | NOV | DEC | JAN | PEB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
| 1 | | 13 | e12 | 12 | 14 | 12 | 11 | 13 | 13 | 11 | 14 | 13 |
| 2 | | 12 | e13 | 20 | 13 | 13 | 11 | 13 | 13 | 11 | 14 | 14 |
| 3 | | 13 | e13 | 18 | 12 | 13 | 11 | 13 | 13 | 11 | 15 | 13 |
| 4 | | 28 | e13 | 16 | 13 | 17 | 10 | 13 | 13 | 11 | 16 | 13 |
| 5 | | 28 | 13 | 16 | 143 | 16 | 10 | 13 | 13 | 11 | 15 | 12 |
| 6 | | 28 | 13 | 16 | 193 | 17 | 12 | 13 | 13 | 11 | 16 | 12 |
| 7 | | 26 | 13 | 16 | 73 | 18 | 12 | 14 | 12 | 11 | 16 | 11 |
| 8 | | 28 | 13 | 18 | 38 | 19 | 12 | 14 | 12 | 11 | 17 | 12 |
| 9 | | 28 | 13 | 19 | 25 | 19 | 12 | 13 | 12 | 11 | 16 | 12 |
| 10 | | 29 | 13 | 19 | 17 | 14 | 12 | 11 | 12 | 11 | 17 | 12 |
| 11 | | 29 | 13 | 18 | 30 | 11 | 12 | 11 | 12 | 11 | 17 | 12 |
| 12 | | 29 | 12 | 17 | 64 | 11 | 12 | 11 | 12 | 11 | 19 | 32 |
| 13 | | 52 | 13 | 15 | 120 | 11 | 13 | 11 | 13 | 10 | 30 | 23 |
| 14 | | 60 | 13 | 15 | 50 | 11 | 13 | 11 | 13 | 11 | 49 | 11 |
| 15 | | 60 | 12 | 16 | 26 | 12 | 13 | 11 | 12 | 14 | 49 | 12 |
| 16 | | 62 | 12 | 15 | 17 | 12 | 12 | 11 | 12 | 21 | 41 | 12 |
| 17 | | e 55 | 12 | 15 | 13 | 12 | 13 | 12 | 11 | 9.4 | 23 | 26 |
| 18 | | e 55 | 12 | 14 | 14 | 13 | 13 | 12 | 12 | 9.5 | 18 | 14 |
| 19 | | e 60 | 11 | 14 | 20 | 13 | 12 | 11 | 12 | 10 | 47 | 15 |
| 20 | | ●60 | 11 | 12 | 19 | 13 | 12 | 12 | 12 | 11 | 45 | 15 |
| 21 | | e 55 | 12 | 12 | 18 | 13 | 13 | 11 | 12 | 11 | 46 | 16 |
| 22 | | ● 60 | 12 | 12 | 16 | 14 | 13 | 12 | 12 | 11 | 55 | 17 |
| 23 | | e 60 | 12 | 12 | 15 | 13 | 13 | 12 | 12 | 11 | 43 | 17 |
| 24 | | e 60 | 12 | 12 | 14 | 13 | 13 | 12 | 12 | 11 | 37 | 18 |
| 25 | | e 55 | 11 | 13 | 14 | 13 | 13 | 15 | 12 | 11 | 37 | 18 |
| 26 | | e 55 | 10 | 13 | 11 | 12 | 13 | 12 | 11 | 12 | 28 | 18 |
| 27 | | e 55 | 11 | 13 | 10 | 12 | 13 | 11 | 11 | 14 | 24 | 19 |
| 28 | | e 35 | 11 | 13 | 11 | 12 | 13 | 12 | 11 | 13 | 20 | 20 |
| 29 | | e13 | 12 | 14 | | 12 | 13 | 13 | 12 | 14 | 29 | 20 |
| 30 | | e12 | 12 | 14 | | 11 | 12 | 12 | 12 | 13 | 26 | 21 |
| 31 | | | 20 | 14 | | 12 | | 12 | | 13 | 14 | |
| TOTAL | | 1215 | 385 | 463 | 1023 | 414 | 367 | 377 | 364 | 361.9 | 853 | 480 |
| MEYN | | 40.5 | 12.4 | 14.9 | 36.5 | 13.4 | 12.2 | 12.2 | 12.1 | 11.7 | 27.5 | 16.0 |
| MAX | | 62 | 20 | 20 | 193 | 19 | 13 | 15 | 13 | 21 | 55 | 32 |
| MIN | | 12 | 10 | 12 | 10 | 11 | 10 | 11 | _11 | 9.4 | 14 | 11 |
| AC-PT | | 2410 | 764 | 918 | 2030 | 821 | 728 | 748 | 722 | 718 | 1690 | 952 |
| CFSM | | 4.87 | 1.49 | 1.80 | 4.39 | 1.61 | 1.47 | 1.46 | 1.46 | 1.40 | 3.31 | 1.92 |
| IN. | | 5.43 | 1.72 | 2.07 | 4.57 | 1.85 | 1.64 | 1.69 | 1.63 | 1.62 | 3.81 | 2.15 |

e Estimated

RIO DE BAYAMON BASIN

50047600 RIO DE BAYAMON NEAR AGUAS BUENAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'39", long 66°08'39", at bridge on Highway 156, and 2.9 mi (4.7 km) west of Aguas Buenas plaza. DRAINAGE AREA.--18.5 mi² (47.9 km²).

PERIOD OF RECORD. -- Water years 1958-65, 1974 to current year.

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FRCAL, (COLS. PER 100 ML) |
|----------------|---|---|---|--|---|---|---|--|--|---|---|
| OCT 1990 17 | 1245 | 33 | 237 | 8.0 | 24.5 | 55 | 7.6 | 93 | 27 | 3900 | 2800 |
| DEC 18 | 1045 | 18 | 265 | 8.1 | 22.0 | 6.6 | 8.4 | 98 | <10 | 510 | 990 |
| FEB 1991 13 | 0915 | 89 | 233 | 8.0 | 22.0 | 17 | 8.2 | 94 | 16 | K1700 | 3400 |
| APR 26 | 0950 | 19 | 286 | 8.0 | 24.0 | 3.0 | 7.3 | 87 | 13 | K130 | 250 |
| JUN 18 | 1315 | 18 | 291 | 8.5 | 26.5 | 3.2 | 8.2 | 103 | <10 | K180 | 500 |
| AUG 14 | 1345 | 38 | 270 | | 26.0 | 36 | 6.7 | 83 | 21 | 270 | 750 |
| 14 | 1242 | 36 | 270 | 8.3 | 26.0 | 36 | 6.7 | 83 | 21 | 270 | /50 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | WAT WH TOT FET | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 17 | 88 | 0 | 20 | 9.2 | 12 | 0.6 | 3.6 | 69 | <0.5 | 9.8 | 16 |
| DEC 18 | | | | | | | | 100 | | | |
| FEB 1991 13 | | | | | | | | 85 | | | |
| APR 26 | 110 | 1 | 26 | 10 | 16 | 0.7 | | 110 | <0.5 | 5.3 | 17 |
| JUN 18 | | | | | | | | 120 | | | |
| AUG 14 | 98 | 0 | 23 | 9.9 | 20 | 0.9 | 2.3 | 97 | | 8.3 | 19 |
| | | • | | ,,, | | 0.5 | | <i>.</i> | | 0.0 | |
| oct : | R] SC DATE (1 As | IDE, DI DIS- SC DLVRD (M MG/L A S F) SI | CICA, SUM IS- CON OLVED TUE IG/L D AS SO | STI- D NTS, SO IS- (T LVED P G/L) D | IDS, TOTO IS- AT LVED DEC ONS SU ER PEN | 105 S. C. NI SS- T IDED (IG/L) A | GRN, TRATE NI OTAL T MG/L (| GEN, (CARTIE NO. CARTIE NO. CARTI | SEN, G SHOO3 AMM STAL TO GG/L (M S N) AS | EN, G ONIA ORG TAL TO G/L (M : N) AS | TRO- EN, ANIC TAL G/L N) |
| 18 FRB | 1991 | | | | | 9 | 0.69 | 0.010 | .700 0 | . 030 | 0.27 |
| | ••• | | | | | 23 | 0.280 | 0.020 | .300 0 | . 050 | 0.55 |
| | ••• | <0.10 2 | 15 | 167 | 8.71 | 1 | 0.33 | 0.010 | .340 0 | .020 | 0.28 |
| 18 AUG | ••• | | | | | <1 | 0.15 | 0.010 | 0.160 0 | .020 | 0.38 |
| 14 | ••• | <0.10 2 | 14 | 166 1 | 7 | | < | 0.010 |).110 <0 | .010 | |
| K = 1 | non-ideal d | count | | | | | | | | | |

RIO DE BAYAMON BASIN

50047600 RIO DE BAYAMON MEAR AGUAS BUENAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 17 | 0.80 | 2.0 | 8.9 | 0.080 | <1 | <100 | <10 | <1 | 8 | 20 |
| 18 FEB 1991 | 0.30 | 1.0 | 4.4 | 0.040 | | | | | | |
| 13 APR | 0.60 | 0.90 | 4.0 | 0.080 | | | | | | |
| 26 JUN | 0.30 | 0.64 | 2.8 | 0.040 | 1 | <100 | <10 | <1 | <1 | <10 |
| 18 | 0.40 | 0.56 | 2.5 | 0.030 | | | | | | |
| 14 | 0.40 | 0.51 | 2.3 | 0.040 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | MRTHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS EN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | Lene Blue Active Sub- Stance (MG/L) |
| OCT 1990 17 DEC | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 17 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS EN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | Lene Blue Active Sub- Stance (MG/L) |
| OCT 1990 17 DEC 18 FEB 1991 13 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS EN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 17 DEC 18 FEB 1991 13 APR 26 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.03 |
| OCT 1990 17 DEC 18 FEB 1991 13 | TOTAL RECOV- ERABLE (UG/L AS FE) 3200 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- BRABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) 1 | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.03 |

50047850 RIO BAYAMON NR BAYAMON, PR

LOCATION.--Lat 18°20'08", long 66°08'13", Hydrologic Unit 21010005, on left bank, at rock quarry near Highway 174, 1.3 mi*(2.1 km*) south of colonia Santa Rosa and 4.7 mi (7.6 km) south of Bayamón.

DRAINAGE AREA. -- 41.8 mi 1 (108.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- September 1964 to October 1970, June 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 98 ft (30 m), from topografic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Diversion to the Guaynabo water treatment plant, for municipal supply, made upstream from station (at Repress de San Juan). Flow is regulated by storage and release of water at Lago de Cidra (capacity 5,220 acre-ft), 10.5 mi (16.9 km) upstream. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--9 years (1965-70,1989-91), 36.4 ft³/s (1.031 m³/s), 11.82 in/yr (300 mm/yr), 26,370 acre-ft/yr (32.5 hm²/yr).

EXTREMES FOR PERIOD OF RECORDS.--Maximum discharge 28,000 ft³/s (793 m³/s), Oct. 9, 1970, gage height 20.2 ft (6.157 m), from rating curve extended above 1,000 ft³/s (28.3 m³/s) on basis of step-backwater analysis; minimum discharge, 0.7 ft³/s (0.020 m³/s), July 2, 1967.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 2,000 ft³/s (56.6 m³/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| Di scharge | | harge | Gage | height | | | Disc | harge | Gage height | | |
|------------|------|---------|---------------------|--------|-------|---------|------|---------|---------------------|--------|-------|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) |
| Oct. 7 | 1655 | 3,650 | 103 | 10.99 | 3.350 | Oct. 18 | 1325 | 2,660 | 75.3 | 9.74 | 2.969 |
| Oct. 10 | 1445 | 2,010 | 56.9 | 8.87 | 2.703 | Feb. 5 | 1915 | 2,920 | 82.7 | 10.05 | 3.063 |
| Oct. 17 | 1500 | 2,200 | 62.3 | 9.13 | 2.783 | July 16 | 1100 | *4,120 | 117 | *11.55 | 3.520 |

Minimum discharge, 2.3 ft³/s (0.065 m³/s), Oct. 2, 3.

| DAILY MEAN VALUES | | | | | | | | | | | | |
|-------------------|-------------|------|--------|-------|--------|-------|--------------|------------|-------|--------|-------|-------|
| DAY | OCT | MOA | DEC | JAN | FEB | MAR | APR | МАУ | JUN | JUL | AUG | SRP |
| 1 | 3.2 | 21 | 38 | 177 | 10 | 9.6 | 84 | 9.5 | 14 | 17 | 37 | 6.7 |
| 2 | 2.5 | 21 | 26 | 33 | 9.0 | 9.0 | 12 | 8.6 | 13 | 13 | 16 | 7.0 |
| 3 | 22 | 20 | 146 | 18 | 9.0 | 8.5 | 10 | 8.7 | 13 | 20 | 14 | 6.6 |
| 4 | 22 | 20 | 54 | 14 | 8.6 | 8.8 | 9.9 | 9.3 | 12 | 15 | 13 | 6.3 |
| 5 | 18 | 19 | 18 | 13 | 496 | 9.0 | 9.7 | 9.4 | 12 | 9.3 | 13 | 6.0 |
| 6 | 6.8 | 20 | 15 | 22 | 180 | 9.0 | 9.7 | 9.3 | 12 | 10 | 12 | 5.7 |
| 7 | 269 | 19 | 14 | 21 | 60 | 8.6 | 9.6 | 9.4 | 12 | 9.3 | 12 | 6.1 |
| 8 | 93 | 18 | 13 | 13 | 27 | 8.6 | 19 | 52 | 11 | 12 | 12 | 6.5 |
| 9 | 74 | 18 | 13 | 12 | 18 | 8.4 | 12 | 20 | 11 | 9.3 | 11 | 6.4 |
| 10 | 309 | 18 | 13 | 18 | 19 | 8.4 | e10 | 12 | 10 | 8.4 | 11 | 7.8 |
| 11 | 116 | 18 | 13 | 20 | 19 | 8.4 | e9.8 | e11 | 11 | 8.1 | 11 | 6.3 |
| 12 | 29 | 18 | 12 | 13 | 14 | 8.4 | e9.4 | e11 | 10 | 8.1 | 9.9 | 6.8 |
| 13 | 17 | 17 | 12 | 11 | 39 | 8.1 | e10 | e11 | 10 | 8.1 | 9.7 | 6.0 |
| 14 | 23 | 16 | 13 | 11 | 24 | 8.3 | e11 | e12 | 10 | 8.1 | 9.6 | 5.4 |
| 15 | 212 | 16 | 12 | 11 | 15 | 8.4 | e29 | 12 | 9.7 | 17 | 11 | 5.2 |
| 16 | 207 | 17 | 12 | 11 | 11 | 8.2 | e13 | 12 | 9.7 | 750 | 9.8 | 5.4 |
| 17 | 318 | 19 | 11 | 10 | 10 | 7.8 | e9.8 | 12 | 9.7 | 82 | 13 | 45 |
| 18 | 489 | 26 | 10 | 10 | 16 | 9.1 | e 9.6 | 19 | 44 | 30 | 10 | 18 |
| 19 | e278 | 18 | 10 | 9.6 | 28 | 8.5 | e9.5 | 19 | 21 | 24 | 8.4 | 7.1 |
| 20 | 61 | 16 | 10 | 9.4 | 21 | 7.8 | e9.2 | 20 | 9.0 | 18 | 9.5 | 6.6 |
| 21 | e689 | 17 | 9.4 | 9.8 | 16 | 8.7 | e9.2 | 17 | 8.7 | 15 | 11 | 6.2 |
| 22 | e130 | 20 | 9.5 | 8.8 | 12 | 87 | e9.2 | 17 | 8.5 | 14 | 22 | 9.7 |
| 23 | e79 | 19 | 10 | 8.6 | 11 | 21 | e9.5 | 16 | 30 | 15 | 47 | 7.9 |
| 24 | e4 5 | 16 | 9.7 | 8.4 | 9.7 | 11 | e9. 6 | 16 | 12 | 12 | 9.6 | 9.1 |
| 25 | e 86 | 16 | 8.4 | 8.4 | 9.4 | 9.6 | e1 6 | e62 | 8.5 | 12 | 9.3 | 6.8 |
| 26 | e210 | 16 | 7.7 | 8.8 | 9.1 | 21 | e17 | 23 | 8.1 | 12 | 7.8 | 6.0 |
| 27 | e84 | 20 | 7.5 | 8.8 | 9.0 | 18 | e11 | 17 | 8.1 | 12 | 52 | 7.1 |
| 28 | e 31 | 19 | 16 | 8.3 | 21 | 9.8 | e10 | 15 | 7.9 | 33 | 27 | 7.7 |
| 29 | e23 | 16 | 61 | 8.4 | | 9.2 | e11 | 14 | 14 | 17 | 10 | 16 |
| 30 | e24 | 43 | 60 | 8.6 | | 8.7 | e10 | 14 | 43 | 21 | 8.3 | 20 |
| 31 | 22 | | 356 | 11 | | 8.7 | | 14 | | e52 | 7.6 | |
| TOTAL | 39971.5 | 577 | 1020.2 | 554.9 | 1130.8 | 383.6 | 418.7 | 512.2 | 412.9 | 1291.7 | 464.5 | 273.4 |
| MEAN | 129 | 19.2 | 32.9 | 17.9 | 40.4 | 12.4 | 14.0 | 16.5 | 13.8 | 41.7 | 15.0 | 9.11 |
| MAX | 689 | 43 | 356 | 177 | 496 | 87 | 84 | 62 | 44 | 750 | 52 | 45 |
| MIN | 2.5 | 16 | 7.5 | 8.3 | 8.6 | 7.8 | 9.2 | 8.6 | 7.9 | 8.1 | 7.6 | 5.2 |
| AC-FT | 7920 | 1140 | 2020 | 1100 | 2240 | 761 | 830 | 1020 | 819 | 2560 | 921 | 542 |
| CFSM | 3.08 | . 46 | .79 | . 43 | . 97 | . 30 | .33 | .40 | .33 | 1.00 | .36 | .22 |
| IN. | 3.55 | .51 | .91 | .49 | 1.01 | . 34 | .37 | .46 | .37 | 1.15 | .41 | .24 |

CAL YR 1990 TOTAL 11250.4 MEAN 30.8 MAX 689 MIN 2.5 AC-FT 22320 CFSM .74 IN. 10.01 WTR YR 1991 TOTAL 11032.4 MEAN 30.2 MAX 750 MIN 2.5 AC-FT 21880 CFSM .72 IN. 9.82

e Estimated

RIO BAYAMON BASIN

50047850 RIO BAYAMON NEAR BAYAMON, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- OCTOBER 1989 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) |
|--------------------|--------------|---------------------------------------|--------------------------------------|-----------------------------|--------------------|--------------|---------------------------------------|--------------------------------------|-----------------------------|
| OCT. 10 NOV. 26 | 1123 1335 | | 255 330 | 26.0 26.5 | JAN. 30 FRB. 27 | 1206 1040 | 9.0 9.3 | 348 347 | 25.0 26.0 |
| DEC. 28 | 1510 | | 312 | 24.5 | FBD. 47 | 1040 | 9.3 | 367 | 20.0 |

RIO DE BAYAMON BASIN

50047990 RIO GUAYNABO NEAR BAYAMON, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°22'32", long 66°07'59", at bridge on Highway 833, 0.2 mi (0.3 km) upstream from Río de Bayamón, and 2.3 mi (3.7 km) southeast of Bayamón plaza.

DRAINAGE AREA. -- 73.2 mi2 (189.6 km2).

PERIOD OF RECORD. -- Water years 1958, 1964, 1971-73, 1976, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | MV.1 | EK-QUALIT | DATA, W | ATER IEAR | OCTOBE | (1330 TO 5 | SEPTEMBER . | 1331 | | |
|----------------|--|--|--|--|--|--|--|--------------------------|---|---|---|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECONI | CIFIC CON- DUCT- ANCE | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | DIS- SOLVEI | CENT SATUR- | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 12 | 0845 | 10 | 385 | 7.8 | 25.0 | 14 | 6.4 | 77 | 19 | 5800 | 2600 |
| DEC | | | | | | | | | | | |
| 04 FEB 1991 | 1115 | 37 | 393 | 8.0 | 24.0 | 20 | 6.8 | 79 | 19 | K540 | K1700 |
| 15 APR | 1300 | 22 | 450 | 7.7 | 25.0 | 9.5 | 6.8 | 81 | 16 | 3900 | K540 |
| 10 | 1545 | 17 | 416 | 7.7 | 26.0 | 1.0 | 6.0 | 72 | 14 | 6000 | K910 |
| 19 | 1215 | 30 | 378 | 7.5 | 26.5 | 28 | 5.3 | 65 | 28 | 42000 | K12000 |
| 05 | 1240 | 32 | 442 | 7.8 | 28.0 | 6.7 | 4.0 | 50 | 16 | K7400 | K910 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3 | HARD- NESS NONCARE WH WAT TOT FLD MG/L AS () CACO3 | DIS- SOLVED | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS MA) | SODIT AD- SORP- TION RATIO | - SIUM, - DIS- I SOLVEI | WAT WH TOT FRT | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 12 | 14 | 0 0 | 39 | 11 | 22 | ٥. | .8 3.7 | 140 | <0.5 | 22 | 30 |
| DIRC 04 | | | | | | | | | | | |
| FEB 1991 | | | | | | | | 140 | | | |
| 15 APR | | | | | | | | 160 | | | |
| 10 Jun | 120 |) 1 | 32 | 9.6 | 24 | 1 | 2.0 | 150 | <0.5 | 8.0 | 33 |
| 19 AUG | | | | | | | | 120 | | | |
| 05 | 16 | 1 | 44 | 12 | 26 | 0. | 9 3.9 | 150 | | 17 | 32 |
| | DATE | RIDE, E DIS- S SOLVED ((MG/L | LICA, SUI DIS- COI OLVED TUI (MG/L I AS SO | NSTI- I ZNTS, SC DIS- (1 DLVED I | LIDS, TOTO DIS- AT DLVED DEC TONS SU PER PEN | 105 | GEN, SITRATE NI TOTAL ? (MG/L | GEN, GTRITE NO. COTAL TO | SEN, G S+NO3 AMM STAL TO GG/L (M | EN, G ONIA ORG TAL TO G/L (M | TRO- EN, ANIC TAL G/L |
| OCT 12 | 1990 | <0.10 | 26 | 238 | 6.42 | 24 | 0.750 | 0.050 | .800 0 | . 110 | 0.49 |
| DEC | ••• | | | | | | | | | | |
| PKB | 1991 | | | | | 26 | 0.860 | | | | 0.26 |
| APR | ••• | | | | | 16 | 0.660 | | | | 0.61 |
| JUN | ••• | <0.10 | 28 | 227 1 | 10.6 | <1 | 0.550 | 0.040 | .590 0 | . 070 | 0.43 |
| 19 AUG | ••• | | | | | 43 | 1.06 | 0.040 1 | 10 0 | . 160 | 0.64 |
| | ••• | 0.20 | 29 | 258 2 | 12.0 | 4 | 0.400 | 0.050 | .450 0 | . 100 | 0.50 |
| K = | non-ideal | count | | | | | | | | | |

K = non-ideal count

RIO DE BAYAMON BASIN

50047990 RIO GUAYNABO NEAR BAYAMON, PR--Continued

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-------------------|---|---|---|---|--|---|---|---|--|---|
| OCT 1990 | | | | | | | | | | |
| 12 DBC | 0.60 | 1.4 | 6.2 | 0.190 | <1 | 200 | 30 | <1 | 2 | 20 |
| 04 | 0.40 | 1.3 | 5.8 | 0.240 | | | | | | |
| FEB 1991 15 | 0.70 | 1.4 | 6.2 | 0.170 | | | | | | |
| APR 10 | 0.50 | | | | | .100 | .4.0 | | | .10 |
| JUN | 0.50 | 1.1 | 4.8 | 0.210 | <1 | <100 | <10 | <1 | <1 | <10 |
| 19 | 0.80 | 1.9 | 8.4 | 0.220 | | | | | | |
| AUG 05 | 0.60 | 1.0 | 4.6 | 0.280 | | | | | | |
| | | | manga- | | | | | | | MRTHY- |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LRAD, TOTAL RECOV- ERABLE (UG/L AS PB) | NRSE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- BRABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | | | | | | | | | | |
| 12 Dec | 1400 | 2 | 190 | <0.10 | <1 | <1 | <10 | <0.010 | 1 | 0.10 |
| 04 | | | | | | | | | | |
| FEB 1991 15 | | | | | | | | | | |
| APR 10 | 670 | 1 | 80 | <0.10 | <1 | <1 | <10 | <0.010 | 1 | 0.10 |
| JUN | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 19 A UG | | | | | | | | | | |

RIO DE BAYAMON BASIN

50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'29", long 66°09'04", at bridge on Highway 890, 1.0 (1.6 km) downstream from bridge on Highway 2, and 3.2 mi (5.1 km) above mouth.

DRAINAGE AREA. -- 71.9 mi2 (186.2 km2).

PERIOD OF RECORD. -- Water years 1974 to current year.

REMARKS.--Prior to 1979 sampling site was 0.8 mile (1.3 km) downstream but was changed because of flood channel construction.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | | ***** | | | | | | | | - | | |
|----------------|----------------|---|---|---|--|---|--|---|---|--|--|---|---|
| DATE | | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUI BII IT (NT | D- D: | SEN, (F SEN, (F SE- C LVED SA | GEN, DIS- DLVED PER- PENT TUR- PION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 | | | | | | | | | | | | | |
| 12 | | 1145 | 95 | 342 | 7.8 | 27.5 | 26 | | 7.0 | 87 | 17 | K60000 | 77 |
| 06 FEB 1991 | | 1045 | 56 | 404 | 7.9 | 24.5 | 12 | • | 5.9 | 81 | 10 | 50000 | K1100 |
| 08 | | 1100 | 78 | 337 | 7.7 | 24.0 | 17 | • | 7.3 | 85, | 20 | 33000 | 5500 |
| 04 JUN | | 1130 | 39 | 385 | 7.6 | 28.0 | 18 | | 5.3 | 79 | 17 | 35000 | 6000 |
| 10 AUG | | 1045 | 14 | 450 | 7.7 | 30.0 | 1 | .0 | 7.5 | 97 | 14 | 51000 | K270 |
| 22 | | 0845 | 81 | 322 | 7.5 | 25.5 | 110 | (| 5.3 | 75 | 32 | K74000 | 64000 |
| DATE | | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SOD: A SOR: TI RAT: | D- 8: P- D: ON 80: IO (M | PAS- LIN TUM, WAT IS- TOT LVED FI Z/L MG/ | KA- IITY WH FET ELD L AS | SULFIDE TOTAL (MG/L AS 8) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 12 | | 130 | 4 | 34 | 10 | 18 | | 0.7 | 3.0 | 120 | <0.5 | 19 | 24 |
| DEC 06 | | | | | | | _ | | | 150 | | | |
| FEB 1991 08 | | | | | | | | | | 110 | | | |
| APR | | | | | | | - | | | | | | |
| 04 Jun | | 140 | 1 | 37 | 11 | 21 | 1 | 0.8 | 3.2 | 130 | <0.5 | 17 | 27 |
| 10 | | | | | | | - | - | | 160 | | | |
| 22 | | 110 | 1 | 32 | 7.6 | 16 | | 0.7 | 3.8 | 110 | | 18 | 14 |
| DEC 0 | 1990 2 5 | RI BO SO (M AS | DR, D. DIS- S. DLVED () G/L . F) S. | LICA, SUNIS- CON OLVED TUR MG/L I AS SO | ISTI - D INTS, SO IIS - (T OLVED F IG/L) D | LIDS, TO DIS- AT DLVED DE CONS S PER PE | SIDUE TAL 105 G. C, U8- NDED MG/L) 26 | NITRO- GEN, MITRATE TOTAL (MG/L AS N) 0.660 | MITROGRN, NITRITE TOTAL (MG/L AS N) 0.040 | G NO2 TO (M AS | RN, G +NO3 AMM TAL TO G/L (M N) AS | EN, CONIA ORCITAL TO | UTRO- BEN, MANIC PTAL GG/L 3 N) 0.48 |
| 01 | В | • | | | | | 25 | 0.770 | 0.030 | 0 | .800 0 | .230 | 0.57 |
| | 4 | | 0.10 | 24 | 218 2 | 2.9 | 29 | 0.720 | 0.060 | 0 | .780 0 | .410 | 0.49 |
| JUN 1 | D | | | | | | 7 | 0.100 | 0.030 | 0 | .130 0 | .260 | 0.54 |
| àUG | 2 | | 0.10 | 19 | 176 3 | 8.6 | 118 | 0.930 | 0.050 | | | .140 | 0.86 |
| | | | | | | | | | | | | | |

K = non-ideal count

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50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM TOTAL RECOV ERABL (UG/L AS BA | TOTAL - RECOV- E ERABLE (UG/L | TOTAL RECOV- | CHRO- MIUM, TOTAL RECOV- BRABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-------------------|---|---|---|---|--|---|-------------------------------|-----------------|--|--|
| 12 | 0.70 | 1.4 | 6.2 | 0.140 | <1 | 20 | 0 30 | <1 | 3 | 10 |
| DEC 06 | 0.70 | 1.4 | 6.2 | 0.150 | | | | | | |
| FEB 1991 08 | 0.80 | 1.6 | 7.1 | 0.130 | | | | | | |
| APR | | | | | | | | | | |
| 04 Jun | 0.90 | 1.7 | 7.4 | 0.180 | <1 | <10 | 0 30 |) <1 | 4 | 20 |
| 10 Au g | 0.80 | 0.93 | 4.1 | 0.180 | | | | | | |
| 22 | 1.0 | 2.0 | 8.8 | 0.250 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER TOTAL RECOV ERABL (UG/L AS AG | TOTAL RECOV- REABLE (UG/L | TOTAL (MG/L | PHENOLS TOTAL (UG/L) | MRTHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | | | | | | | | | _ | |
| 12 Dec | 2000 | 1 | 210 | <0.10 | <1 | < | 1 <10 | <0.010 | <1 | 0.04 |
| 06 FRB 1991 | | | | | | | | | | |
| 08 APR | | | | | | | | | | |
| 04 | 1500 | 2 | 140 | <0.10 | <1 | < | 1 <10 | <0.010 | <1 | 0.03 |
| JUN 10 | | | | | | | | | | |
| AUG 22 | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | PESTICI | DE ANALY | SES | | | | |
| DATE | e Tin | PCB IE TOT (UG/ | AL TOI | IN, DAN | AL TO | T JAT | OTAL TO | | ON, ELD | RIN |
| JUN 1991 | | | | | | | | | | |
| 10 | 104 | 15 < | 0.1 <0. | .010 | (0.1 <0 | .010 < | 0.010 <0 | 0.010 | 0.02 <0. | 010 |
| DATE | ENDO SULE TOTA (UG/ | AN, END | AL TO | HON, CE | PTA- CHI ILOR, BPC PAL TO: | TAL T | INDANE TO | HION, CI | TH- TY- HLOR, PAL S/L) | |
| JUN 1991 | | | | | - | | | | | |
| 10 | <0.0 | 10 <0. | 010 <0 | .01 <0. | 010 <0 | .010 < | 0.010 | :0.01 < | 0.01 | |
| DATE | METH PARA THIC TOTA (UG/ | YN, THI L TOT | AL TO | TAL TOT | ON, CH | L- Ves, Ly- Lor. T Cal T | HANE APE OTAL TO | ENE, TI | PAL RI - CON B/L) | |
| JUN 1991 | | • | - | | • | · | | - | | |
| 10 | <0. | 01 <0 | .01 <0 | .01 <0 | .01 < | .10 | <0.1 | <1 <0 | 0.01 | |

158 RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR

LOCATION.--Lat 18°21'51", long 66°03'56", Hydrologic Unit 21010005, on right bank, in the Riberas of Sefforial Housing area, 0.6 mi (1.0 km) west of Highway 176 and 2.7 mi (4.3 km) southwest of Río Piedras Plaza.

DRAINAGE AREA. -- 7.49 mi2 (19.40 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORDS .-- March 1988 to current year.

GAGE. -- Water-stage recorder. Elevation of gage is 98.4 ft (30.0 m), from topographic map.

REMARKS.--Records poor. Gage-heigh and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,680 ft³/s (132 m²/s), Aug. 24, 1988, gage height, 16.08 ft (4.901 m), from rating curve extended above 200 ft³/s (5.66 m³/s) on basis of step-backwater analysis; minimum daily discharge, 2.1 ft³/s (0.059 m³/s), June 10, 1989.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 1,500 ft³/s (42.5 m³/s) and maximum (*):

| | | Disch | arge | Gage h | eight | | | | harge | Gage height | | |
|-------------------|--------------|-----------------|--------------|-----------------|----------------|--------------------|--------------|----------------|--------------|----------------|----------------|--|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | |
| Oct. 17 Feb. 5 | 1515 1500 | *2,930 1,500 | 83.0 42.5 | *12.66 10.21 | 3.859 3.112 | Aug. 16 Aug. 21 | 1420 1630 | 1,510 1,520 | 42.8 43.0 | 10.23 10.25 | 3.118 3.124 | |

Minimum daily discharge, 2.5 ft 3 /s (0.071 m^3 /s), λ ug. 11, 13.

| | | DI S CHA | RGR, CUBI | C FEET PE | | WATER YE Y MEAN VA | | R 1990 TO | SEPTEMB | ER 1991 | | |
|-------|--------|-----------------|-----------|-----------|-------|-----------------------|-------|--------------|--------------|---------------|-------------|--------------|
| DAY | OCT | NOV | DEC | Jan | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 14 | 10 | 37 | 67 | 6.1 | 6.1 | 6.1 | e 6.6 | e5.2 | -4.4 | 3.4 | æ6.0 |
| 2 | 7.5 | 8.3 | 18 | 34 | 6.4 | 6.0 | 24 | e7.5 | e5.0 | e3.8 | 5.7 | e4 .0 |
| 3 | 99 | 8.3 | 49 | 17 | 6.4 | 6.0 | 10 | e20 | e5.0 | e4.5 | 3.8 | e3.5 |
| 4 | 80 | 7.8 | 12 | 13 | 5.7 | 8.1 | 6.3 | e90 | e6.4 | e3.8 | 4.5 | e3.5 |
| 5 | 46 | 7.4 | 7.7 | 12 | 133 | 8.7 | 5.2 | e25 | e6.0 | e3.4 | 13 | e3 . 5 |
| 6 | 25 | 7.7 | 6.5 | 14 | 37 | 8.7 | 5.3 | e15 | e5.4 | e3.3 | 4.1 | -4 .0 |
| 7 | 65 | 9.5 | 5.1 | 14 | 18 | 7.7 | 4.7 | e21 | e5.4 | e4 . 2 | 3.2 | e20 |
| 8 | 41 | 8.0 | 4.9 | 9.1 | 9.8 | 6.9 | 26 | e14 | e6.0 | e6.1 | 2.9 | e10 |
| 9 | 110 | 6.7 | 4.8 | 11 | 8.4 | 6.1 | 7.9 | e20 | e5.4 | e4 . 8 | 2.7 | e6.0 |
| 10 | 158 | 7.5 | 5.2 | 12 | 7.2 | 6.9 | 7.1 | 36 | e5.4 | e4.2 | 2.6 | e3.5 |
| 11 | 56 | 6.4 | 7.2 | 9.0 | 18 | 6.5 | 9.2 | 15 | e6.4 | e6.9 | 2.5 | e3.7 |
| 12 | 15 | 6.3 | 5.2 | 21 | 11 | 6.1 | 25 | 9.2 | e6.0 | e6.2 | 2.6 | e3.5 |
| 13 | 9.7 | 5.8 | 5.7 | 9.4 | 10 | 6.1 | 19 | 11 | e6.6 | e3.8 | 2.5 | e3.1 |
| 14 | 9.9 | 5.9 | 6.6 | 9.2 | 9.3 | 7.3 | 9.2 | 8.7 | e7.2 | e4 .5 | 2.9 | e3.1 |
| 15 | 9.5 | 6.4 | 7.8 | 9.0 | 8.4 | 7.3 | 30 | 8.3 | e 6.0 | e 66 | e3.2 | e 3.5 |
| 16 | 11 | 5.2 | 9.6 | 8.9 | 8.0 | 6.9 | 12 | 10 | e6.6 | e91 | e77 | e4.5 |
| 17 | 202 | 6.2 | 6.0 | 9.2 | 7.6 | 6.8 | 7.8 | 7.4 | e6.7 | e13 | e61 | 15 |
| 18 | 170 | 5.3 | 5.7 | 8.5 | 93 | 8.2 | 9.2 | 35 | e42 | e6.4 | 15 | 3.9 |
| 19 | 54 | 5.4 | 5.4 | 8.4 | 78 | 7.3 | 6.9 | 15 | e14 | 4.6 | 4.9 | 3.2 |
| 20 | 45 | 6.2 | 5.5 | 7.6 | 80 | 7.6 | 6.9 | 63 | e62 | 3.8 | 33 | 3.2 |
| 21 | 207 | 5.4 | 6.4 | 8.1 | 29 | 8.6 | 6.7 | 13 | e25 | 3.0 | 145 | 3.5 |
| 22 | 26 | 5.3 | 6.8 | 7.8 | 19 | 73 | 6.4 | 9.2 | e11 | 3.4 | e3 9 | 8.4 |
| 23 | 15 | 4.7 | 7.9 | 8.3 | 11 | 13 | 5.7 | 6.8 | e7.4 | 3.4 | e1 4 | 3.2 |
| 24 | 53 | 4.8 | 8.8 | 7.1 | 10 | 8.8 | 6.6 | 6.1 | e6.1 | 3.8 | e6.1 | 3.2 |
| 25 | 103 | 4.3 | 7.3 | 7.6 | 8.9 | 8.1 | 14 | 9.6 | e5.1 | e3.4 | e4.3 | 2.8 |
| 26 | 63 | 11 | 7.9 | 7.0 | 8.0 | 7.4 | 7.6 | e18 | e5.2 | e4 . 8 | e3.6 | 3.0 |
| 27 | 20 | 11 | 7.3 | 7.0 | 7.0 | 6.6 | 7.2 | e12 | e4. 3 | e4 .3 | e9 9 | 23 |
| 28 | 15 | 6.4 | 22 | 6.6 | 7.0 | 6.7 | 6.1 | e5.3 | e4.2 | e119 | e30 | 7.3 |
| 29 | 14 | 20 | 54 | 6.2 | | 6.3 | 6.3 | e5 . 2 | e4.2 | e15 | e9.0 | 26 |
| 30 | 21 | 12 | 34 | 5.4 | | 5.9 | e6.4 | e5.0 | e11 | e8.4 | e5.0 | 16 |
| 31 | 11 | | 142 | 8.4 | | 6.9 | | e5.2 | | 4.6 | e7.0 | |
| TOTAL | 1775.6 | 225.2 | 519.3 | 382.8 | 661.2 | 292.6 | 310.8 | 533.1 | 302.2 | 420.2 | 612.5 | 207.1 |
| MRAN | 57.3 | 7.51 | 16.8 | 12.3 | 23.6 | 9.44 | 10.4 | 17.2 | 10.1 | 13.6 | 19.8 | 6.90 |
| MAX | 207 | 20 | 142 | 67 | 133 | 73 | 30 | 90 | 62 | 119 | 145 | 26 |
| MIN | 7.5 | 4.3 | 4.8 | 5.4 | 5.7 | 5.9 | 4.7 | 5.0 | 4.2 | 3.0 | 2.5 | 2.8 |
| AC-FT | 3520 | 447 | 1030 | 759 | 1310 | 580 | 616 | 1060 | 599 | 833 | 1210 | 411 |
| CFSM | 7.65 | 1.00 | 2.24 | 1.65 | 3.15 | 1.26 | 1.38 | 2.30 | 1.34 | 1.81 | 2.64 | . 92 |
| IN. | 8.82 | 1.12 | 2.58 | 1.90 | 3.28 | 1.45 | 1.54 | 2.65 | 1.50 | 2.89 | 3.04 | 1.03 |

CAL YR 1990 TOTAL 5905.8 MEAN 16.2 MAX 207 MIN 3.2 AC-FT 11710 CFSM 2.16 IN. 29.33 WTR YR 1991 TOTAL 6242.6 MEAN 17.1 MAX 207 MIN 2.5 AC-FT 12380 CFSM 2.28 IN. 31.00

e Estimated

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD .-- OCTOBER 1989 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TRMPERA- Ture (Deg C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|---------|------|---------------------------------------|--------------------------------------|-----------------------------|------|---------|---------------------------------------|--------------------------------------|-----------------------------|
| OCT. 10 | | 8.86 | 120 | 25.5 | AUG. | 16 1045 | | 400 | 27.0 |
| NOV. 26 | 1553 | 10.4 | 347 | 26.5 | SEP. | 10 1508 | 4.11 | 410 | 27.0 |
| FEB. 27 | 1243 | 8.64 | 418 | 28.0 | | | | | |

RIO PURRTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS. -- Water years 1988 to current year.

INSTRUMENTATION. -- USD-77 and automatic sediment sampler.

PERIOD OF DAILY RECORD .--

SUSPENDED-SEDIMENT DISCHARGE: April 1988 to September 1990.

EXTREMES FOR PERIOD OF DAILY RECORD.-SEDIMENT CONCENTRATION: Maximum daily mean, 24,600 mg/L Sep. 18, 1989; Minimum daily mean,
2 mg/L November 18, 1988.

SEDIMENT LOADS: Maximum daily mean, 96,700tons (88,000tonnes) Sep. 18, 1989; Minimum daily mean, 0.04 ton (0.03 tonne) May 6, 1990.

EXTREMES FOR WATER YEAR 1991.--SEDIMENT_CONCENTRATION: Maximum daily mean, 3,920 mg/L Aug. 21, 1991; Minimum daily mean, 6 mg/l several days.

SEDIMENT LOADS: Maximum daily mean, 8,310 tons (7,540 tonnes) Oct. 17, 1990; Minimum daily mean, 0.04 ton (0.03 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | MBAN | | | MEAN | | | MRAN | |
|-------|-----------|---------|------------|------------|----------|------------|------------|----------|------------|
| | MRAN | CONCEN- | SEDIMENT | MBAN | CONCEN- | SEDIMENT | MRAN | CONCEN- | SEDIMENT |
| | DISCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE |
| DAY | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) |
| | | | | . , | , _, | (| •• | | • |
| | | OCTOBER | | 1 | NOVEMBER | | 1 | DECEMBER | |
| 1 | 14 | 20 | .76 | 10 | 43 | 1.1 | 37 | 458 | 130 |
| 2 | 7.5 | 20 | .39 | 8.3 | 90 | 2.0 | 18 | 118 | 11 |
| 3 | 99 | 3080 | 1180 | 8.3 | 70 | 1.6 | 49 | 648 | 236 |
| 4 | 80 | 2680 | 1200 | 7.8 | 60 | 1.3 | 12 | 86 | 2.8 |
| 5 | 46 | 314 | 44 | 7.4 | 59 | 1.1 | 7.7 | 45 | .86 |
| | | | | | | | | | |
| 6 | 25 | 156 | 13 | 7.7 | 51 | 1.1 | 6.5 | 31 | . 52 |
| 7 | 65 | 1620 | 878 | 9.5 | 25 | . 69 | 5.1 | 27 | . 39 |
| 8 | 41 | 351 | 50 | 8.0 | 19 | .41 | 4.9 | 23 | . 27 |
| 9 | 110 | 2740 | 4070 | 6.7 | 17 | .33 | 4.8 | 20 | .26 |
| 10 | 158 | 2850 | 4240 | 7.5 | 17 | .35 | 5.2 | 19 | .26 |
| 11 | 56 | 839 | 327 | 6.4 | 18 | .32 | 7.2 | 45 | 3.8 |
| 12 | 36 15 | 87 | 3.8 | 6.3 | | .32 | 7.2 5.2 | 19 | .27 |
| 13 | 9.7 | 47 | 1.3 | 5.8 | 18 | .54 | 5.2 5.7 | 16 | .23 |
| 14 | 9.7 | 39 | 1.3 | 5.8 5.9 | 35 | | 6.6 | 17 | .29 |
| 15 | 9.5 | 42 | | | 24 20 | .39 | | 20 | .42 |
| 13 | 3.5 | 42 | 1.0 | 6.4 | 20 | .32 | 7.8 | 20 | .42 |
| 16 | 11 | 32 | . 83 | 5.2 | 20 | .27 | 9.6 | 53 | 2.6 |
| 17 | 202 | 3330 | 8310 | 6.2 | 19 | .31 | 6.0 | 14 | .22 |
| 18 | 170 | 1730 | 1810 | 5.3 | 18 | .24 | 5.7 | 10 | . 15 |
| 19 | 54 | 630 | 156 | 5.4 | 16 | .24 | 5.4 | 9 | . 12 |
| 20 | 45 | 1030 | 412 | 6.2 | 16 | .27 | 5.5 | 9 | . 13 |
| 21 | 207 | 3700 | 4330 | 5.4 | 16 | .23 | 6.4 | 9 | . 15 |
| 22 | 26 | 452 | 34 | 5.3 | 16 | .25 | 6.8 | 10 | .18 |
| 23 | 15 | 260 | 11 | 4.7 | 16 | .25 | 7.9 | 43 | 1.5 |
| 24 | 53 | 855 | 613 | 4.8 | 16 | .19 | 8.8 | 51 | .29 |
| 25 | 103 | 1050 | 1020 | 4.3 | 15 | .17 | 7.3 | 14 | .29 |
| 45 | 103 | 1050 | 1020 | 4.3 | 15 | .17 | 7.3 | 14 | . 23 |
| 26 | 63 | 562 | 246 | 11 | 69 | 3.3 | 7.9 | 10 | .20 |
| 27 | 20 | 360 | 16 | 11 | 75 | 4.0 | 7.3 | 22 | 1.4 |
| 28 | 15 | 79 | 3.2 | 6.4 | 27 | .48 | 22 | 250 | 58 |
| 29 | 14 | 75 | 2.9 | 20 | 204 | 82 | 54 | 926 | 581 |
| 30 | 21 | 306 | 56 | 12 | 87 | 6.1 | 34 | 345 | 68 |
| 31 | 11 | 55 | 1.7 | | | | 142 | 2270 | 1570 |
| TOTAL | 1775.6 | | 29032.98 | 225.2 | | 110.13 | 519.3 | | 2671.42 |

RIO PUBRTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JANUARY | | 1 | BBRUARY | | | MARCH | |
| 1 | 67 | 675 | 132 | 6.1 | 10 | .16 | 6.1 | 20 | .36 |
| 2 | 34 | 154 | 17 | 6.4 | 10 | .18 | 6.0 | 20 | .34 |
| 3 | 17 | 57 | 2.7 | 6.4 | 10 | .18 | 6.0 | 20 | .33 |
| 4 | 13 | 31 | 1.1 | 5.7 | 10 | .16 | 8.1 | 20 | .34 |
| 5 | 12 | 24 | . 67 | 133 | 2160 | 6420 | 8.7 | 20 | .35 |
| 6 | 14 | 48 | 2.5 | 37 | 530 | 174 | 8.7 | 20 | .38 |
| 7 | 14 | 54 | 2.8 | 18 | 150 | 9.8 | 7.7 | 20 | .33 |
| 8 | 9.1 | 40 | .99 | 9.8 | 41 | 1.1 | 6.9 | 20 | .29 |
| 9 | 11 | 45 | 1.5 | 8.4 | 40 | .90 | 6.1 | 20 | .28 |
| 10 | 12 | 53 | 2.6 | 7.2 | 25 | .49 | 6.9 | 20 | .29 |
| 11 | 9.0 | 32 | . 84 | 18 | 165 | 34 | 6.5 | 20 | .31 |
| 12 | 21 | 248 | 105 | 11 | 74 | 2.2 | 6.1 | 20 | .30 |
| 13 | 9.4 | 37 | . 95 | 10 | 18 | .48 | 6.1 | 20 | .29 |
| 14 | 9.2 | 27 | . 66 | 9.3 | 14 | .34 | 7.3 | 20 | . 34 |
| 15 | 9.0 | 17 | .39 | 8.4 | 11 | .25 | 7.3 | 20 | .36 |
| 16 | 8.9 | 14 | . 33 | 8.0 | 10 | .22 | 6.9 | 20 | .34 |
| 17 | 9.2 | 11 | .28 | 7.6 | 10 | .20 | 6.8 | 20 | . 35 |
| 18 | 8.5 | 10 | . 23 | 93 | 823 | 979 | 8.2 | 20 | .41 |
| 19 | 8.4 | 10 | . 23 | 78 | 1280 | 444 | 7.3 | 20 | .42 |
| 20 | 7.6 | 10 | .21 | 80 | 1500 | 643 | 7.6 | 20 | .43 |
| 21 | 8.1 | 10 | .23 | 29 | 192 | 15 | 8.6 | 26 | . 59 |
| 22 | 7.8 | 9 | . 18 | 19 | 119 | 6.1 | 73 | 2240 | 1690 |
| 23 | 8.3 | 9 | .21 | 11 | 53 | 1.6 | 13 | 69 | 2.6 |
| 24 | 7.1 | 8 | . 17 | 10 | 48 | 1.3 | 8.8 | 42 | 1.1 |
| 25 | 7.6 | 8 | . 16 | 8.9 | 40 | .96 | 8.1 | 30 | . 68 |
| 26 | 7.0 | 8 | . 15 | 8.0 | 36 | .78 | 7.4 | 36 | . 69 |
| 27 | 7.0 | 8 | . 15 | 7.0 | 30 | . 56 | 6.6 | 28 | . 56 |
| 28 | 6.6 | 6 | .11 | 7.0 | 22 | .41 | 6.7 | 19 | .36 |
| 29 | 6.2 | 5 | .10 | | | | 6.3 | 17 | .30 |
| 30 | 5.4 | 5 | . 08 | | | | 5.9 | 16 | .25 |
| 31 | 8.4 | 10 | .22 | | | | 6.9 | 20 | .38 |
| TOTAL | 382.8 | | 274.74 | 661.2 | | 8737.37 | 292.6 | | 1704.35 |

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

MRAN CONCEN- SEDIMENT TRATION DISCHARGE CONCEN- SEDIMENT TRATION DISCHARGE CONCEN- SEDIMENT TRATION DISCHARGE MEAN MEAN MEAN DISCHARGE DISCHARGE DISCHARGE DAY (MG/L) (TONS/DAY) (MG/L) (TONS/DAY) (CFS) (MG/L) (TONS/DAY) (CFS) (CFS) APRTI. MAY JUNE .48 60 1.3 .33 1 2 6.1 e6.6 **e10** e.18 e5.2 **e**9 e.13 e.20 e2.6 e292 e5.0 e5.0 e6.4 24 10 6.3 e7.5 e20 e90 248 e10 **e10** e.13 42 20 e.17 e.25 3 -48 **e11** e15 e1200 5.2 e25 e150 **e10** e6.0 .28 .25 46 .75 e82 e140 5.3 20 e15 e3.3 e5.4 e22 e.34 e14 e12 4.7 20 e21 e5.4 e22 e.32 26 7.9 7.1 257 34 22 8 e14 e179 e6.0 e21 e.34 e20 36 496 **e**90 e5.4 **e19** e.27 10 .41 e16 e.23 199 25 414 158 .62 273 23 11 9.2 15 4.1 e6.4 e.18 89 e11 12 13 25 19 9.2 11 51 71 1.6 2.6 e6.0 e6.6 e.17 e.19 e11 e11 9.2 .80 14 34 . 88 e7.2 **e10** e.21 61 15 30 311 8.3 20 .44 e6.0 **e10** e. 14 61 16 12 2.3 10 20 7.8 9.2 7.4 35 19 10 .41 .26 .14 .36 180 9.0 e6.7 e42 e14 17 e10 e1810 19 e.18 18 e1800 465 19 108 e89 20 8 535 6.9 . 16 63 745 e62 e791 e505 .14 .13 .12 .16 6.7 6.4 5.7 6.6 21 80 4.0 **e2**5 e70 8 8 1.7 .39 e11 e7.4 e6.1 22 23 9.2 e2.7 46 e65 6.8 22 25 e18 e.36 e18 25 14 86 8.3 9.6 1.9 e5.1 e18 e.26 26 e18 e164 e30 e5.2 e18 e. 25 10 10 10 27 7.2 . 20 e12 e42 e1.5 e4.3 e19 e. 23 28 29 e.26 e.17 e.15 6.1 6.3 .17 e5.3 e16 e11 e4.2 e27 e26 **e.29** e5.2 e4.2 e. 31 30 e10 e. 17 e5.0 e11 e78 **e10** e6.8 31 **e**9 TOTAL 310.8 481.84 533.1 1398.36 302.2 2393.90

e Estimated

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | MBAN | | | | MRAN | | mran | | | |
|-------|--------------|---------------|---------------|--------------|------------------|--------------|--------------|-------------|--------------|--|
| | MEAN | CONCEN- | SEDIMENT | MBAN | CONCEN- | SEDIMENT | MRAN | CONCEN- | SEDIMENT | |
| | DISCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE | |
| DAY | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | |
| | (CFD) | (20, 1) | (IOND/DAI) | (020) | (22,2) | (IOND) DAI) | (025) | (,, | (1000) | |
| | JULY | | | | AUGUST | | | September | | |
| 1 | -4.4 | e21 | e.27 | 3.4 | 18 | .16 | e 6.0 | e 60 | e4.5 | |
| 2 | e3.8 | e16 | e. 18 | 5.7 | 34 | 1.2 | e4. 0 | e 9 | e. 11 | |
| 3 | e4.5 | e25 | e. 61 | 3.8 | 17 | .21 | e3.5 | e12 | e. 12 | |
| 4 | e3.8 | e10 | e. 11 | 4.5 | 20 | .38 | e3.5 | e11 | e. 10 | |
| 5 | e3.4 | e10 | €.09 | 13 | 135 | 24 | e3.5 | •6 | a .06 | |
| 6 | e 3.3 | e10 | ●.09 | 4.1 | 32 | .40 | e4 .0 | •6 | •. 07 | |
| 7 | e4.2 | e10 | e. 11 | 3.2 | 19 | .15 | -20 | e243 | e 67 | |
| 8 | e6.1 | e2 9 | e. 86 | 2.9 | 95 | .77 | e10 | e17 | 0.41 | |
| 9 | e4 .0 | e18 | e.20 | 2.7 | 10 | .08 | e 6.0 | e24 | e.40 | |
| 10 | 04.2 | e20 | e.23 | 2.6 | 9 | .07 | e3.5 | e11 | e. 11 | |
| 11 | e 6.9 | e2 0 | ●.39 | 2.5 | 7 | .05 | e3.7 | e17 | e.34 | |
| 12 | e6.2 | e2 0 | e.31 | 2.6 | 6 | .04 | e3.5 | e21 | e.26 | |
| 13 | e3.8 | e2 0 | e. 18 | 2.5 | 6 | .04 | e3.1 | e1 6 | e. 22 | |
| 14 | e4.5 | e20 | e. 23 | 2.9 | 10 | .14 | e3.1 | e14 | e.20 | |
| 15 | e 66 | e 2910 | e2630 | e3.2 | e10 | e. 09 | e3.5 | •7 | e. 08 | |
| 16 | e91 | e1100 | e814 | ●77 | e1060 | e1350 | e4. 5 | e17 | e.28 | |
| 17 | e13 | •94 | e3.3 | e61 | • 770 | e 676 | 15 | 139 | 21 | |
| 18 | e6.4 | e78 | e1.3 | 15 | 84 | 4.5 | 3.9 | 20 | . 34 | |
| 19 | 4.6 | 65 | . 72 | 4.9 | 21 | .30 | 3.2 | 10 | . 19 | |
| 20 | 3.8 | 51 | .38 | 33 | 500 | 215 | 3.2 | 13 | .17 | |
| 21 | 3.0 | 42 | . 34 | 145 | 3920 | 6650 | 3.5 | 12 | .16 | |
| 22 | 3.4 | 26 | . 22 | e 39 | e 357 | e57 | 8.4 | 61 | 6.8 | |
| 23 | 3.4 | 21 | . 19 | e14 | e75 | e3.2 | 3.2 | 7 | . 07 | |
| 24 | 3.8 | 15 | . 18 | e6.1 | e22 | e.42 | 3.2 | 6 | .06 | |
| 25 | e3.4 | e13 | •.11 | e4 .3 | •6 | €.07 | 2.8 | 6 | .04 | |
| 26 | e4.0 | e10 | e.11 | e3.6 | e11 | e.11 | 3.0 | 5 | . 04 | |
| 27 | e4. 3 | e10 | e. 12 | e 99 | e1850 | e1270 | 23 | 360 | 200 | |
| 28 | e119 | e2 010 | e383 0 | e 30 | e4 01 | e 60 | 7.3 | 19 | .38 | |
| 29 | e15 | e8 0 | e4. 9 | e9.0 | e57 | e1.5 | 26 | 228 | 48 | |
| 30 | -8.4 | e4 8 | e3.2 | e5.0 | e31 | 0.44 | 16 | 117 | 13 | |
| 31 | 4.6 | 18 | . 23 | ●7.0 | e39 | e1.9 | | | | |
| TOTAL | 420.2 | | 7293.16 | 612.5 | | 10318.22 | 207.1 | | 364.51 | |
| YRAR | 6242.6 | | 64780.98 | | | | | | | |

e Estimated

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SEDI - MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FAIL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------------|---|---|---|--|--|--|--|
| OCT 1990 | | | | | | | |
| 09 | 1725 | 769 | 8790 | 18200 | 8 | 18 | 30 |
| 17 | 1440 | 949 | 30200 | 77400 | 19 | 27 | 38 |
| 18 | 1920 | 162 | 2300 | 1100 | | | |
| 21 | 0030 | 607 | 17200 | 28200 | 11 | 17 | 23 |
| FEB 1991 | | | | | | | |
| 18 | 2035 | 187 | 12400 | 6260 | 27 | 35 | 41 |
| MAR | | | | | | | |
| 22 | 0820 | 524 | 28200 | 40500 | 27 | 37 | 50 |
| JUN | | | | | | | |
| 18 | 1455 | 402 | 79400 | 86200 | 20 | 28 | 42 |
| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINET THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINE THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINAN THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 | | | | | | | |
| 09 | 42 | 56 | 70 | 80 | 90 | 97 | 100 |
| 17 | 47 | 55 | 65 | 73 | 86 | 98 | 100 |
| 18 | | | 86 | 91 | 98 | 100 | 100 |
| 21 FRB 1991 | 31 | 38 | 51 | 64 | 84 | 98 | 100 |
| ちマロ サンスナ | | 30 | | | | | |
| 18 | 59 | 71 | 86 | 92 | 97 | 99 | 100 |
| | | | | 92 94 | 97 98 | 99 100 | 100 100 |

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIMB | STREAM- FLOW, INSTAN- TAMEOUS (CFS) | SEDI - MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|--|---|
| OCT 1990 | | | | | |
| 04 | 1735 | 226 | 13500 | 8240 | 88 |
| 09 | 1655 | 574 | 25400 | 39400 | 57 |
| 10 | 1245 | 425 | 16490 | 18900 | 45 |
| 10 | 1350 | 1050 | 16800 | 47630 | 29 |
| 17 | 1450 | 1600 | 42200 | 182300 | 50 |
| 17 | 1800 | 286 | 17100 | 13200 | 98 |
| 18 | 1450 | 320 | 2440 | 2110 | 67 |
| 18 | 1720 | 405 | 1020 | 1120 | 86 |
| 20 | 2105 | 152 | 14400 | 5910 | 98 |
| 21 | 0315 | 221 | 1140 | 680 | 66 |
| 24 | 2240 | 246 | 1800 | 1200 | 83 |
| 24 | 2310 | 213 | 1300 | 750 | .83 |
| 24 | 2325 | 195 | 1000 | 530 | 93 |
| FRB 1991 | | | | | |
| 21 | 1229 | 7.2 | 300 | 5.8 | 99 |
| MAR | | | | | |
| 14 | 1253 | 8 | 30 | 0.65 | 87 |
| 22 | 0742 | 187 | 2660 | 1340 | 58 |
| 22 | 0910 | 212 | 8000 | 4580 | 95 |
| 22 | 1145 | 125 | 5600 | 1890 | 96 |
| JUN | | | | | |
| 18 | 1545 | 212 | 8300 | 4750 | 88 |
| JOL | | | | | |
| 15 | 1725 | 277 | 8460 | 6330 | 81 |
| 15 | 2025 | 6480 | 6480 | 113000 | 87 |
| AUG | | | | | |
| 16 | 1245 | 184 | 7500 | 3730 | 81 |
| 21 | 1355 | 198 | 7240 | 3870 | 67 |
| 21 | 1725 | 438 | 8210 | 9710 | 52 |
| | | | | | |

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°22'15", long 66°03'40", at bridge on Winston Churchill Avenue in the El Señorial Housing area, 0.5 mi (0.8 km) west of Highway 176, and 2.5 mi (4.0 km) southwest of Río Piedras plaza.

DRAINAGE AREA. -- 8.17 mi2 (20.9 km2).

PERIOD OF RECORD. -- Water years 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | WATE | R QUALITY | DATA, W | TER YEAR | OCTOBE | R 1990 TO | SEPTEMBE | R 1991 | | |
|-----------------------|---|---|---|--|--|-----------------------------------|--|--|--|--|--|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR BID ITY (NTU | - DIS | S- CRI | B- DEMA /BD CHE R- ICA VT (HI JR- LEVE | ND, FORM M- FEC. L 0.4 GH UM-1 L) (COL | M, STREP- AL, TOCOCCI 5 FECAL, MF (COLS. S./ PER |
| OCT 1990 | | | | | | | | | | | |
| 30 | 1025 | 12 | 432 | 7.6 | 27.0 | 7. | 5 4. | . 2 | 52 | 61 K1000 | 000 240000 |
| DEC 11 FEB 1991 | 1305 | 7.7 | 451 | 7.5 | 27.5 | з. | 2 3. | . 8 | 25 | 48 K960 | 000 260000 |
| 15 APR | 0830 | 7.8 | 505 | 7.8 | 23.5 | 5. | 2 5. | .2 | 61 | 67 K40 | 000 K70000 |
| 17 JUN | 1035 | 4.1 | 427 | 7.7 | 26.5 | 4. | 0 6 | . 9 | 85 | 26 250 | 000 59000 |
| 21 | 0905 | 6.5 | 360 | 7.9 | 24.5 | 86 | 7. | . 5 | 90 | 26 320 | 000 35000 |
| 02 | 1230 | 4.3 | 423 | 8.1 | 29.0 | 5. | 4 7. | . 8 | 99 | 12 6 | 700 6000 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODI AD SORP TIO RATI | - Sit - Dia N Solv | M, WAT V S- TOT I MD FIEL L MG/L | TY VH PET SULF LD TOT. AS (MG | AL SOLV | - DIS- Ved Solved /L (MG/L |
| OCT 1990 30 | 140 | 0 | 35 | 12 | 27 | 1 | 3. | .5 1 | L50 < | 0.5 25 | 29 |
| DEC 11 | | | | | | | | . 1 | .60 - | | |
| FEB 1991 15 | | | | | | | | . 1 | .70 - | | |
| APR 17 | 140 | o | 38 | 12 | 28 | 1 | 3. | | | 0.5 15 | 33 |
| JUN 21 | | | | | | | | _ | 120 - | | |
| AUG | | | | | | | | | .20 - | | |
| 02 | 150 | 1 | 40 | 13 | 27 | 0 | .9 2. | .9 1 | L50 - | - 18 | 33 |
| | RI D SO NATE (M AS | DE, DI DIS- SO DLVED (M NG/L A | ICA, SUM S- CON LVED TUE IG/L D S SO | STI- I NTS, SC IS- (1 LVRD I | LIDS, TOTOLOGY OF COMMENT OF COMM | 105 | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, MITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
| OCT 1 30. | | 0.40 3 | 1 | 253 | 8.47 | 22 | 0.550 | 0.050 | 0.600 | 1.80 | 2.1 |
| DEC 11. | | | | | | 10 | 0.320 | 0.080 | 0.400 | 2.60 | 2.1 |
| FRB 1 | | | | | | 13 | 0.450 | 0.050 | 0.500 | 7.70 | 1.7 |
| APR 17. | | 0.10 3 | 0 | 252 | 2.82 | 1 | 0.590 | 0.140 | 0.730 | 2.50 | 1.3 |
| JUN 21. AUG | • • | | | | | 95 | 0.820 | 0.060 | 0.880 | 0.420 | 0.48 |
| AUG 02. | •• | 0.20 3 | 1 | 255 | 2.95 | 1 | 0.510 | 0.040 | 0.550 | 0.190 | 0.31 |
| K = n | on-ideal c | ount | | | | | | | | | |

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR--Continued WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------------|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 30 | 3.9 | 4 5 | 20 | 0 040 | • | 200 | 40 | <1 | 1 | 20 |
| DEC | | 4.5 | | 0.940 | 1 | 200 | | | | |
| 11 FEB 1991 | 4.7 | 5.1 | 23 | 1.40 | | | | | | |
| 15 APR | 9.4 | 9.9 | 44 | 1.10 | | | | | | |
| 17 Jun | 3.8 | 4.5 | 20 | 0.450 | 2 | 100 | 20 | <1 | <1 | 10 |
| 21 | 0.90 | 1.8 | 7.9 | 0.190 | | | | | | |
| 02 | 0.50 | 1.0 | 4.6 | 0.160 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERAHLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- MESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- BRABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 30 | 370 | 1 | 200 | 0.30 | <1 | <1 | 10 | <0.010 | 9 | 1.1 |
| DEC 11 | | | | | | | | | | |
| FRB 1991 15 | | | | | | | | | | |
| APR 17 | 470 | 1 | 240 | <0.10 | ∢1 | <1 | <10 | <0.010 | 3 | 0.25 |
| JUN 21 | | | | | | | | | | |
| AUG 02 | | | | | | | | | | |
| 02 | | | | | | | | | | |
| | | | | Prstici | DE ANALYS | ES | | | | |
| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
| JUN 1991 21 | 0905 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | 0.05 | <0.010 | <0.010 |
| | ENDRIN, | ETHION, | HEPTA- CHLOR, | HEPTA- CHLOR EPOXIDE | LINDANB | MALA- THION, | METH- OXY- CHLOR, | METHYL PARA- THION, | METHYL TRI- THION, | mirex, |
| DATE | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) |
| JUN 1991 | | | | | | | | | | .0.04 |
| 21 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| | PAR THI | LEN A- POL | ia- ies, iy- pe | | X- TOI | | -n 24 | 5-T 2, 4 | -DP SILV | 79 Y |
| DAT | | AL TOT | | 'AL TOT | 'AL THI | ON TOT | AL TOI | | AL TO | |
| JUN 199 21 | | .01 <0 | .10 < | 0.1 | :1 <0 | .01 <0 | .01 <0 | .01 <0 | .01 <0 | .01 |

50049000 RIO PIRDRAS AT RIO PIRDRAS. PR

LOCATION.--Lat 18°23'48", long 66°03'24", Hydrologic Unit 21010005, on left bank, at bridge on Highway 1, 0.3 mi (0.5 km) southwest of the plaza in Río Piedras, and 0.4 mi (0.6 km) downstream from diversion for water supply.

DRAINAGE AREA. -- 12.5 mi2 (32.4 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. --October 1958 (maximum discharge measurement only), 1959-64 (annual low-flow measurements only), July 1971 to September 1982, October 1987 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 50 ft (15 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Low flow affected by diversions for water supply. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--15 years (1972-82,1988-91), 29.3 ft 3 /s (0.830 m 3 /s), 31.83 in/yr (808 mm/yr), 21,230 acre-ft/yr (26.2 hm 3 /yr); median of yearly mean discharges, 27 ft 3 /s (0.76 m 3 /s), 19,600 acre-ft/yr (24 hm 3 /yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 10,000 ft³/s (283 m³/s), Dec. 11, 1975, gage height, 21.02 ft (6.407 m), from rating curve extended above 3,000 ft³/s (85.0 m³/s) on basis of slope-area measurements; minimum daily discharge, 0.26 ft³/s (0.007 m³/s), May 19, 1977.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 2,800 ft3/s (79.3 m3/s) and maximum (*):

| | | | harge | Gage | height | | | Disch | | | height |
|---------|---------|---------|--------|--------|--------|---------|------|---------|--------|-------|--------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 17 | unknown | *5,090 | 144 | *11.99 | 3.654 | Feb. 18 | 2145 | 4,570 | 129 | 11.34 | 3.456 |
| | | _ | _ | | | | | | | | |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum discharge, 4.7 ft3/s (0.133 m3/s), Aug. 14, 15, Sept. 23, 24.

| DAILY MEAN VALUES | | | | | | | | | | | | |
|-------------------|------|------|------|------|------|-------|-------|-------|-------|-------|--------|-------|
| DAY | oct | NOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 25 | 17 | 81 | 78 | 14 | 14 | 9.0 | 10 | 8.2 | 7.5 | 9.4 | 15 |
| 2 | 11 | 16 | 50 | 30 | 14 | 12 | 27 | 10 | 7.9 | 6.6 | 11 | 8.9 |
| 2 3 | 134 | 17 | 118 | 22 | 17 | 11 | 8.4 | 12 | 7.8 | 18 | 9.9 | 7.1 |
| 4 | 70 | 15 | 27 | 35 | 12 | 11 | 8.1 | 167 | 8.4 | 8.1 | 28 | 6.6 |
| 5 | 31 | 21 | 16 | 29 | 179 | 12 | 13 | 46 | 10 | 7.3 | 17 | 6.6 |
| 6 | 32 | 14 | 14 | 21 | 31 | 13 | 9.6 | 18 | 9.4 | 7.2 | 9.5 | 6.5 |
| 7 | 103 | 16 | 14 | 25 | 17 | 12 | 9.7 | 24 | 8.0 | 7.6 | 9.9 | 53 |
| 8 | 35 | 15 | 13 | 15 | 12 | 12 | 61 | 16 | 8.0 | 11 | 6.6 | 24 |
| 9 | 151 | 15 | 13 | 23 | 12 | 12 | 12 | 18 | 7.9 | 7.2 | 6.4 | 6.6 |
| 10 | 252 | 14 | 13 | 27 | 15 | 12 | 14 | 29 | 8.2 | 6.4 | 6.0 | 10 |
| 11 | 164 | 13 | 22 | 19 | 25 | 13 | 15 | 12 | 8.4 | 6.5 | 5.8 | 7.1 |
| 12 | 26 | 13 | 17 | 33 | 15 | 12 | 50 | 17 | 9.3 | 6.7 | 6.9 | 7.8 |
| 13 | 18 | 12 | 15 | 13 | 13 | 12 | 39 | 9.6 | 7.9 | 7.0 | 5.3 | 7.6 |
| 14 | 17 | 13 | 16 | 12 | 11 | 11 | 15 | 8.7 | 9.4 | 7.7 | 5.8 | 6.8 |
| 15 | 15 | 14 | 15 | 13 | 11 | 12 | 108 | 8.9 | 7.9 | 115 | 7.8 | 6.1 |
| 16 | 25 | 14 | 25 | 13 | 11 | 12 | 32 | 10 | 7.8 | 149 | 138 | 9.8 |
| 17 | e791 | 15 | 14 | 12 | 11 | 12 | 16 | 9.4 | 8.6 | 15 | 271 | 15 |
| 18 | e297 | 13 | 15 | 11 | 403 | 20 | 17 | 38 | 30 | 11 | 12 | 8.5 |
| 19 | 73 | 13 | 13 | 11 | 149 | 11 | 14 | 14 | 26 | 11 | 7.9 | 7.9 |
| 20 | 47 | 20 | 13 | 11 | 170 | 9.8 | 14 | 90 | 68 | 12 | 96 | 26 |
| 21 | 335 | 20 | 13 | 11 | 34 | 11 | 13 | 16 | 62 | 11 | 134 | 6.8 |
| 22 | 39 | 15 | 14 | 10 | 22 | 145 | 12 | 14 | 15 | 13 | 32 | 21 |
| 23 | 24 | 12 | 21 | 11 | 12 | 12 | 12 | 11 | 11 | 13 | 14 | 5.7 |
| 24 | 83 | 12 | 19 | 11 | 11 | 10 | 11 | 10 | 9.1 | 17 | 8.7 | 5.2 |
| 25 | 146 | 12 | 11 | 11 | 11 | 22 | 36 | 15 | 7.7 | 15 | 8.9 | 12 |
| 26 | 94 | 41 | 11 | 11 | 10 | 16 | 12 | 17 | 7.5 | 15 | 7.7 | 6.5 |
| 27 | 26 | 34 | 15 | 11 | 10 | 10 | 11 | 11 | 10 | 17 | 157 | 36 |
| 28 | 20 | 18 | 82 | 12 | 10 | 9.8 | 10 | 8.8 | 7.1 | 185 | 28 | 11 |
| 29 | 19 | 53 | 151 | 12 | | 9.7 | 10 | 8.6 | 7.2 | 28 | 12 | 29 |
| 30 | 23 | 48 | 55 | 12 | | 9.3 | 10 | 8.8 | 14 | 21 | 8.9 | 29 |
| 31 | 17 | | 167 | 27 | | 9.1 | | 8.1 | | 12 | 9.7 | |
| TOTAL | 3143 | 565 | 1083 | 592 | 1262 | 509.7 | 628.8 | 695.9 | 417.7 | 774.8 | 1091.1 | 409.1 |
| MEAN | 101 | 18.8 | 34.9 | 19.1 | 45.1 | 16.4 | 21.0 | 22.4 | 13.9 | 25.0 | 35.2 | 13.6 |
| MAX | 791 | 53 | 167 | 78 | 403 | 145 | 108 | 167 | 68 | 185 | 271 | 53 |
| MIN | 11 | 12 | 11 | 10 | 10 | 9.1 | 8.1 | 8.1 | 7.1 | 6.4 | 5.3 | 5.2 |
| AC-FT | 6230 | 1120 | 2150 | 1170 | 2500 | 1010 | 1250 | 1380 | 829 | 1540 | 2160 | 811 |
| CPSM | 8.11 | 1.51 | 2.79 | 1.53 | 3.61 | 1.32 | 1.68 | 1.80 | 1.11 | 2.00 | 2.82 | 1.09 |
| IN. | 9.35 | 1.68 | 3.22 | 1.76 | 3.76 | 1.52 | 1.87 | 2.07 | 1.24 | 2.31 | 3.25 | 1.22 |

CAL YR 1990 TOTAL 10960.8 MEAN 30.0 MAX 791 MIN 6.6 AC-FT 21740 CFSM 2.40 IN. 32.62 WTR YR 1991 TOTAL 11172.1 MEAN 30.6 MAX 791 MIN 5.2 AC-FT 22160 CFSM 2.45 IN. 33.25

e Estimated

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- OCTOBER 1989 TO CURRENT YEAR

| DATE | | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (DEG C) |
|------|----|------|---------------------------------------|--------------------------------------|-----------------------------|--------|--------|---------------------------------------|--------------------------------------|-----------------------------|
| OCT. | 05 | 0916 | 33 | 336 | 26.5 | JAN. 2 | 4 1406 | 16.1 | 400 | 28.0 |
| NOV. | 16 | 1416 | 12 | 453 | 27.0 | PEB. 1 | 4 0953 | 17.7 | 446 | 27.5 |
| DEC. | 26 | 1149 | 14 | 458 | 25.5 | | | | | |

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS .-- Water years 1988 to current year.

INSTRUMENTATION. -- USD-77 and automatic sediment sampler.

PERIOD OF DAILY RECORD. --

SUSPENDED-SEDIMENT DISCHARGE: October 1988 to September 1991.

EXTREMES FOR PERIOD OF DAILY RECORD. --

SEDIMENT CONCENTRATION: Maximum daily mean, 13,000 mg/L Sep. 18, 1989; Minimum daily mean, 4 mg/L June 4, 1990.

SEDIMENT LOADS: Maximum daily mean, 165,000 tons (150,200 tonnes) Sep. 18, 1989; Minimum daily mean, 0.09 ton (0.08 tonne) Sep. 24, 1991.

EXTREMES FOR WATER YEARS 1991. --

SEDIMENT CONCENTRATION: Maximum daily mean, 2,400 mg/L Aug. 21, 1991; Minimum daily mean, 6 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 7,730 tons (7,010 tonnes) Oct.17, 1990; Minimum daily mean, 0.09 ton (0.08 tonne) Sep. 24, 1991.

| | | MEAN | | | MRAN | | | MRAN | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CF8) | CONCEN- TRATION (MG/L) | Sediment Discharge (Tons/Day) | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | OCTOBER | | 1 | NOVEMBER | | 1 | DECEMBER | |
| 1 | 25 | 77 | 19 | 17 | 31 | 1.4 | 81 | 426 | 263 |
| 2 | 11 | 32 | . 97 | 16 | 30 | 1.3 | 50 | 204 | 74 |
| 3 | 134 | 1670 | 1520 | 17 | 30 | 1.4 | 118 | 773 | 935 |
| 4 | 70 | 343 | 136 | 15 | 30 | 1.2 | 27 | 95 | 7.8 |
| 5 | 31 | 106 | 11 | 21 | 57 | 5.7 | 16 | 29 | 1.3 |
| 6 | 32 | 105 | 20 | 14 | 19 | .73 | 14 | 27 | 1.0 |
| 7 | 103 | 521 | 262 | 16 | 12 | .50 | 14 | 25 | . 94 |
| 8 | 35 | 105 | 12 | 15 | 12 | .47 | 13 | 22 | .76 |
| 9 | 151 | 1330 | 2960 | 15 | 12 | .49 | 13 | 22 | .77 |
| 10 | 252 | 1430 | 3360 | 14 | 12 | .46 | 13 | 22 | .78 |
| 11 | 164 | 520 | 508 | 13 | 12 | .41 | 22 | 66 | 13 |
| 12 | 26 | 67 | 5.6 | 13 | 12 | .39 | 17 | 45 | 2.4 |
| 13 | 18 | 36 | 1.7 | 12 | 11 | .36 | 15 | 28 | 1.1 |
| 14 | 17 | 34 | 1.5 | 13 | 11 | .39 | 16 | 25 | 1.1 |
| 15 | 15 | 30 | 1.2 | 14 | 11 | .40 | 15 | 25 | 1.1 |
| 16 | 25 | 76 | 16 | 14 | 11 | .40 | 25 | 66 | 8.7 |
| 17 | e 791 | e1170 | e7730 | 15 | 11 | .46 | 14 | 25 | . 89 |
| 18 | e297 | e854 | e1300 | 13 | 11 | .38 | 15 | 22 | .90 |
| 19 | 73 | 428 | 131 | 13 | 11 | 38 | 13 | 21 | . 72 |
| 20 | 47 | 144 | 130 | 20 | 45 | 5.1 | 13 | 21 | .71 |
| 21 | 335 | 2260 | 4010 | 20 | 49 | 5.3 | 13 | 21 | .71 |
| 22 | 39 | 98 | 12 | 15 | 30 | 1.3 | 14 | 21 | .80 |
| 23 | 24 | 53 | 3.5 | 12 | 22 | .72 | 21 | 59 | 5.4 |
| 24 | 83 | 549 | 763 | 12 | 21 | . 67 | 19 | 54 | 5.9 |
| 25 | 146 | 9 96 | 1270 | 12 | 21 | .66 | 11 | 18 | . 57 |
| 26 | 94 | 530 | 421 | 41 | 163 | 43 | 11 | 18 | .56 |
| 27 | 26 | 41 | 3.1 | 34 | 118 | 23 | 15 | 33 | 1.7 |
| 28 | 20 | 18 | . 98 | 18 | 46 | 2.9 | 82 | 386 | 169 |
| 29 | 19 | 15 | .77 | 53 | 247 | 146 | 151 | 874 | 957 |
| 30 | 23 | 56 | 6.5 | 48 | 207 | 78 | 55 | 206 | 49 |
| 31 | 17 | 33 | 1.6 | | | | 167 | 1050 | 778 |
| TOTAL | 3143 | | 24618.42 | 565 | | 323.87 | 1083 | | 3284.61 |

e Estimated

RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|----------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JANUARY | | 1 | FEBRUARY | | | MARCH | |
| 1 | 78 | 352 | 126 | 14 | 21 | .81 | 14 | 21 | 1.4 |
| 2 | 30 | 59 | 5.1 | 14 | 13 | .48 | 12 | 673 | 25 |
| 3 4 | 22 | 54 | 4.6 | 17 | 12 | .56 | 11 | 20 | .58 |
| 5 | 35 29 | 132 74 | 32 9.1 | 12 | 11 | .35 | 11 | 19 17 | . 54 |
| • | 29 | 74 | 9.1 | 179 | 291 | 702 | 12 | 17 | . 55 |
| 6 | 21 | 58 | 3.5 | 31 | 101 | 15 | 13 | 15 | .51 |
| 7 | 25 | 74 | 6.5 | 17 | 41 | 2.2 | 12 | 13 | .44 |
| 8 | 15 | 29 | 1.1 | 12 | 21 | .66 | 12 | 12 | . 39 |
| 9 | 23 | 47 | 3.4 | 12 | 20 | . 67 | 12 | 12 | .39 |
| 10 | 27 | 89 | 12 | 15 | 39 | 2.8 | 12 | 11 | . 35 |
| 11 | 19 | 43 | 5.0 | 25 | 71 | 11 | 13 | 10 | .34 |
| 12 | 33 | 147 | 32 | 15 | 39 | 1.8 | 12 | 10 | . 32 |
| 13 | 13 | 28 | 1.0 | 13 | 28 | .98 | 12 | 10 | . 32 |
| 14 | 12 | 22 | .73 | 11 | 21 | .62 | 11 | 9 | .27 |
| 15 | 13 | 27 | 1.1 | 11 | 20 | .60 | 12 | 10 | .31 |
| 16 | 13 | 20 | .72 | 11 | 20 | .61 | 12 | 10 | .33 |
| 17 | 12 | 20 | . 63 | 11 | 21 | .65 | 12 | 10 | . 32 |
| 18 | 11 | 20 | . 56 | 403 | 205 | 785 | 20 | 52 | 5.5 |
| 19 | 11 | 20 | .61 | 149 | 678 | 557 | 11 | 22 | .70 |
| 20 | 11 | 20 | . 59 | 170 | 1250 | 1950 | 9.8 | 19 | . 55 |
| 21 | 11 | 20 | .60 | 34 | 102 | 12 | 11 | 18 | . 53 |
| 22 | 10 | 20 | . 53 | 22 | 91 | 6.8 | 145 | 1050 | 1660 |
| 23 | 11 | 18 | . 50 | 12 | 22 | .71 | 12 | 29 | . 96 |
| 24 | 11 | 13 | .37 | 11 | 21 | . 62 | 10 | 16 | .40 |
| 25 | 11 | 10 | .29 | 11 | 19 | .57 | 22 | 78 | 22 |
| 26 | 11 | 10 | .28 | 10 | 16 | .42 | 16 | 42 | 7.2 |
| 27 | 11 | 10 | .30 | 10 | 12 | .33 | 10 | 28 | . 80 |
| 28 | 12 | 10 | .31 | 10 | 10 | .26 | 9.8 | 14 | . 39 |
| 29 30 | 12 | 10 | . 33 | | | | 9.7 | 14 | . 37 |
| 30 31 | 12 27 | 10 68 | .32 8.3 | | | | 9.3 | 14 13 | .36 .32 |
| 31 | 27 | 68 | 0.3 | | | | 9.1 | 13 | . 32 |
| TOTAL | 592 | | 258.37 | 1262 | | 4055.50 | 509.7 | | 1732.44 |

RIO PUERTO NUEVO BASIN
50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

| DAY | MEAN DISCHARGE (CFS) | MBAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | mean Di s charge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 9.0 | 13 | .32 | 10 | 16 | .44 | 8.2 | 11 | .24 |
| 2 | 27 | 97 | 29 | 10 | 19 | .51 | 7.9 | 11 | .22 |
| 3 | 8.4 | 14 | . 33 | 12 | 22 | .73 | 7.8 | 10 | .20 |
| 4 | 8.1 | 25 | . 55 | 167 | 1070 | 3030 | 8.4 | 10 | . 22 |
| 5 | 13 | 31 | 2.3 | 46 | 269 | 103 | 10 | 11 | .26 |
| 6 | 9.6 | 11 | . 29 | 18 | 108 | 6.1 | 9.4 | 9 | . 23 |
| 7 | 9.7 | 13 | .33 | 24 | 80 | 18 | 8.0 | 8 | .16 |
| 8 | 61 | 294 | 138 | 16 | 23 | .97 | 8.0 | 9 | . 19 |
| 9 | 12 | 22 | .71 | 18 | 51 | 4.4 | 7.9 | 10 | .21 |
| 10 | 14 | 31 | 2.1 | 29 | 106 | 31 | 8.2 | 10 | .21 |
| 11 | 15 | 33 | 1.7 | 12 | 26 | .92 | 8.4 | 16 | .35 |
| 12 | 50 | 295 | 356 | 17 | 51 | 7.9 | 9.3 | 10 | . 24 |
| 13 | 39 | 173 | 98 | 9.6 | 15 | .39 | 7.9 | 11 | . 24 |
| 14 | 15 | 44 | 1.9 | 8.7 | 14 | .32 | 9.4 | 12 | .29 |
| 15 | 108 | 770 | 1270 | 8.9 | 12 | .30 | 7.9 | 12 | .26 |
| 16 | 32 | 116 | 19 | 10 | 13 | .34 | 7.8 | 12 | .24 |
| 17 | 16 | 30 | 1.3 | 9.4 | 18 | .73 | 8.6 | 12 | .27 |
| 18 | 17 | 28 | 1.3 | 38 | 153 | 48 | 30 | 113 | 57 |
| 19 ` | 14 | 27 | 1.0 | 14 | 32 | 1.4 | 26 | 137 | 31 |
| 20 | 14 | 25 | . 96 | 90 | 586 | 602 | 68 | 511 | 405 |
| 21 | 13 | 22 | .76 | 16 | 120 | 6.1 | 62 | 283 | 170 |
| 22 | 12 | 21 | . 66 | 14 | 30 | 1.2 | 15 | 31 | 1.6 |
| 23 | 12 | 20 | . 66 | 11 | 18 | .55 | 11 | 15 | .44 |
| 24 | 11 | 16 | . 46 | 10 | 16 | .44 | 9.1 | 13 | .32 |
| 25 | 36 | 142 | 54 | 15 | 33 | 1.7 | 7.7 | 10 | .21 |
| 26 | 12 | 23 | .74 | 17 | 41 | 4.1 | 7.5 | 10 | .20 |
| 27 | 11 | 16 | .45 | 11 | 19 | .54 | 10 | 19 | .76 |
| 28 | 10 | 445 | 11 | 8.8 | 14 | .31 | 7.1 | 12 | .24 |
| 29 | 10 | 445 | 11 | 8.6 | 12 | .27 | 7.2 | . 9 | .18 |
| 30 | 10 | 16 | . 43 | 8.8 | 11 | .26 | 14 | 30 | 1.9 |
| 31 | | | | 8.1 | 11 | .24 | | | |
| TOTAL | 628.8 | | 2005.25 | 695.9 | | 3873.16 | 417.7 | | 672.88 |

RIO PUERTO NUEVO BASIN
50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | mean Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JULY | | | AUGUST | | 81 | eptember | |
| 1 | 7.5 | 13 | .27 | 9.4 | 15 | .38 | 15 | 13 | .28 |
| 2 | 6.6 | 10 | . 17 | 11 | 23 | 1.0 | 8.9 | 12 | .30 |
| 3 | 18 | 54 | 11 | 9.9 | 19 | .54 | 7.1 | 10 | . 19 |
| 4 | 8.1 | 14 | . 33 | 28 | 106 | 38 | 6.6 | 9 | . 15 |
| 5 | 7.3 | 10 | . 19 | 17 | 51 | 5.0 | 6.6 | 10 | . 17 |
| 6 | 7.2 | 10 | . 19 | 9.5 | 44 | 1.2 | 6.5 | 12 | .22 |
| 7 | 7.6 | 10 | . 19 | 9.9 | 21 | .68 | 53 | 246 | 229 |
| 8 | 11 | 21 | 1.2 | 6.6 | 8 | .15 | 24 | 82 | 21 |
| 9 | 7.2 | 11 | . 22 | 6.4 | 7 | .13 | 6.6 | 10 | . 18 |
| 10 | 6.4 | 8 | . 15 | 6.0 | 7 | .12 | 10 | 21 | 1.5 |
| 11 | 6.5 | 9 | . 16 | 5.8 | 6 | .10 | 7.1 | 9 | . 18 |
| 12 | 6.7 | 9 | . 16 | 6.9 | 6 | .12 | 7.8 | 11 | .23 |
| 13 | 7.0 | 10 | .20 | 5.3 | 6 | .08 | 7.6 | 9 | . 19 |
| 14 | 7.7 | 11 | .28 | 5.8 | 8 | .19 | 6.8 | 7 | . 13 |
| 15 | 115 | 1350 | 2230 | 7.8 | 15 | .53 | 6.1 | 7 | .12 |
| 16 | 149 | 703 | 1060 | 138 | 517 | 1270 | 9.8 | 25 | 1.1 |
| 17 | 15 | 23 | 1.0 | 271 | 516 | 1940 | 15 | 38 | 3.5 |
| 18 | 11 | 16 | . 47 | 12 | 23 | .88 | 8.5 | 11 | . 25 |
| 19 | 11 | 15 | . 46 | 7.9 | 12 | .24 | 7.9 | 10 | .21 |
| 20 | 12 | 15 | .50 | 96 | 722 | 1130 | 26 | 114 | 58 |
| 21 | 11 | 14 | .40 | 134 | 2470 | 4600 | 6.8 | 10 | .17 |
| 22 | 13 | 12 | . 41 | 32 | 93 | 12 | 21 | 72 | 20 |
| 23 | 13 | 14 | .48 | 14 | 29 | 1.3 | 5.7 | 7 | .11 |
| 24 | 17 | 15 | . 67 | 8.7 | 11 | .27 | 5.2 | 7 | . 09 |
| 25 | 15 | 15 | . 59 | 8.9 | 12 | .29 | 12 | 21 | 1.0 |
| 26 | 15 | 16 | . 63 | 7.7 | 11 | .23 | 6.5 | 10 | . 18 |
| 27 | 17 | 23 | 1.0 | 157 | 1150 | 1760 | 36 | 193 | 129 |
| 28 | 185 | 1810 | 5430 | 28 | 84 | 9.4 | 11 | 18 | . 55 |
| 29 | 28 | 72 | 7.1 | 12 | 21 | . 67 | 29 | 90 | 16 |
| 30 | 21 | 44 | 3.9 | 8.9 | 14 | .35 | 29 | 85 | 11 |
| 31 | 12 | 17 | .51 | 9.7 | 19 | .60 | | | |
| TOTAL | 774.8 | | 8752.83 | 1091.1 | | 10774.45 | 409.1 | | 495.00 |
| YEAR | 11172.1 | | 60846.78 | | | | | | |

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|--|--|---|--|--|
| OCT 1990 | | | | | | | |
| 03 | 0530 | 538 | 6580 | 9560 | 25 | 36 | 50 |
| 09 | 1825 | 1040 | 10100 | 28400 | 23 | 32 | 45 |
| 11 | 1500 | 1490 | 5010 | 20200 | 22 | 34 | 45 |
| 17 | 1500 | 1880 | 17600 | 89300 | | | |
| 21 | 0010 | 1100 | 7000 | 20800 | 26 | 35 | 46 |
| FEB 1991 | | | | | | | |
| 05 | 1650 | 1706 | 2216 | 10200 | | | |
| 18 | 2030 | 1600 | 475 | 2050 | 39 | 58 | 62 |
| MAR | | | | | | | |
| 22 | 0935 | 628 | 11350 | 19200 | | | |
| MAY | | | | | | | |
| 04 | 1340 | 1107 | 9840 | 29400 | 23 | 36 | 51 |
| JUN | | | | | | | |
| 20 | 1340 | 482 | 3550 | 4620 | 21 | 35 | 46 |
| JOL | | | | | | | |
| 15 | 1850 | 962 | 12200 | 31700 | 27 | 39 | 52 |
| MUG | | | | | | | |
| 21 | 1535 | 443 | 22600 | 27000 | 25 | 37 | 51 |
| | | | | | | | |

| | SED. | SRD. | SED. | SRD. | SED. | SRD. | SED. |
|----------|---------|---------|---------|---------|---------|---------|---------|
| | SUSP. |
| | FALL | FALL | SIEVE | SIEVE | SIEVE | SIEVE | SIEVE |
| | DIAM. |
| | PERCENT |
| | Finer |
| DATE | THAN |
| | .016 MM | .031 MM | .062 MM | .125 MM | .250 MM | .500 MM | 1.00 MM |
| OCT 1990 | | | | | | | |
| 03 | 62 | 74 | 94 | 99 | 100 | 100 | 100 |
| 09 | 59 | 70 | 88 | 96 | 99 | 100 | 100 |
| 11 | 57 | 69 | 86 | 94 | 99 | 100 | 100 |
| 17 | | | 84 | 94 | 98 | 100 | 100 |
| 21 | 57 | 66 | 88 | 94 | 99 | 100 | 100 |
| FRB 1991 | | | | | | | |
| 05 | | | 99 | 100 | 100 | 100 | 100 |
| 18 | 68 | 69 | 96 | 97 | 98 | 99 | 99 |
| MAR | | | | | | | |
| 22 | | | 82 | 98 | 99 | 99 | 99 |
| MAY | | | | | | | |
| 04 | 63 | 76 | 93 | 97 | 99 | 100 | 100 |
| JUN | | | | | | | |
| 20 | 56 | 69 | 90 | 97 | 99 | 100 | 100 |
| JUL | | | | | | | |
| 15 | 66 | 79 | 95 | 98 | 99 | 100 | 100 |
| AUG | | | | | | | |
| 21 | 66 | 74 | 98 | 99 | 100 | 100 | 100 |

RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANBOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|---|
| OCT 1990 | | | | | |
| 03 | 0345 | 359 | 7600 | 7370 | 97 |
| 09 | 1735 | 831 | 14300 | 32100 | 90. |
| 10 | 1350 | 1230 | 5100 | 17000 | 75 |
| 10 | 1620 | 483 | 2600 | 3390 | 89 |
| 17 | 1510 | 2730 | 12400 | 91400 | 83 |
| 17 | 1550 | 3980 | 4800 | 51600 | 79 |
| 21 | 0020 | 1170 | 10700 | 33800 | 88 |
| 21 | 0200 | 713 | 2030 | 3910 | 85 |
| FRB 1991 | | | | | |
| 05 | 1550 | 616 | 1100 | 1830 | 99 |
| 05 | 1720 | 1170 | 1500 | 4740 | 100 |
| 18 | 1940 | 329 | 881 | 782 | 99 |
| 18 | 2200 | 340 | 695 | 638 | 100 |
| MAY | | | | | |
| 04 | 1310 | 547 | 6870 | 10100 | 84 |
| 04 | 1530 | 681 | 5840 | 10700 | 92 |
| JUN | | | | | |
| 20 | 1240 | 474 | 2990 | 3830 | 78 |
| JUL | | | | | |
| 15 | 1810 | 3 62 | 2330 | 2280 | 91 |
| 16 | 1050 | 893 | 4110 | 9910 | 86 |
| AUG | | | | | |
| 16 | 1325 | 314 | 4630 | 3930 | 88 |
| 16 | 1415 | 306 | 3140 | 2590 | 78 |
| 21 | 1455 | 366 | 3070 | 3030 | 64 |
| 21 | 1845 | 225 | 5480 | 3330 | 87 |

50049100 RIO PIEDRAS AT HATO REY, PR

LOCATION.--Lat 18°24'34", long 66°04'10", Hydrologic Unit 21010005, at bridge on Avenida Pificiro at Expreso Las Américas, and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA. -- 15.4 mi 2 (39.9 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- June 1970 to December 1987 (discharge measurements only), 1972 to December 1982 (maximum discharge only), January 1988 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 16 ft (5 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Mean daily discharge affected by sewage discharges (approximately 2.0 ft³/s (0.06 m²/s)), 20 ft (6 m) upstream from gaging station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 8,640 ft³/s (245 m³/s), June 17, 1970, gage height 20.77 ft (6.331 m), from floodmarks, from rating curve extended above 3,000 ft³/s (85.0 m³/s) on basis of slope-area and contracted opening measurements of peak flow; minimum daily discharge 8.4 ft³/s (0.238 m³/s), May 23, 1989.

EXTREMES FOR WATER YEARS 1988-90. -- Peak discharge greater than base discharge of 2,500 ft3/s (70.8 m3/s) and maximums (*):

| | | | harge | Gage h | eight | | | Discl | narge | Gage h | eight | |
|---------|------|---------|--------|--------|-------|---------|------|---------|--------|--------|-------|--|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | |
| Oct. 17 | 1615 | 4,390 | 124 | 15.99 | 4.874 | Feb. 18 | 2200 | *5,560 | 157 | *17.42 | 5.310 | |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum daily discharge, 8.8 ft3/s (0.249 m3/s), Aug. 11.

| | | DISCHAI | RGB, CODI | . radi FM | DAIL! | MEAN VA | MB8 | SR 1330 10 | , par i minuti | . 1771 | | |
|--------|-------|---------|-----------|-----------|-------|---------|------|------------|----------------|--------|--------------|------|
| DAY | OCT | NOA | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
| 1 | 30 | 19 | 122 | 187 | 20 | 33 | 13 | 14 | . 9.5 | 14 | 11 | 23 |
| 2 3 | 13 | 16 | 81 | 66 | 19 | 23 | 28 | 15 | 9.6 | 12 | 12 | 13 |
| 3 | 257 | 16 | 196 | 37 | 23 | 23 | 23 | 17 | 9.1 | 29 | 11 | 11 |
| 4 | 108 | 15 | 41 | 76 | 14 | 22 | 11 | 197 | 9.4 | 16 | 40 | 11 |
| 5 | 40 | 24 | 23 | 65 | 232 | 24 | 14 | 90 | 13 | 13 | 19 | 11 |
| 6 | 81 | 14 | 18 | 46 | 51 | 24 | 10 | 28 | 10 | 13 | 12 | 14 |
| 7 | 173 | 20 | 15 | 43 | 37 | 23 | 12 | 41 | 10 | 13 | 13 | 97 |
| 8 | 44 | 14 | 16 | 22 | 22 | 24 | 76 | 27 | 10 | 16 | 12 | 68 |
| 9 | 255 | 15 | 15 | 32 | 22 | 20 | 16 | 25 | 11 | 14 | 9.3 | 18 |
| 10 | 325 | 14 | 15 | 38 | 33 | 20 | 21 | 40 | 10 | 12 | 9.9 | 31 |
| 11 | 309 | 13 | 23 | 25 | 41 | 23 | 21 | 20 | 10 | 11 | 8.8 | 15 |
| 12 | 37 | 12 | 19 | 55 | 22 | 19 | 71 | 42 | 12 | 11 | 11 | 16 |
| 13 | 24 | 13 | 17 | 22 | 21 | 19 | 58 | 17 | 11 | 12 | 11 | 15 |
| 14 | 21 | 13 | 19 | 20 | 18 | 18 | 14 | 14 | 13 | 12 | 11 | 13 |
| 15 | 18 | 13 | 17 | 21 | 16 | 18 | 248 | 15 | 11 | 169 | 13 | 13 |
| 16 | 51 | 14 | 32 | 18 | 15 | 18 | 46 | 15 | 12 | 276 | e 250 | 20 |
| 17 | 463 | 13 | 15 | 17 | 14 | 17 | 20 | 17 | 12 | 25 | e350 | 26 |
| 18 | 441 | 12 | 17 | 16 | 679 | 36 | 19 | 73 | 39 | 16 | e24 | 14 |
| 19 | 140 | 14 | 17 | 14 | 310 | 17 | 17 | 26 | 57 | 14 | e12 | 13 |
| 20 | 66 | 40 | 18 | 16 | 338 | 15 | 16 | 141 | 139 | 13 | 142 | 90 |
| 21 | 487 | 30 | 21 | 16 | 79 | 16 | 15 | 23 | 120 | 12 | 156 | 17 |
| 22 | 61 | 14 | 20 | 15 | 50 | 175 | 15 | 17 | 25 | 14 | 55 | 47 |
| 23 | 33 | 13 | 40 | 17 | 34 | 17 | 14 | 14 | 18 | 12 | 28 | 15 |
| 24 | 114 | 13 | 33 | 15 | 30 | 13 | 15 | 12 | 15 | 17 | 18 | 14 |
| 25 | 230 | 14 | 17 | 16 | 27 | 54 | 61 | 18 | 12 | 12 | 23 | 49 |
| 26 | 166 | 62 | 17 | 16 | 25 | 19 | 18 | 19 | 11 | 12 | 15 | 12 |
| 27 | 45 | 49 | 27 | 16 | 26 | 16 | 15 | 12 | 15 | 15 | 324 | 154 |
| 28 | 34 | 20 | 154 | 15 | 27 | 12 | 13 | 9.8 | 11 | 214 | 47 | 22 |
| 29 | 27 | 95 | 279 | 15 | | 12 | 14 | 9.5 | 11 | 29 | 18 | 54 |
| 30 | 31 | 84 | 90 | 16 | | 12 | 14 | 9.6 | 35 | 21 | 15 | 62 |
| 31 | 21 | | 291 | 41 | | 12 | | 9.2 | | 16 | 16 | |
| TOTAL | 4145 | 718 | 1725 | 1034 | 2245 | 794 | 948 | 1027.1 | 690.6 | 1085 | 1697.0 | 978 |
| MRAN | 134 | 23.9 | 55.6 | 33.4 | 80.2 | 25.6 | 31.6 | 33.1 | 23.0 | 35.0 | 54.7 | 32.6 |
| MAX | 487 | 95 | 291 | 187 | 679 | 175 | 248 | 197 | 139 | 276 | 350 | 154 |
| MIN | 13 | 12 | 15 | 14 | 14 | 12 | 10 | 9.2 | 9.1 | 11 | 8.8 | 11 |
| AC-FT | 8220 | 1420 | 3420 | 2050 | 4450 | 1570 | 1880 | 2040 | 1370 | 2150 | 3370 | 1940 |
| CFSM | 8.80 | 1.57 | 3.66 | 2.19 | 5.27 | 1.69 | 2.08 | 2.18 | 1.51 | 2.30 | 3.60 | 2.14 |
| IN. | 10.14 | 1.76 | 4.22 | 2.53 | 5.49 | 1.94 | 2.32 | 2.51 | 1.69 | 2.66 | 4.15 | 2.39 |

CAL YR 1990 TOTAL 16251.3 MRAN 44.5 MAX 487 MIN 9.5 AC-FT 32230 CFSM 2.93 IN. 39.77 WTY YR 1991 TOTAL 17086.7 MRAN 46.8 MAX 679 MIN 8.8 AC-FT 33890 CFSM 3.08 IN. 41.82

e Estimated

50049100 RIO PIRDRAS AT HATO REY, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'34", long 66°04'10", at bridge on Avenida Piñiero at Expreso Las Americas, and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA. -- 15.4 mi2 (39.9 km2).

PERIOD OF RECORD. -- Water years 1971 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | WATE | RK-ÖNTTIA | DATA, WA | TER IBAR | OCTOREK | 1990 10 8 | ELLEMBEK 1 | .991 | | |
|-----------------------|---|---|---|--|---|--|---|---|---|---|---|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | | | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FRCAL, (COLS. PER 100 ML) |
| OCT 1990 30 | 1150 | 25 | 481 | 7.8 | 28.5 | 2.5 | 5.7 | 73 | 22 | K170000 | K1700 |
| DEC 18 | 1335 | 19 | 470 | 7.8 | 27.0 | 4.0 | 5.4 | 66 | 27 | 550000 | 53000 |
| FEB 1991 15 APR | 1100 | 15 | 446 | 7.8 | 26.5 | 3.5 | 5.9 | 73 | 23 | K71000 | K18000 |
| 18 JUN | 1135 | 18 | 470 | 7.9 | 26.0 | 6.0 | 6.1 | 74 | 28 | 200000 | 8100 |
| 25 | 1350 | 12 | 516 | 8.0 | 33.5 | 5.6 | 4.1 | 56 | 21 | 770000 | 35000 |
| 02 | 1435 | 10 | 430 | 8.5 | 32.0 | 2.5 | 8.3 | 100 | 12 | K2000 | 3900 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | NAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIU AD- SORP- TION RATIO | SIUM, DIS- SOLVED | WAT WH TOT FET | SULFIDR TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 30 | 160 | 0 | 45 | 12 | 27 | 0. | 9 3.7 | 160 | <0.5 | 24 | 32 |
| DEC 18 FKB 1991 | | | | | | | | 164 | | | |
| 15 APR | | | | | | | | 170 | | | |
| 18 JUN | 170 | 0 | 47 | 12 | 32 | 1 | 3.9 | 170 | <0.5 | 18 | 40 |
| 25 AUG | | | | | | | | 170 | | | |
| 02 | 160 | 2 | 45 | 12 | 29 | 1 | 3.9 | 160 | | 18 | 35 |
| 1 | R: 1 SC NATE (1 | IDE, DI DIS- SC DLVED (1 MG/L) | CICA, SUM IS- CON OLVED TUR IG/L D AS SO | STI- I NTS, SC IS- (1 LVED I | IDS, TO DIS- AT DLVED DR CONS ST DER PE | 105 3. C, N US- NDRD | GEN, ITRATE NI TOTAL I (MG/L (| GEN, G TRITE NO2 OTAL TO MG/L (N | HEN, G H-NO3 AME TAL TO IG/L () | EN, G KONIA ORG TAL TO G/L (M | TRO- SEN, SANIC TAL IG/L S N) |
| OCT 3 | | 0.30 2 | 18 | 268 1 | .7.7 | <1 | 0.610 | 0.190 0 | .800 1 | . 50 | 0.40 |
| DEC 18. | | | | | | <1 | 0.570 | 0.230 0 | .800 1 | 30 | 0.70 |
| FRB 1 | | | | | | 5 | 0.540 | 0.260 0 | .800 1 | 40 | 0.70 |
| APR 18. JUN | | <0.10 | 10 | 285 1 | .3.5 | 10 | 0.960 | 0.140 1 | 10 | .570 | 0.53 |
| 25. AUG | ••• | | | | | <1 | 0.530 | 0.270 0 | .800 1 | 30 | 0.70 |
| 02. | •• | 0.20 | 16 | 265 | 7.23 | <1 | 0.560 | 0.090 0 | .650 0 | .250 | 0.45 |

K = non-ideal count

50049100 RIO PIEDRAS AT BATO REY, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- BRABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|---|---|--|---|---|---|---|--|---|--|---|
| OCT 1990 | | | | | | | | | | |
| 30 | 1.9 | 2.7 | 12 | 0.400 | 1 | 200 | 50 | <1 | <1 | 10 |
| 18 FRB 1991 | 2.0 | 2.8 | 15 | 0.530 | | | | | | |
| 15 APR | 2.1 | 2.9 | 13 | 0.450 | | | | | | |
| 18 Jun | 1.1 | 2.2 | 9.7 | 0.250 | <1 | <100 | 40 | <1 | 2 | 10 |
| 25 AUG | 2.0 | 2.8 | 12 | 0.510 | | | | | | |
| 02 | 0.70 | 1.3 | 6.0 | 0.260 | | | | | | |
| | IRON, TOTAL | LEAD, TOTAL | Manga – Nese, Total | MERCURY TOTAL | | SILVER, | ZINC, | | | Methy- Lene Blue |
| DATE | RECOV- ERABLE (UG/L AS FE) (01045) | RECOV- ERABLE (UG/L AS PB) (01051) | RECOV- ERABLE (UG/L AS MN) (01055) | RECOV- ERABLE (UG/L AS HG) (71900) | SELE- NIUM, TOTAL (UG/L AS SE) (01147) | TOTAL RECOV- ERABLE (UG/L AS AG) (01077) | TOTAL RECOV- ERABLE (UG/L AS ZN) (01092) | CYANIDE TOTAL (MG/L AS CN) (00720) | PHENOLS TOTAL (UG/L) (32730) | ACTIVE SUB- STANCE (MG/L) (38260) |
| OCT 1990 | ERABLE (UG/L AS FE) (01045) | ERABLE (UG/L AS PB) (01051) | RECOV- ERABLE (UG/L AS MN) (01055) | RECOV- ERABLE (UG/L AS HG) (71900) | NIUM, TOTAL (UG/L AS SE) (01147) | RECOV- ERABLE (UG/L AS AG) (01077) | RECOV- ERABLE (UG/L AS ZN) (01092) | TOTAL (MG/L AS CN) (00720) | TOTAL (UG/L) (32730) | ACTIVE SUB- STANCE (MG/L) (38260) |
| | ERABLE (UG/L AS FE) | ERABLE (UG/L AS PB) | RECOV- ERABLE (UG/L AS MN) | RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | RECOV- ERABLE (UG/L AS AG) | RECOV- BRABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 30 DEC 18 FRB 1991 | ERABLE (UG/L AS FE) (01045) | ERABLE (UG/L AS PB) (01051) | RECOV- ERABLE (UG/L AS MN) (01055) | RECOV- ERABLE (UG/L AS HG) (71900) | NIUM, TOTAL (UG/L AS SE) (01147) | RECOV- ERABLE (UG/L AS AG) (01077) | RECOV- ERABLE (UG/L AS ZN) (01092) | TOTAL (MG/L AS CN) (00720) | TOTAL (UG/L) (32730) | ACTIVE SUB- STANCE (MG/L) (38260) |
| OCT 1990 30 DEC 18 FEB 1991 15 | ERABLE (UG/L AS FE) (01045) 480 | ERABLE (UG/L AS PB) (01051) | RECOV- ERABLE (UG/L AS MN) (01055) 110 | RECOV- ERABLE (UG/L AS HG) (71900) <0.10 | NIUM, TOTAL (UG/L AS SE) (01147) <1 | RECOV- ERABLE (UG/L AS AG) (01077) | RECOV- BRABLE (UG/L) AS ZN) (01092) <10 | TOTAL (MG/L AS CN) (00720) <0.010 | TOTAL (UG/L) (32730) 8 | ACTIVE SUB- STANCE (MG/L) (38260) 0.20 |
| OCT 1990 30 DEC 18 FEB 1991 15 APR 18 JUN | ERABLE (UG/L AS FE) (01045) | ERABLE (UG/L AS PB) (01051) | RECOV- ERABLE (UG/L AS MN) (01055) | RECOV- ERABLE (UG/L AS HG) (71900) <0.10 | NIUM, TOTAL (UG/L AS SE) (01147) <1 | RECOV- ERABLE (UG/L AS AG) (01077) | RECOV- ERABLE (UG/L AS ZN) (01092) <10 | TOTAL (MG/L AS CN) (00720) <0.010 | TOTAL (UG/L) (32730) | ACTIVE SUB- STANCE (MG/L) (38260) |
| OCT 1990 30 DEC 18 FEB 1991 15 APR 18 | ERABLE (UG/L AS FE) (01045) 480 | ERABLE (UG/L AS PB) (01051) | RECOV- ERABLE (UG/L AS MN) (01055) 110 | RECOV- ERABLE (UG/L AS HG) (71900) <0.10 | NIUM, TOTAL (UG/L AS SE) (01147) <1 | RECOV- ERABLE (UG/L AS AG) (01077) | RECOV- BRABLE (UG/L) AS ZN) (01092) <10 | TOTAL (MG/L AS CN) (00720) <0.010 | TOTAL (UG/L) (32730) 8 | ACTIVE SUB- STANCE (MG/L) (38260) 0.20 |

50049310 QUEBRADA JOSEFINA AT PIÑERO AVENUE, PR

LOCATION.--Lat 18°24'34", long 66°04'31" Hydrologic Unit 21010005, on right bank, 75 ft (23 m) downstream from bridge at highway 17, Pifero Avenue, 1.6 mi (2.6 km), northwest from Río Piedras Plaza, 0.8 mi (1.3 km) north from University of Puerto Rico Medical Center and 0.4 mi (0.6 km) upstream from confluence with Río Piedras.

DRAINAGE AREA. -- 19.0 mi2 (49.2 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- February 1988 to November 1990 (discontinued).

GAGE. -- Water-stage recorder. Elevation of gage is 13.1 ft (4.0 m), from topographic map.

REMARKS .-- Record poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,320 ft³/s (122 m²/s), Sept. 18, 1989, gage-height 8.69 ft (2.649 m) from rating curve extended above 100 ft²/s (2.83 m³/s) on basis of step-backwater analysis; minimum discharge, 0.82 ft³/s (0.023 m³/s), May 27, 1989.

EXTREMES FOR CURRENT PERIOD. -- Peak discharges greater than base discharge of 1,800 ft³/s (51.0 m³/s) and maximum (*):

| Date | Time | Disch (ft³/s) | arge (m³/s) | Gage (ft) | height (m) | Date Time | Disc (ft³/s) | charge (m³/s) | Gage height (ft) (m) | |
|---------|------|------------------|----------------|--------------|------------|------------|-----------------|------------------|----------------------|--|
| Oct. 11 | 0500 | +2,240 | 63.4 | *6.40 | 1.951 | No otber p | eak greate: | r than base | discharge. | |

Minimum daily discharge, 0.86 ft3/s (0.024 m3/s), Oct. 2.

| DISCHARGE, | CUBIC | PRET | PER | SECOND, | WATER | YEAR | OCTOBER | 1990 | TO | SEPTEMBER | 1991 |
|------------|-------|------|-----|---------|--------|--------|---------|------|----|-----------|------|
| | | | | DATE | A MESM | VATITI | 20 | | | | |

| | | | | | | , | | | | | | |
|-----------------------|---------------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| DAY | OCT | MOA | DEC | Jän | TRB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
| 1 2 3 4 5 | 1.2 | 1.2 .96 | | | | | | | | | | |
| 3 | 42 | . 90 | | | | | | | | | | |
| 4 | 8.0 1.5 | 1.9 2.2 | | | | | | | | | | |
| 5 | 1.5 | 2.2 | | | | | | | | | | |
| 4 | 20 | 1.6 | | | | | | | | | | |
| 7 | 18 | 4.3 | | | | | | | | | | |
| 6 7 8 9 | 1.9 | 2.2 | | | | | | | | | | |
| ĭ | 63 | 2.4 | | | | | | | | | | |
| 10 | 11 | 2.5 | | | | | | | | | | |
| 10 | | 4.3 | | | | | | | | | | |
| 11 | 73 1.4 | 2.2 1.6 | | | | | | | | | | |
| 12 | 1.4 | 1.6 | | | | | | | | | | |
| 13 | 1.5 | 2.1 | | | | | | | | | | |
| 12 13 14 15 | 1.8 1.3 | 1.7 | | | | | | | | | | |
| 15 | 1.3 | 2.4 | | | | | | | | | | |
| 16 | 19 | 3.4 | | | | | | | | | | |
| 17 | 19 42 | 3.5 | | | | | | | | | | |
| 17 18 | 67 | 1.6 | | | | | | | | | | |
| 19 | 4.9 | 1.5 | | | | | | | | | | |
| 19 20 | 6.9 | 19 | | | | | | | | | | |
| | | | | | | | | | | | | |
| 21 | 32 | 5.5 | | | | | | | | | | |
| 22 | 1.7 | 3.7 | | | | | | | | | | |
| 23 | 3.0 | 1.2 | | | | | | | | | | |
| 24 | 15 | 1.2 | | | | | | | | | | |
| 23 24 25 | 15 25 | 1.0 | | | | | | | | | | |
| 26 | 6.6 | 15 | | | | | | | | | | |
| 27 | 1.9 | | | | | | | | | | | |
| 28 | 2.4 | | | | | | | | | | | |
| 29 | 1.5 | | | | | | | | | | | |
| 30 | 1.7 | | | | | | | | | | | |
| 31 | 1.3 | | | | | | | | | | | |
| TOTAL | 478.66 | | | | | | | | | | | |
| MEAN | 15.4 | | | | | | | | | | | |
| MAX | 73 | | | | | | | | | | | |
| MIN | .86 | | | | | | | | | | | |
| YC-LL | 040 | | | | | | | | | | | |
| CFSM | 949 4.02 4.64 | | | | | | | | | | | |
| IN. | 4 64 | | | | | | | | | | | |
| 114. | 4.04 | | | | | | | | | | | |

50049310 QUEBRADA JOSEFINA AT PINERO AVENUE, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- OCTOBER 1989 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) | DATE | Time | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|---------|------|---------------------------------------|--------------------------------------|-----------------------------|---------|------|---------------------------------------|--------------------------------------|-----------------------------|
| OCT. 05 | 1139 | 1.32 | 439 | 33.5 | NOV. 09 | 1438 | 2.48 | 402 | 23.5 |

50049820 LAGUNA SAN JOSE NO. 2 AT SAN JUAN, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°25'46", long 66°02'10", 0.2 mi (0.3 km) east of Caño de Martín Peña, and 650 ft (200 m) south of Isla Guachinango.

DRAINAGE AREA. -- Indeterminate.

PERIOD OF RECORD. -- Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | SPE- CIFIC COM- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TRANS- PAR- ENCY (SECCHI DISK) (IN) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|--|---|--|--|--|---|---|--|---|---|
| NOV 1990 | | | | | | | | | |
| 13 Jan 1991 | 0930 | 22400 | 7.2 | 28.0 | 28.0 | 0.6 | | 94000 | 9300 |
| 04 MAR | 0910 | 18000 | 8.9 | 24.0 | 15.0 | 9.3 | 108 | 9000 | 200 |
| 01 MAY | 1030 | 17700 | 8.4 | 26.5 | 16.0 | 6.1 | 74 | 690 | 220 |
| 06 JUN | 1145 | 22500 | 8.0 | 29.5 | | 6.0 | 76 | 4200 | 560 |
| 26 | 0930 | 27000 | 8.3 | 28.5 | 1.30 | 5.5 | | 6000 | 450 |
| AUG 26 | 0930 | 29000 | 7.5 | 30.0 | | 1.0 | 13 | 3500 | 380 |
| | | | | | | | | | |
| DATE | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, MITRITE TOTAL (MG/L AS N) | NITRO- GEN, MO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS- PHORUS TOTAL (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) |
| NOV 1990 | LINITY WAT WH TOT FET FIBLD MG/L AS CACO3 | TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | GEN, NITRITE TOTAL (MG/L AS N) | GEN, NO2+NO3 TOTAL (MG/L AS N) | GEN, AMMONIA TOTAL (MG/L AS N) | GEN, ORGANIC TOTAL (MG/L AS N) | GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | PHORUS TOTAL (MG/L AS P) | ORGANIC TOTAL (MG/L AS C) |
| NOV 1990 13 | LINITY WAT WH TOT FET FIELD MG/L AS | TOTAL AT 105 DEG. C, SUS- PENDED | GEN, NITRITE TOTAL (MG/L | GRN, NO2+NO3 TOTAL (MG/L | GEN, AMMONIA TOTAL (MG/L | GEN, ORGANIC TOTAL (MG/L | GEN, AM- MONIA + ORGANIC TOTAL (MG/L | PHORUS TOTAL (MG/L | ORGANIC TOTAL (MG/L |
| NOV 1990 13 JAN 1991 04 | LINITY WAT WH TOT FET FIBLD MG/L AS CACO3 | TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | GEN, NITRITE TOTAL (MG/L AS N) | GEN, NO2+NO3 TOTAL (MG/L AS N) | GEN, AMMONIA TOTAL (MG/L AS N) | GEN, ORGANIC TOTAL (MG/L AS N) | GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | PHORUS TOTAL (MG/L AS P) | ORGANIC TOTAL (MG/L AS C) |
| NOV 1990 13 JAN 1991 04 MAR 01 | LINITY WAT WE TOT FET FIELD MG/L AS CACO3 | TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | GEN, MITRITE TOTAL (MG/L AS N) | GEN, MO2+NO3 TOTAL (MG/L AS N) | GEN, AMMONIA TOTAL (MG/L AS N) | GEN, ORGANIC TOTAL (MG/L AS N) | GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | PHORUS TOTAL (MG/L AS P) | ORGANIC TOTAL (MG/L AS C) |
| NOV 1990 13 JAN 1991 04 MAR 01 MAY 06 | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | GEN, MITRITE TOTAL (MG/L AS N) 0.020 0.010 | GEN, MO2+NO3 TOTAL (MG/L AS N) <0.100 | GEN, AMMONIA TOTAL (MG/L AS N) 2.10 | GEN, ORGANIC TOTAL (MG/L AS N) 0.0 | GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) 1.7 | PHORUS TOTAL (MG/L AS P) 0.410 | ORGANIC TOTAL (MG/L AS C) 7.5 |
| NOV 1990 13 JAN 1991 04 MAR 01 | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) 16 19 | GEN, NITRITE TOTAL (MG/L AS N) 0.020 0.010 | GEN, NO2+NO3 TOTAL (MG/L AS N) <0.100 <0.100 | GEN, AMMONIA TOTAL (MG/L AS N) 2.10 0.050 | GEN, ORGANIC TOTAL (MG/L AS N) 0.0 0.75 | GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) 1.7 0.80 | PHORUS TOTAL (MG/L AS P) 0.410 0.100 | ORGANIC TOTAL (MG/L AS C) 7.5 8.3 |

50049920 BAHIA DE SAN JUAN NO. 5 AT SAN JUAN, PR

WATER-QUALITY RECORDS

LOCATION--Lat 18°26'37", long 66°05'11", 0.4 mi (0.6 km) west of Puente de la Constitución, and 0.5 mi (0.8 km) south from U.S. Naval Reservation.

DRAINAGE -- Indeterminate.

PERIOD OF RECORD -- Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TRANS- PAR- ENCY (SECCHI DISK) (IN) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) |
|----------|------|---|--------------------------------|--------------------------------------|--|-------------------------------------|--|---|---|---|---|
| NOV 1990 | | | | | | | | | | | |
| 13 | 1130 | 41000 | 8.0 | 29.0 | 26.0 | 7.8 | 99 | 59000 | K1200 | 160 | 44 |
| JAN 1991 | | | | | | | | | | | |
| 04 | 1015 | 49000 | 7.7 | 25.5 | 20.0 | 7.3 | 87 | 89000 | 5600 | 88 | 52 |
| MAR | | | _ | _ | | | | | | | |
| 01 | 1230 | 50000 | 7.6 | 26.0 | 26.0 | 5.9 | 71 | 600 | 20 | 160 | 25 |
| MAY | | | | | | | | | | | |
| 07 | 0935 | | | | | | | | | | 70 |
| JUN | | | | | | | | | | | |
| 26 | 1040 | 45000 | 8.0 | 29.0 | 1.10 | 2.8 | | 5500 | 2200 | 140 | 50 |
| AUG | | | | | | | | | | | |
| 26 | 1030 | 44600 | 8.0 | 29.0 | | 4.1 | 52 | 2700 | K730 | 120 | 57 |

| DATE | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|-----------------------|--|--|--|--|--|---|---|---|--|---|
| NOV 1990 | | | | | | | | | | |
| 13 | 0.150 | 0.050 | 0.200 | 0.680 | 0.22 | 0.90 | 1.1 | 4.9 | 0.260 | 6.0 |
| JAN 1991 04 MAR | 0.170 | 0.030 | 0.200 | 0.450 | 0.35 | 0.80 | 1.0 | 4.4 | 0.090 | 4.4 |
| 01 May | 0.130 | 0.100 | 0.230 | 1.30 | 1.2 | 2.5 | 2.7 | 12 | 0.310 | 7.1 |
| 07 JUN | 0.080 | 0.050 | 0.130 | 0.520 | 0.68 | 1.2 | 1.3 | 5.9 | 0.180 | 4.3 |
| 26 | | 0.030 | <0.050 | 0.670 | 0.73 | 1.4 | | | 0.230 | 4.1 |
| 26 | 0.048 | 0.020 | 0.068 | 0.160 | 0.24 | 0.40 | 0.47 | 2.1 | 0.130 | 3.1 |

K= non-ideal count

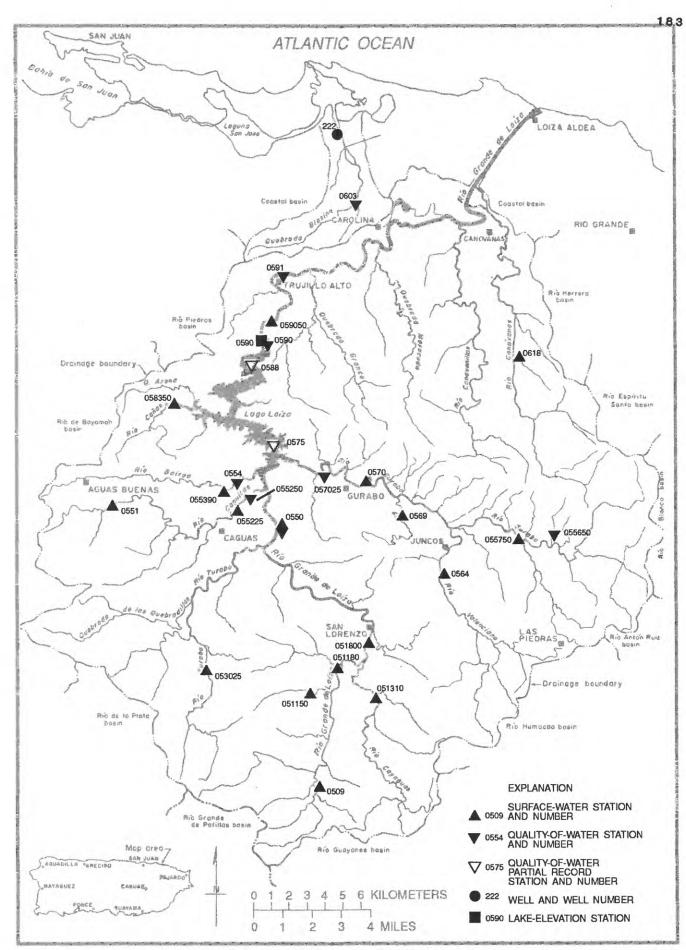


Figure 19.--Río Grande de Loíza basin.

50050300 QUEBRADA BLASINA NEAR CAROLINA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°23'27", long 65°58'28", at bridge on Highway 3, 1.4 mi (2.3 km) south of Valle Arriba Heights housing area, and 1.2 mi (1.9 km) west-southwest of Carolina plasa.

DRAINAGE AREA. -- 2.96 mi2 (7.67 km2).

PERIOD OF RECORD .-- Water years 1973 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | | DIS- CHARGE, INST. CUBIC FRET | SPE- CIFIC CON- DUCT- | PH | | TEMPER | | UR- | OXYGEN DIS- | 801 (P) | GEN, IS- LVED ER- ENT | OXYGEN DEMAND, CHEM- ICAL (HIGH | COLI- FORM, FECAL 0.45 UM-MF | STREP. TOCOCC. FECAL (COLS. | I |
|------------------|------|----------------|---|--------------------------------|--------------------------------------|----------|-----------------|----------------------------------|-------------|-----------------------------|----------------------------------|-----------------------------------|---|--|--------------------------------------|-----|
| DATE | | TIME | PER SECOND | ANCE (US/CI | AR M) UNI | | WATER (DEG C | | TY TU) | SOLVE (MG/I | ED SA | TUR- EON) | LEVEL) (MG/L) | (COLS. | |) : |
| NOV 1990 | | | | | | | | | | | | | | | | |
| 07 | | 1140 | 16 | 6 | 73 8 | .0 | 25. | 5 340 | 0 | 5.6 | 5 | 68 | 590 | K10000 | 5800 | 0 |
| DEC 18 | | 1150 | 15 | 4 | 22 7 | .7 | 24. | 5 8 | 7 | 5.5 | | 65 | 47 | 12000 | 2300 | 0 |
| FEB 1991 | | | | | | • • | | - | | - | | - | 1 | | | |
| 07 | | 1055 | 6.2 | 4: | 37 7 | . 6 | 23. | 0 | 3.1 | 5.5 | | 68 | 34 | K11000 | 7200 | 0 |
| APR 05 | | 1030 | 9.5 | 4: | 19 7 | . 8 | 25. | 5 | 3.1 | 6.4 | | 77 | 33 | K60000 | 3000 | 0 |
| JUN | | | | | | | | | | | | | | | | |
| 06 | | 1305 | 6.7 | 52 | 20 7 | .9 | 27. | 5 4: | 3 | 5.6 | 5 | 70 | 26 | 3800 | 270 | 0 |
| 26 | | 1035 | 8.6 | 41 | 56 7 | . 9 | 27. | 5 3 | 0 | 5.9 | | 68 | 38 | 470 | 590 | ٥ |
| | 1 | HARD- NESS | HARD- NESS NONCARE | | | UM, | SODIUM | , , | DIUM AD- | POTAS | I, WAT | WH | | SULFAT | | |
| | | TOTAL (MG/L | WH WAT | DIS- | ED SOL | | BOLVED | | RP- ION | SOLVE | | KRI | TOTAL | BOLVE | DIS- | D |
| DATE | | AS | MG/L AS | | | | (MG/I | | TIO | (MG/I | MG/1 | L AS | (MG/L | (MG/L | (MG/L | |
| | | CACO3) | CACO3 | AS C | A) AS | MG) | AS NA |) | | AS K) | CA | :03 | AS S) | AS 804 | AS CL |) |
| NOV 1990 | | | | | | | | | | | | | | | | |
| 07 | | 220 | 2 | 74 | 8 | . 6 | 23 | | 0.7 | 3.9 | | - | <0.5 | 45 | 34 | |
| DEC 18 | | | | | _ | _ | | | | | | 172 | | | | |
| FEB 1991 | | | | | | | | | | | | | | | | |
| 07 | | | | | - | - | 122 | | | | | 170 | | | | |
| 05 | | 140 | 0 | 42 | 9 | . 5 | 28 | | 1 | 2.7 | | 160 | <0.5 | 16 | 28 | |
| JUN 06 | | | | 44 | | _ | | | | - 22 | | 200 | -43 | | | |
| AUG | | | | 2.5 | | | | | | | | 223 | | | | |
| 26 | | 180 | 1 | 56 | 9 | .1 | 29 | | 0.9 | 5.0 |) | 180 | | 16 | 37 | |
| | | FI | JO- SI | | SOLIDS, SUM OF | BOL | | ESIDUE OTAL | NI | TRO- | NITRO- | NI | TRO- NI | TRO- | NITRO- | |
| | DATE | 80 | OLVED (| | CONSTI- FURNTS, DIS- SOLVED | 80 (T | ONS | T 105 EG. C, SUS- ENDED | TO | EN, RATE I TAL G/L | GEN, ITRITE TOTAL (MG/L | NO2 | +NO3 AMI | TAL ! | GEN, RGANIC POTAL (MG/L | |
| | | AS | (F) S | 102) | (MG/L) | D | (YA | (MG/L) | AS | N) | AS N) | AS | N) A | 3 N) | (N BA | |
| | 1990 | | | | | | | | | | | | | | | |
| DRC | 7 | < | 0.10 | 7.9 | 310 | 1 | 3.0 | 5280 | 0 | .760 | 0.140 | 0 | .900 | 1.30 | 13 | |
| 18 | 1991 | | | | | | | 8 | 0 | .990 | 0.110 | 1 | .10 | 0.260 | 1.0 | |
| 07 | 7 | | | | | | | 12 | 1 | .02 | 0.080 | 1 | .10 | 1.20 | 1.0 | |
| APR 05 JUN | 5 | | 0.50 | 27 | 250 | | 6.40 | 111 | 0 | .460 | 0.070 | 0 | .530 | 340 | 1.6 | |
| | 5 | | | | | | | 70 | 0 | .840 | 0.130 | 0 | .970 | .340 | 1.9 | |
| | 5 | | 0.20 | 22 | 282 | | 6.54 | 62 | 0 | .660 | 0.120 | 0 | .780 | 290 | 1.0 | |
| K = | non- | ideal c | ount | | | | | | | | | | | | | |

50050300 QUEBRADA BLASINA NEAR CAROLINA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- NIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| NOV 1990 | | | | | | | | | | |
| 07 | 14 | 15 | 66 | 0.540 | <1 | 1500 | 110 | <1 | 390 | 360 |
| DEC | | | | | | | | | | |
| 18 FEB 1991 | 1.3 | 2.4 | 11 | 0.280 | | | | | | |
| 07 APR | 2.2 | 3.3 | 15 | 0.360 | | | | | | |
| 05 | 1.9 | 2.4 | 11 | 1.00 | 2 | <100 | 30 | <1 | 17 | 10 |
| JUN | | | | | _ | 4200 | • | - | | |
| 06 | 2.2 | 3.2 | 14 | 0.810 | | | | | | |
| AUG 26 | 1.3 | 2.1 | 9.2 | 0.630 | | | | | | |
| 20 | 1.3 | 2.1 | 7.2 | 0.630 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | Lene Blue Active Sub- Stance (MG/L) |
| NOV 1990 07 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- RRABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| NOV 1990 07 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | Lene Blue Active Sub- Stance (MG/L) |
| NOV 1990 07 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 07 DEC 18 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 07 DEC 18 FEB 1991 07 APR 05 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- RRABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) 0.70 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) 0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 07 DEC 18 FEB 1991 07 | TOTAL RECOV- ERABLE (UG/L AS FE) 140000 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) 10000 | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) 0.010 | TOTAL (UG/L) 13 | LENE BLUE ACTIVE SUB- STANCE (MG/L) |

50050900 RIO GRANDE DE LOIZA AT QUEBRADA ARENAS, PR

LOCATION.--Lat 18°07'10", long 65°59'22", Hydrologic Unit 21010005, at intersection of Highways 181 and 9990, 0.2 mi (0.3 km) upstream from confluence with Río Emajagua and about 7.1 mi (11.4 km) southwest of San Lorenso.

DRAINAGE AREA. -- 6.00 mi2 (15.54 km2).

WATER-DISCHARGE RECORDS

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

GAGE. -- Water-stage recorder. Elevation of gage is 640 ft (195 m), from topographic map.

RRMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--14 years (1978-91), 29.3 ft³/s (0.830 m²/s), 66.32 in/yr, (1,684 mm/yr), 21,230 acre-ft/yr (26.2 hm²/yr); median of yearly mean discharges, 28 ft³/s (0.79 m²/s), 20,300 acre-ft/yr (25 hm²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft³/s (331 m³/s), Nov. 5, 1983, gage height, 14.78 ft (4.505 m), from rating curve extended above 500 ft³/s (14.2 m³/s) on basis of step-backwater analysis; minimum discharge, 2.8 ft³/s (0.079 m³/s), May 5, 6, 1979.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 2,000 ft³/s (56.6 m³/s) and maximum (*):

| | | Discharge | | Gage | height | | | Disc | harge | Gage height | |
|---------|------|-----------|--------|-------|--------|---------|------|---------|--------|-------------|--------------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 9 | 1430 | 2,430 | 68.8 | 8.68 | 2.646 | Oct. 24 | 2020 | 2,720 | 77.0 | 8.98 | 2.737 |
| Oct. 20 | 2300 | +3,640 | 103 | *9.83 | 2.996 | May 25 | 0730 | 3,080 | 87.2 | 9.33 | 2.844 |
| Oct. 21 | 0830 | 2,360 | 66.8 | 8.61 | 2.624 | June 30 | 1315 | 3,150 | 89.2 | 9.40 | 2.865 |

Minimum discharge, 4.3 ft 3 /s (0.122 m 3 /s), May 3, 4.

| | | DISCHA | RGE, CUBIC | FEET PE | | WATER YE Y MEAN VA | | R 1990 TO | SEPTEMBE | R 1991 | | |
|-------|-------|--------|------------|---------|------|-----------------------|-------|-----------|-------------|--------|--------------|-------------|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 22 | 32 | 18 | 32 | 11 | 12 | 6.3 | 4.6 | 7.7 | 224 | 7.8 | e10 |
| 2 | 15 | 32 | 16 | 18 | 10 | 11 | 6.5 | 4.5 | 6.6 | 27 | 7.5 | e9.5 |
| 3 | 19 | 27 | 20 | 16 | 14 | 12 | 6.5 | 4.5 | 6.3 | 16 | 7.2 | 7.8 |
| 4 | 15 | 66 | 16 | 14 | 11 | 18 | 6.0 | 6.2 | 6.2 | 13 | 7.0 | 7.4 |
| 5 | 14 | 79 | 13 | 15 | 70 | 14 | 6.0 | 5.5 | 8.3 | 11 | 6.6 | 7.3 |
| 6 | 12 | 32 | 12 | 14 | 43 | 21 | 6.0 | 5.5 | 11 | 9.9 | 6.9 | 7.0 |
| 7 | 11 | 28 | 11 | 26 | 17 | 17 | 5.9 | 5.5 | 13 | 9.1 | 6.7 | 6.8 |
| 8 | 18 | 24 | 11 | 25 | 12 | 15 | 7.6 | 5.2 | 7.7 | 8.6 | 6.5 | 6.6 |
| 9 | 144 | 22 | 11 | 20 | 11 | 12 | 6.6 | 5.0 | 7.2 | 8.4 | 6.4 | 26 |
| 10 | 52 | 21 | 11 | 18 | 12 | 10 | 7.8 | 4.8 | 6.2 | 7.9 | 6.4 | 12 |
| 11 | 24 | 20 | 10 | 18 | 40 | 9.5 | 9.0 | 4.8 | 8.9 | 7.8 | 6.3 | 15 |
| 12 | 25 | 19 | 10 | 23 | 36 | 9.5 | 7.9 | 9.4 | 40 | 7.4 | 6.3 | 8.8 |
| 13 | 54 | 18 | 16 | 17 | 27 | 9.1 | 6.4 | 5.9 | e1 0 | 7.0 | 6.2 | 7.7 |
| 14 | 59 | 17 | 108 | 22 | 15 | 9.9 | 6.2 | 5.5 | e9.5 | 6.8 | 6.7 | 7.2 |
| 15 | 26 | 17 | 23 | 26 | 14 | 9.2 | 11 | 5.2 | e8.2 | 17 | 6.5 | 7.0 |
| 16 | 60 | 16 | 16 | 17 | 12 | 8.7 | 8.0 | 5.2 | e7.1 | 141 | 7.0 | 6.9 |
| 17 | 25 | 16 | 14 | 14 | 11 | 8.2 | 6.2 | 5.0 | e6.2 | 16 | 18 | 214 |
| 18 | 136 | 16 | 13 | 13 | 18 | 8.2 | 6.1 | 6.7 | 6.3 | 11 | 13 | 22 |
| 19 | 81 | 16 | 12 | 12 | 17 | 9.1 | 5.7 | 6.1 | 6.5 | 10 | 11 | 13 |
| 20 | 254 | 16 | 12 | 12 | 34 | 8.1 | 5.4 | 6.4 | 6.5 | 11 | e6.8 | 11 |
| 21 | 316 | 15 | 11 | 12 | 23 | 7.6 | 5.4 | 11 | 7.9 | 8.9 | e12 | 17 |
| 22 | 53 | 14 | 11 | 11 | 15 | 13 | 5.7 | 9.0 | 6.6 | 8.4 | e19 | 36 |
| 23 | 50 | 13 | 11 | 11 | 14 | 9.2 | 5.3 | 5.8 | 8.9 | 9.1 | e1 0 | 57 |
| 24 | 196 | 13 | 11 | 11 | 15 | 7.7 | 5.0 | 5.2 | 7.9 | 11 | e8.6 | 18 |
| 25 | 175 | 13 | 10 | 11 | 14 | 7.4 | 5.7 | 210 | 6.3 | 8.8 | e8. 0 | 14 |
| 26 | 139 | 16 | 9.7 | 10 | 14 | 7.0 | 5.5 | 14 | 5.7 | 8.2 | e7.6 | 13 |
| 27 | 122 | 15 | 11 | 10 | 12 | 6.7 | 5.1 | 8.7 | 9.1 | 8.3 | e12 | 60 |
| 28 | 72 | 13 | 11 | 11 | 13 | 6.3 | 4.8 | 7.3 | 7.2 | 7.9 | e2 0 | 129 |
| 29 | 47 | 14 | 17 | 10 | | 6.1 | 4.6 | 6.7 | 9.9 | 7.5 | e15 | 146 |
| 30 | 48 | 50 | 15 | 9.8 | | 6.2 | 4.5 | 6.2 | 312 | 9.2 | e11 | 37 |
| 31 | 39 | | 99 | 11 | | 6.2 | | 6.1 | | 9.0 | e8.2 | |
| TOTAL | 2323 | 710 | 589.7 | 489.8 | 555 | 314.9 | 188.7 | 401.5 | 570.9 | 666.2 | 288.2 | 940.0 |
| MBAN | 74.9 | 23.7 | 19.0 | 15.8 | 19.8 | 10.2 | 6.29 | 13.0 | 19.0 | 21.5 | 9.30 | 31.3 |
| MAX | 316 | 79 | 108 | 32 | 70 | 21 | 11 | 210 | 312 | 224 | 20 | 214 |
| MIN | 11 | 13 | 9.7 | 9.8 | 10 | 6.1 | 4.5 | 4.5 | 5.7 | 6.8 | 6.2 | 6.6 |
| AC-FT | 4610 | 1410 | 1170 | 972 | 1100 | 625 | 374 | 796 | 1130 | 1320 | 572 | 1860 |
| CFSM | 12.5 | 3.94 | 3.17 | 2.63 | 3.30 | 1.69 | 1.05 | 2.16 | 3.17 | 3.58 | 1.55 | 5.22 |
| IN. | 14.40 | 4.40 | 3.66 | 3.04 | 3.44 | 1.95 | 1.17 | 2.49 | 3.54 | 4.13 | 1.79 | 5.83 |

CAL YR 1990 TOTAL 8040.3 MEAN 22.0 MAX 330 MIN 4.0 AC-FT 15950 CFSM 3.67 IN. 49.85 WTR YR 1991 TOTAL 8037.9 MEAN 22.0 MAX 316 MIN 4.5 AC-FT 15940 CFSM 3.67 IN. 49.83

e Estimated

50050900 RIO GRANDE DE LOIZA AT QUEBRADA ARENAS, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS AUGUST 1981 TO CURRENT YEAR

| DATE | | Time | STRRAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | 7 | PIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) |
|------|----|------|---------------------------------------|--------------------------------------|-----------------------------|------|----|------|---------------------------------------|--------------------------------------|-----------------------------|
| FEB. | 15 | 1304 | 14.4 | 152 | 23.0 | JUL. | 17 | 1527 | 14.2 | 140 | 28.5 |
| MAR. | 19 | | 8.52 | 160 | 24.0 | AUG. | 14 | 1200 | 5.91 | 160 | 26.0 |
| MAY | 15 | 1050 | 9.58 | 145 | 24.5 | SEP. | 12 | 1240 | 8.91 | 150 | 27.0 |
| JUN. | 18 | 1057 | 6.33 | 165 | 25.0 | | | | | | |

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR

LOCATION.--Lat 18°09'40", long 65°58'58", Hydrologic Unit 21010005, 0.1 mi (0.2 km) upstream from bridge on Highway 181, and 2.8 mi (4.5 km) southwest of San Lorenso.

DRAINAGE AREA. -- 3.25 mi 2 (8.42 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- October 1984 to current year.

GAGE. -- Water-stage recorder. Elevation of gage is 459 ft (140 m), from topographic map.

REMARKS. -- Records fair. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--7 years (1985-91), 7.72 ft³/s (0.219 m³/s), 32.26 in/yr (819 mm/yr), 5,590 acre-ft/yr (6.89 hm³/yr).

EXTREMES FOR PERIOD OF RECORD. --Maximum discharge, 7,400 ft³/s (210 m³/s), May 17, 1985, gage height, 14.58 ft (4.444 m), from floodmark, from rating curve extended above 400 ft³/s (11.3 m³/s) on basis of step-backwater analysis and slope-area measurement; minimum daily discharge, 0.38 ft³/s (0.011 m³/s), Aug. 10, 1991.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 1,000 ft³/s (28.3 m³/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | Disch | harge | Gage | height | | | | :harge | Gage | height |
|---------|------|---------|---------------------|-------|--------|------|----------|------------|---------------------|-----------|--------|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft^3/s) | (m ³ /s) | (ft) | (m) |
| Oct. 20 | 2245 | *1,360 | 38.5 | *8.51 | 2.594 | | No other | peak great | er than bas | e dischar | ge. |

Minimum daily discharge, 0.38 ft3/s (0.011 m3/s), Aug. 10.

| | DAILY MEAN VALUES | | | | | | | | | | | |
|---------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|--------|
| DAY | OCT | MOA | DEC | JAN | Feb | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | .74 | 6.1 | 6.8 | 16 | 2.6 | 1.9 | .70 | .42 | 1.3 | 74 | .66 | 2.1 |
| 2 | .92 | 5.2 | 7.9 | 7.9 | 2.3 | 1.5 | .71 | . 42 | . 92 | 24 | .52 | 1.8 |
| 3 | 1.1 | 4.5 | 19 | 5.5 | 2.5 | 1.8 | .71 | . 52 | .66 | 6.5 | .50 | 1.3 |
| 4 | .94 | 26 | 11 | 4.2 | 2.3 | 1.8 | . 67 | .46 | .57 | 4.5 | .44 | 1.3 |
| 5 | 1.1 | 26 | 5.3 | 11 | 8.6 | 1.7 | .72 | . 43 | 1.8 | 2.8 | .42 | 1.1 |
| 6 | .74 | 18 | 3.7 | 8.9 | 5.0 | 7.5 | .77 | . 45 | 1.8 | 2.0 | . 67 | . 92 |
| 7 | .57 | 12 | 3.0 | 8.2 | 2.7 | 8.6 | .70 | . 52 | 1.9 | 1.4 | .53 | . 92 |
| 8 | .80 | 10 | 2.7 | 8.9 | 2.0 | 15 | 2.8 | . 72 | 1.1 | 1.2 | .44 | .96 |
| 9 | 1.4 | 7.6 | 2.5 | 7.7 | 1.6 | 5.8 | 1.4 | . 99 | .79 | 1.2 | .41 | 2.8 |
| 10 | 5.9 | 6.3 | 2.3 | 7.8 | 2.3 | 3.4 | 1.5 | . 80 | . 66 | 1.1 | .38 | 1.8 |
| 11 | 2.2 | 5.8 | 2.0 | 6.3 | 6.3 | 2.8 | 1.1 | 3.5 | .90 | . 90 | .39 | 1.7 |
| 12 | 1.5 | 5.3 | 1.9 | 5.4 | 17 | 2.2 | 1.2 | 4.5 | 2.8 | . 84 | .39 | 1.2 |
| 13 | 6.7 | 5.0 | 1.9 | 4.8 | 15 | 1.9 | . 93 | 1.4 | 1.4 | .78 | .41 | .96 |
| 14 | 4.6 | 4.1 | 13 | 4.3 | 5.4 | 1.8 | .79 | .77 | .81 | .72 | .59 | . 80 |
| 15 | 3.6 | 3.4 | 6.2 | 4.4 | 3.7 | 1.6 | 1.2 | . 61 | . 65 | 16 | .80 | . 80 |
| 16 | 18 | 5.7 | 3.7 | 4.0 | 2.4 | 1.3 | 1.3 | . 61 | .54 | 52 | .75 | . 85 |
| 17 | 15 | 3.9 | 2.7 | 3.5 | 2.0 | 1.2 | .87 | .68 | .48 | 14 | 1.0 | 47 |
| 18 | 28 | 3.3 | 2.3 | 3.2 | 1.8 | 1.5 | 1.3 | 2.9 | . 69 | 4.6 | 1.4 | 6.8 |
| 19 | 29 | 2.8 | 2.0 | 2.9 | 3.3 | 1.7 | 1.1 | 1.3 | .57 | 2.6 | . 92 | 3.2 |
| 20 | 57 | 2.4 | 1.9 | 2.7 | 2.2 | 1.1 | .80 | .76 | .52 | 2.3 | .74 | 2.3 |
| 21 | 49 | 3.1 | 1.9 | 2.5 | 2.0 | 1.3 | .73 | 4.7 | 2.4 | 1.3 | . 93 | 5.7 |
| 22 | 22 | 3.3 | 1.7 | 2.3 | 1.7 | 2.5 | .73 | 6.7 | 1.2 | . 91 | 13 | 35 |
| 23 | 11 | 2.5 | 1.8 | 2.3 | 1.5 | 1.9 | .65 | 1.5 | . 87 | .71 | 3.6 | 17 |
| 24 | 20 | 2.1 | 1.8 | 2.0 | 1.6 | 1.3 | . 64 | . 86 | .88 | 1.6 | 2.0 | 6.7 |
| 25 | 43 | 2.0 | 1.6 | 2.6 | 1.6 | 1.0 | .59 | 9.2 | .76 | 1.0 | 1.2 | 4.2 |
| 26 | 50 | 2.5 | 1.4 | 2.4 | 1.4 | . 92 | . 56 | 3.2 | .56 | . 61 | .89 | 3.1 |
| 27 | 38 | 5.9 | 1.4 | 2.2 | 1.2 | 1.2 | .54 | 1.3 | .94 | . 58 | 29 | 3.2 |
| 28 | 23 | 9.2 | 1.4 | 1.9 | 2.4 | . 87 | .50 | . 82 | .70 | . 59 | 16 | 23 |
| 29 | 14 | 5.1 | 2.7 | 1.9 | | . 75 | .46 | . 63 | . 89 | . 52 | 4.6 | 46 |
| 30 | 10 | 16 | 3.7 | 1.9 | | . 72 | .42 | . 57 | 42 | 5.2 | 2.6 | 16 |
| 31 | 8.0 | | 47 | 2.8 | | .74 | | . 53 | | 1.4 | 2.1 | |
| TOTAL | 467.81 | 215.1 | 168.2 | 152.4 | 104.4 | 79.30 | 27.09 | 52.77 | 72.06 | 227.86 | 88.28 | 240.51 |
| MEAN | 15.1 | 7.17 | 5.43 | 4.92 | 3.73 | 2.56 | .90 | 1.70 | 2.40 | 7.35 | 2.85 | 8.02 |
| MAX | 57 | 26 | 47 | 16 | 17 | 15 | 2.8 | 9.2 | 42 | 74 | 29 | 47 |
| MIN | .57 | 2.0 | 1.4 | 1.9 | 1.2 | .72 | .42 | . 42 | .48 | . 52 | .38 | . 80 |
| AC-FT CFSM | 928 4.64 | 427 | 334 | 302 | 207 | 157 | 54 | 105 | 143 | 452 | 175 | 477 |
| CFSM IN. | 4.64 5.35 | 2.21 | 1.67 | 1.51 | 1.15 | .79 | .28 | . 52 | .74 | 2.26 | .88 | 2.47 |
| TM. | 5.35 | 2.46 | 1.93 | 1.74 | 1.19 | . 91 | .31 | . 60 | . 82 | 2.61 | 1.01 | 2.75 |

CAL YR 1990 TOTAL 1525.18 MEAN 4.18 MAX 53 MIN .47 AC-FT 3030 CFSM 1.29 IN. 17.46 WTR YR 1991 TOTAL 1895.78 MEAN 5.19 MAX 74 MIN .38 AC-FT 3760 CFSM 1.60 IN. 21.70

50051150 QUEBRADA BLANCA AT BL JAGUAL, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS JANUARY 1985 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPRCIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|--------------------|------|---------------------------------------|--------------------------------------|-----------------------------|------|--------------------|---------------------------------------|--------------------------------------|-----------------------------|
| FEB. 16 MAR. 19 | | 2.34 15 | 270 280 | 24.5 26.0 | | 15 1436 14 1023 | 1.35 .43 | 290 310 | 26.0 25.5 |
| MAY 13 | 1217 | 1.18 | 300 | 25.5 | SEP. | 12 1415 | 1.21 | 300 | 28.0 |

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS. -- Water years 1985 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD.-SUSPENDED-SEDIMENT DISCHARGE: October 1984 to September 1986 and from October 1989 to September 1991.

EXTREMES FOR PERIOD OF DAILY RECORD. --

SEDIMENT CONCENTRATION: Maximum daily mean, 7,300 mg/L Oct. 06, 1985; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 4,940 tons (23,400 tonnes) May 17, 1985; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

EXTREMES FOR WATER YEARS 1991. --

SEDIMENT CONCENTRATION: Maximum daily mean, 255 mg/L Sep. 17, 1991; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 277 tons (252 tonnes) Oct 20, 1990; Minimum daily mean, 0 ton several days.

| | | MBYN | | | MRAN | | | MRAN | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MRAN Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CFS) | CONCEN- TRATION (MG/L) | Sediment Discharge (Tons/Day) | Mran Discharge (CPS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | OCTOBER | | 1 | NOVEMBER | | 1 | DECEMBER | |
| 1 | .74 | 1 | .00 | 6.1 | 5 | .09 | 6.8 | 15 | . 32 |
| 2 | . 92 | 1 | . 00 | 5.2 | 5 | .07 | 7.9 | 20 | .88 |
| 3 | 1.1 | 1 | .00 | 4.5 | 5 | .06 | 19 | 120 | 15 |
| 4 | .94 | 1 | .00 | 26 | 220 | 40 | 11 | 22 | .70 |
| 5 | 1.1 | 2 | .01 | 26 | 56 | 4.9 | 5.3 | 12 | . 17 |
| 6 | .74 | 1 | .00 | 18 | 55 | 2.6 | 3.7 | 6 | .06 |
| 7 | . 57 | 1 | .00 | 12 | 36 | 1.2 | 3.0 | 4 | .04 |
| 8 | .80 | 1 | .00 | 10 | 24 | . 62 | 2.7 | 4 | .04 |
| 9 | 1.4 | 2 | .00 | 7.6 | 17 | .33 | 2.5 | 3 | .02 |
| 10 | 5.9 | 13 | .34 | 6.3 | 12 | .20 | 2.3 | 3 | . 02 |
| 11 | 2.2 | 4 | .02 | 5.8 | 8 | .12 | 2.0 | 2 | .02 |
| 12 | 1.5 | 5 | .00 | 5.3 | 7 | .09 | 1.9 | 2 | .01 |
| 13 | 6.7 | 15 | . 37 | 5.0 | 7 | .09 | 1.9 | 2 | .01 |
| 14 | 4.6 | 9 | .20 | 4.1 | 6 | .06 | 13 | 42 | 2.8 |
| 15 | 3.6 | 7 | . 07 | 3.4 | 6 | .05 | 6.2 | 13 | .25 |
| 16 | 18 | 92 | 14 | 5.7 | 11 | .27 | 3.7 | 7 | .06 |
| 17 | 15 | 44 | 2.3 | 3.9 | 5 | .06 | 2.7 | 3 | . 03 |
| 18 | 28 | 123 | 17 | 3.3 | 4 | .03 | 2.3 | 2 | .01 |
| 19 | 29 | 55 | 5.7 | 2.8 | 3 | .02 | 2.0 | 2 | .01 |
| 20 | 57 | 194 | 277 | 2.4 | 3 | .02 | 1.9 | 2 | .01 |
| 21 | 49 | 176 | 30 | 3.1 | 5 | .06 | 1.9 | 2 | .01 |
| 22 | 22 | 19 | 1.3 | 3.3 | 4 | .03 | 1.7 | 2 | .00 |
| 23 | 11 | 6 | . 18 | 2.5 | 2 | .01 | 1.8 | 2 | .00 |
| 24 | 20 | 80 | 17 | 2.1 | 2 | .02 | 1.8 | 2 | .00 |
| 25 | 43 | 198 | 40 | 2.0 | 2 | .02 | 1.6 | 2 | .00 |
| - 26 | 50 | 229 | 35 | 2.5 | 3 | .01 | 1.4 | 2 | .00 |
| 27 | 38 | 113 | 12 | 5.9 | 13 | .39 | 1.4 | 2 | .00 |
| 28 | 23 | 42 | 2.8 | 9.2 | 27 | 1.6 | 1.4 | 2 | .00 |
| 29 | 14 | 9 | . 35 | 5.1 | 11 | .38 | 2.7 | 5 | . 04 |
| 30 | 10 | 5 | . 14 | 16 | 46 | 2.7 | 3.7 | 9 | . 13 |
| 31 | 8.0 | 5 | .11 | | | | 47 | 206 | 35 |
| TOTAL | 467.81 | | 455.89 | 215.1 | | 56.10 | 168.2 | | 55.64 |

RIO GRANDE DE LOIZA BASIN
50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JANUARY | | 1 | PEBRUARY | | | MARCH | |
| 1 | 16 | 46 | 2.3 | 2.6 | 4 | .02 | 1.9 | 3 | .01 |
| 2 | 7.9 | 5 | . 12 | 2.3 | 3 | .02 | 1.5 | 2 | .00 |
| 3 | 5.5 | 2 | . 04 | 2.5 | 3 | .01 | 1.8 | 3 | .00 |
| 4 | 4.2 | 2 | .02 | 2.3 | 3 | .01 | 1.8 | 2 | .01 |
| 5 | 11 | 34 | 2.5 | 8.6 | 26 | 1.8 | 1.7 | 2 | .01 |
| 6 | 8.9 | 21 | .58 | 5.0 | 10 | .17 | 7.5 | 18 | .55 |
| 7 | 8.2 | 11 | . 25 | 2.7 | 5 | .03 | 8.6 | 23 | . 94 |
| 8 | 8.9 | 16 | . 53 | 2.0 | 2 | .02 | 15 | 51 | 3.2 |
| 9 | 7.7 | 12 | . 26 | 1.6 | 2 | .00 | 5.8 | 13 | . 22 |
| 10 | 7.8 | 15 | . 37 | 2.3 | 3 | .02 | 3.4 | 5 | . 05 |
| 11 | 6.3 | 9 | .16 | 6.3 | 8 | .19 | 2.8 | 4 | . 03 |
| 12 | 5.4 | 7 | .10 | 17 | 74 | 11 | 2.2 | 4 | . 02 |
| 13 | 4.8 | 5 | . 06 | 15 | 50 | 2.5 | 1.9 | 2 | . 02 |
| 14 | 4.3 | 3 | . 04 | 5.4 | 7 | .13 | 1.8 | 2 | .01 |
| 15 | 4.4 | 3 | .04 | 3.7 | 5 | .04 | 1.6 | 2 | .00 |
| 16 | 4.0 | 3 | . 03 | 2.4 | 4 | .02 | 1.3 | 2 | .00 |
| 17 | 3.5 | 3 | . 02 | 2.0 | 2 | .00 | 1.2 | 2 | . 00 |
| 18 | 3.2 | 3 | .02 | 1.8 | 2 | .00 | 1.5 | 2 | .00 |
| 19 | 2.9 | 2 | . 02 | 3.3 | 3 | .03 | 1.7 | 2 | .01 |
| 20 | 2.7 | 2 | . 02 | 2.2 | 2 | .00 | 1.1 | 2 | . 00 |
| 21 | 2.5 | 2 | .02 | 2.0 | 2 | .01 | 1.3 | 2 | .00 |
| 22 | 2.3 | 2 | . 02 | 1.7 | 2 | .00 | 2.5 | 3 | . 02 |
| 23 | 2.3 | 2 | . 02 | 1.5 | 2 | .00 | 1.9 | 2 | .01 |
| 24 | 2.0 | 2 | . 02 | 1.6 | 2 | .00 | 1.3 | 1 | .00 |
| 25 | 2.6 | 2 | .00 | 1.6 | 2 | .00 | 1.0 | 1 | . 00 |
| 26 | 2.4 | 2 | .02 | 1.4 | 2 | .00 | .92 | 1 | .00 |
| 27 | 2.2 | 2 | . 02 | 1.2 | 2 | .00 | 1.2 | 1 | . 00 |
| 28 | 1.9 | 2 | . 01 | 2.4 | 8 | .06 | .87 | 1 | .00 |
| 29 | 1.9 | 2 | .01 | | | | .75 | 1 | .00 |
| 30 | 1.9 | 2 | .01 | | | | .72 | 1 | .00 |
| 31 | 2.8 | 4 | . 03 | | | | .74 | 1 | .00 |
| TOTAL | 152.4 | | 7.66 | 104.4 | | 16.08 | 79.30 | | 5.11 |

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

| | | MRAN | | | MRAN | | | MEAN | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | nean Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | APRIL | | | MAY | | | JUNE | |
| 1 | .70 | 1 | .00 | .42 | 1 | .00 | 1.3 | 2 | .01 |
| 2 | .71 | 1 | . 00 | .42 | 1 | .00 | . 92 | 1 | .00 |
| 3 | .71 | 1 | . 00 | . 52 | 1 | .00 | .66 | 1 | .00 |
| 4 | . 67 | 1 | .00 | .46 | 1 | .00 | .57 | 1 | .00 |
| 5 | .72 | 1 | . 00 | . 43 | 1 | .00 | 1.8 | 3 | . 02 |
| 6 | .77 | 1 | .00 | .45 | 1 | .00 | 1.8 | 2 | .01 |
| 7 | .70 | 1 | .00 | . 52 | 1 | .00 | 1.9 | 1 | .00 |
| 8 | 2.8 | 4 | . 04 | .72 | 1 | .00 | 1.1 | 1 | . 00 |
| 9 | 1.4 | 1 | . 00 | . 99 | 1 | .00 | .79 | 1 | .00 |
| 10 | 1.5 | 1 | . 00 | . 80 | 1 | .00 | . 66 | 1 | .00 |
| 11 | 1.1 | 1 | .00 | 3.5 | 9 | .31 | .90 | 1 | .00 |
| 12 | 1.2 | ī | .00 | 4.5 | 8 | .12 | 2.8 | 5 | . 03 |
| 13 | .93 | 1 | . 00 | 1.4 | 2 | .01 | 1.4 | 1 | .00 |
| 14 | .79 | 1 | . 00 | .77 | ī | .00 | .81 | 1 | .00 |
| 15 | 1.2 | 1 | .00 | .61 | 1 | .00 | . 65 | 1 | .00 |
| 16 | 1.3 | 2 | .00 | . 61 | 1 | .00 | .54 | 1 | .00 |
| 17 | . 87 | 1 | . 00 | .68 | 1 | .00 | .48 | 1 | . 00 |
| 18 | 1.3 | 2 | . 01 | 2.9 | 5 | .04 | . 69 | 1 | . 00 |
| 19 | 1.1 | 1 | . 00 | 1.3 | 1 | .00 | .57 | 1 | . 00 |
| 20 | .80 | 1 | .00 | .76 | 1 | .00 | .52 | 1 | . 00 |
| 21 | .73 | 1 | . 00 | 4.7 | 12 | .55 | 2.4 | 5 | .08 |
| 22 | .73 | 1 | . 00 | 6.7 | 15 | .39 | 1.2 | 1 | .00 |
| 23 | . 65 | 1 | . 00 | 1.5 | 2 | .00 | . 87 | 1 | .00 |
| 24 | .64 | 1 | . 00 | . 86 | 1 | .00 | .88 | 1 | .00 |
| 25 | .59 | 1 | . 00 | 9.2 | 14 | .52 | .76 | 1 | .00 |
| 26 | .56 | 1 | . 00 | 3.2 | 6 | .06 | .56 | 1 | .00 |
| 27 | .54 | 1 | . 00 | 1.3 | 1 | .00 | .94 | 1 | . 00 |
| 28 | .50 | 1 | . 00 | . 82 | 1 | .00 | .70 | 1 | .00 |
| 29 | .46 | 1 | . 00 | . 63 | 1 | .00 | .89 | . 1 | 00 |
| 30 | .42 | 1 | .00 | . 57 | 1 | .00 | 42 | 192 | 75 |
| 31 | | | | . 53 | 1 | .00 | | | |
| TOTAL | 27.09 | | 0.05 | 52.77 | | 2.00 | 72.06 | | 75.15 |

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | MRAN | | MEYN | | MRAN | | | | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mran Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | JULY | | | AUGUST | | S | RPTEMBER | |
| 1 | 74 | 242 | 64 | .66 | | 2.0 | 2.1 | 4 | .02 |
| 2 | 24 | 55 | 3.9 | . 52 | 1 | .00 | 1.8 | 2 | .01 |
| 3 | 6.5 | 14 | .26 | .50 | 1 | .00 | 1.3 | 1 | .00 |
| 4 | 4.5 | 7 | . 09 | .44 | 1 | .00 | 1.3 | 1 | .00 |
| 5 | 2.8 | 4 | . 03 | .42 | 1 | .00 | 1.1 | 1 | .00 |
| 6 | 2.0 | 2 | .01 | . 67 | 1 | .00 | .92 | 1 | .00 |
| 7 | 1.4 | 1 | .00 | . 53 | 1 | .00 | . 92 | 1 | .00 |
| 8 | 1.2 | 1 | .00 | . 44 | 1 | .00 | .96 | 1 | .00 |
| 9 | 1.2 | 1 | .00 | .41 | 1 | .00 | 2.8 | 3 | . 02 |
| 10 | 1.1 | 1 | .00 | .38 | 1 | .00 | 1.8 | 3 | .00 |
| 11 | .90 | 1 | .00 | .39 | 1 | .00 | 1.7 | 1 | .00 |
| 12 | . 84 | 1 | .00 | . 39 | 1 | .00 | 1.2 | 1 | .00 |
| 13 | .78 | ī | .00 | .41 | 1 | .00 | .96 | 1 | .00 |
| 14 | .72 | ī | .00 | .59 | 1 | .00 | .80 | 1 | .00 |
| 15 | 16 | 103 | 19 | . 80 | ĩ | .00 | .80 | 1 | .00 |
| 16 | 52 | 176 | 36 | .75 | 1 | .00 | . 85 | 1 | .00 |
| 17 | 14 | 37 | 1.7 | 1.0 | 1 | .00 | 47 | 255 | 60 |
| 18 | 4.6 | 9 | . 14 | 1.4 | 1 | .00 | 6.8 | 16 | .38 |
| 19 | 2.6 | 4 | .03 | . 92 | 1 | .00 | 3.2 | 5 | . 05 |
| 20 | 2.3 | 3 | .03 | .74 | 1 | .00 | 2.3 | 4 | . 02 |
| 21 | 1.3 | 1 | .00 | . 93 | 1 | .00 | 5.7 | 16 | . 64 |
| 22 | .91 | 1 | .00 | 13 | 94 | 6.7 | 35 | 213 | 43 |
| 23 | .71 | 1 | .00 | 3.6 | 6 | .09 | 17 | 56 | 3.7 |
| 24 | 1.6 | 2 | .01 | 2.0 | 3 | .01 | 6.7 | 8 | . 15 |
| 25 | 1.0 | 1 | .00 | 1.2 | 1 | .00 | 4.2 | 2 | .03 |
| 26 | .61 | 1 | .00 | .89 | 1 | .00 | 3.1 | 2 | . 02 |
| 27 | .58 | 1 | . 00 | 29 | 204 | 55 | 3.2 | 3 | . 04 |
| 28 | .59 | 1 | .00 | 16 | 20 | 1.3 | 23 | 67 | 10 |
| 29 | .52 | 1 | .00 | 4.6 | 2 | .03 | 46 | 209 | 35 |
| 30 | 5.2 | 12 | . 35 | 2.6 | 2 | .02 | 16 | 50 | 2.5 |
| 31 | 1.4 | 2 | .01 | 2.1 | 2 | .01 | | | |
| TOTAL | 227.86 | | 125.56 | 88.28 | | 65.16 | 240.51 | | 155.58 |
| YEAR | 1895.78 | | 1019.98 | | | | | | |

50051150 QUEBRADA BLANCA AT EL JAGUAL--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANBOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|-----------|------|---|--|--|--|
| OCT 1990 | | | | | |
| 18 Dec | 2015 | 70 | 414 | 78 | 98 |
| 18 | 1620 | 45 | 696 | 85 | 96 |
| 31 | 0430 | 83 | 846 | 189 | 90 |
| 31 | 0537 | 76 | 834 | 171 | 94 |
| FEB 1991 | | | | | |
| 12 | 1808 | 68 | 468 | 86 | 98 |
| 12 | 1845 | 61 | 394 | 65 | 97 |
| JUN | | | | | |
| 30 | 1255 | 155 | 2290 | 958 | 94 |
| 30 | 1425 | 125 | 790 | 266 | 97 |
| JUL | | | | | |
| 01 | 1231 | 62 | 190 | 32 | 100 |
| 01 | 1330 | 107 | 107 | 31 | 85 |
| 15 | 1920 | 77 | 1400 | 291 | 98 |
| 15 | 2035 | 83 | 274 | 61 | 93 |
| 27 | 1518 | 173 | 1230 | 574 | 91 |
| 27 | 1933 | 73 | 228 | 45 | 83 |
| SRP | 1333 | /3 | 228 | 45 | 6.3 |
| 17 | 1120 | 118 | 851 | 271 | 84 |
| 22 | 1555 | 124 | 1200 | 401 | 96 |
| 22 | 1710 | 96 | 578 | 150 | 99 |
| 28 | 1720 | 74 | 226 | 45 | 99 91 |
| | 1/20 | /* | 220 | 45 | 31 |

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR

LOCATION.--Lat 18°10'24", long 65°58'38", Hydrologic Unit 21010005, on left downstream side of bridge on Highway 181, 0.2 mi (0.3 km) upstream from Río Grande de Loísa, and 1.5 mi (2.4 km) southwest of San Lorenso.

DRAINAGE AREA. -- 3.74 mi 2 (9.69 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- January 1984 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 330 ft (100 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--7 years (1985-91), 6.91 ft³/s (0.196 m³/s), 25.09 in/yr (637 mm/yr), 5,000 acre-ft/yr (6.16 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,320 ft³/s (264 m²/s), May 17, 1985, gage height, 17.10 ft (5.212 m), from floodmark, from rating curve extended above 200 ft³/s (5.66 m²/s) on basis of step-backwater analysis and slope-area measurement, minimum discharge, 0.26 ft³/s (0.007 m²/s), May 30, 31, 1990.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than hase discharge of 1,000 ft³/s (28.3 m³/s) and maximum (*):

| Discharg | | | harge | Gage height | | | | Discharge Gage heig | | | |
|----------|------|---------|---------------------|-------------|------|------|---------|---------------------|------|--------------|--|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | |
| Oct. 20 | 2320 | *666 | 18.9 | *7.17 2.185 | | | | | | | |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum daily discharge, 0.33 ft³/s (0.009 m³/s), July 13, 14.

| DAILY MEAN VALUES | | | | | | | | | | | | |
|-------------------|--------------|-------|-------|------|------|-------|-------|-------|------------|--------|--------------|--------------|
| DAY | OCT | NOV | DEC | Jan | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | .97 | 4.5 | 4.9 | 11 | 1.6 | 1.8 | .81 | . 67 | 2.2 | 52 | .87 | 1.6 |
| 2 | 1.0 | 3.6 | 6.7 | 6.2 | 1.3 | 1.2 | .75 | . 67 | 2.1 | 6.7 | .71 | 1.3 |
| 3 | 1.2 | 2.8 | 16 | 3.8 | 1.3 | 1.2 | .78 | . 94 | 1.3 | 2.3 | .70 | . 87 |
| 4 | 1.4 | 31 | 10 | 2.9 | 1.3 | 1.5 | .73 | . 81 | 1.0 | 2.2 | . 57 | .73 |
| 5 | 2.2 | 24 | 6.5 | 6.0 | 3.8 | 1.5 | .72 | . 75 | 2.6 | 1.3 | .47 | . 63 |
| 6 | 1.2 | 11 | 4.6 | 8.4 | 3.2 | 4.1 | .83 | . 75 | 1.5 | . 85 | 1.1 | . 69 |
| 7 | 1.2 | 6.9 | 3.3 | 6.9 | 2.4 | 2.0 | .82 | . 75 | 1.3 | . 66 | .88 | . 98 |
| 8 | 1.3 | 4.9 | 2.7 | 7.9 | 1.6 | 4.2 | 3.9 | 1.1 | 1.1 | . 66 | .56 | 77 |
| 9 10 | 1.8 | 4.2 | 2.6 | 6.4 | 1.6 | 2.3 | 3.2 | 1.4 | .78 | . 65 | .46 | 5.3 |
| 10 | 16 | 3.8 | 2.3 | 4.3 | 1.8 | 1.2 | 2.3 | 1.4 | .48 | . 61 | .47 | 2.1 |
| 11 | e4 .6 | 3.2 | 2.3 | 2.9 | 7.9 | 1.1 | 2.1 | 4.9 | .90 | . 55 | .48 | 1.4 |
| 12 | e1. 6 | 2.7 | 2.1 | 2.5 | 8.0 | 1.1 | 1.8 | 4.7 | 2.2 | . 51 | .47 | .72 |
| 13 | e7.7 | 2.3 | 2.1 | 2.5 | 10 | 1.0 | 1.6 | 1.0 | . 87 | . 33 | .48 | . 60 |
| 14 | e 3.3 | 2.3 | 6.1 | 2.2 | 3.4 | 1.3 | 1.5 | .72 | .50 | . 33 | 3.0 | . 54 |
| 15 | e 5.0 | 2.2 | 4.3 | 2.1 | 2.2 | 1.3 | 1.3 | . 84 | .50 | 13 | 4.2 | .42 |
| 16 | 40 | 3.1 | 3.4 | 2.3 | 1.7 | . 97 | 1.4 | . 65 | .42 | 71 | 1.0 | .38 |
| 17 | 31 | 2.5 | 2.4 | 2.1 | 1.3 | . 82 | 1.1 | . 99 | .47 | 14 | 2.6 | 48 |
| 18 | 50 | 1.8 | 1.7 | 1.8 | 1.5 | 1.1 | 1.2 | 2.6 | .60 | 7.8 | 4.9 | 8.5 |
| 19 20 | 34 | 1.6 | 1.5 | 1.7 | 4.4 | 1.2 | 1.4 | 1.6 | .51 | 4.2 | 1.8 | 2.4 |
| 20 | 44 | 1.9 | 1.5 | 1.7 | 2.3 | 1.0 | 1.0 | .79 | .42 | 3.5 | 1.2 | 1.1 |
| 21 | 96 | 2.1 | 1.7 | 1.7 | 1.7 | 1.1 | . 93 | 1.2 | 1.9 | 1.8 | 1.6 | 2.7 |
| 22 | 25 | 2.3 | 1.7 | 1.4 | 1.4 | 2.3 | .90 | 4.2 | 2.1 | 1.2 | 15 | 44 |
| 23 | 12 | 2.0 | 1.6 | 1.3 | 1.5 | 2.0 | .80 | 1.2 | .77 | . 80 | 7.6 | 17 |
| 24 | 27 | 1.7 | 1.9 | 1.3 | 1.2 | 1.2 | . 67 | . 83 | .74 | 2.4 | 2.0 | 8.2 |
| 25 | 77 | 1.3 | 1.8 | 1.2 | 1.2 | 1.0 | . 67 | 4.1 | . 65 | 1.4 | 1.1 | 4.1 |
| 26 | 64 | 1.2 | 1.6 | 1.1 | 1.4 | 1.8 | .88 | 2.9 | .49 | . 94 | .77 | 2.1 |
| 27 | 31 | 1.9 | 1.6 | 1.1 | 1.1 | 2.6 | .78 | 1.6 | . 67 | . 85 | 39 | 1.2 |
| 28 | 16 | 5.0 | 1.8 | 1.1 | 2.6 | 1.1 | .73 | 1.1 | .75 | . 83 | 19 | 2.9 |
| 29 | 11 | 2.3 | 6.0 | 1.1 | | . 83 | . 67 | . 83 | .60 | . 80 | 7.3 | 27 |
| 30 | 8.5 | 6.8 | 6.3 | 1.0 | | . 83 | . 67 | 1.1 | 23 | 4.4 | 3.2 | 16 |
| 31 | 6.2 | | 49 | 1.4 | | . 83 | | 1.3 | | 1.8 | 2.9 | |
| TOTAL | 623.17 | 146.9 | 162.0 | 99.3 | 74.7 | 47.48 | 36.94 | 48.39 | 53.42 | 200.37 | 126.39 | 204.23 |
| MEAN | 20.1 | 4.90 | 5.23 | 3.20 | 2.67 | 1.53 | 1.23 | 1.56 | 1.78 | 6.46 | 4.08 | 6.81 |
| MAX | 96 | 31 | 49 | 11 | 10 | 4.2 | 3.9 | 4.9 | 23 | 71 | 39 | 48 |
| MIN | .97 | 1.2 | 1.5 | 1.0 | 1.1 | . 82 | . 67 | . 65 | .42 | .33 | .46 | .38 |
| AC-PT | 1240 | 291 | 321 | 197 | 148 | 94 | 73 | 96 | 106 | 397 | 251 | 405 |
| CFSM IN. | 5.37 | 1.31 | 1.40 | . 86 | .71 | .41 | .33 | . 42 | .48 .53 | 1.73 | 1.09 1.26 | 1.82 2.03 |
| TM. | 6.20 | 1.46 | 1.61 | . 99 | .74 | . 47 | .37 | .48 | .53 | 1.99 | 1.26 | 4.03 |

CAL YR 1990 TOTAL 1776.38 MEAN 4.87 MAX 96 MIN .29 AC-FT 3520 CFSM 1.30 IN. 17.67 WTR YR 1991 TOTAL 1823.29 MEAN 5.00 MAX 96 MIN .33 AC-FT 3620 CFSM 1.34 IN. 18.14

e Estimated

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS FEBRUARY 1984 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|---------|------|---------------------------------------|--------------------------------------|-----------------------------|------|---------|---------------------------------------|--------------------------------------|-----------------------------|
| FRB. 14 | 1140 | 2.83 | 331 | 22.5 | JUL. | 15 1300 | .48 | 410 | 27.0 |
| MAR. 20 | 1218 | 1.02 | 410 | 25.0 | AUG. | 14 0905 | .46 | 440 | 25.0 |
| MAY 13 | 1051 | .90 | 500 | 24.5 | SEP. | 12 1603 | .65 | 430 | 28.5 |
| JUN. 19 | 1132 | . 53 | 400 | 27.5 | | | | | |

MPAN

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD .-- Water years 1984 to 1986 and water years 1989 to current year.

PERIOD OF DAILY RECORD.-SUSPENDED-SEDIMENT DISCHARGE: October 1984 to September 1986 and from October 1989 to September 1991.

MPAN

EXTREMES FOR PERIOD OF DAILY RECORD. -SEDIMENT CONCENTRATION: Maximum daily mean, 7,300 mg/L Oct. 06, 1985; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 4,940 tons (23,400 tonnes) May 17, 1985; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

EXTREMES FOR WATER YEARS 1991.--SEDIMENT CONCENTRATION: Maximum daily mean, 669 mg/L Oct. 21, 1990; Minimum daily mean, 3 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 273 tons (247 tonnes) Oct. 21 and 25, 1990; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

MEAN

| | MEAN | | | MEAN | | | | | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MEAN Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | OCTOBER | | 1 | NOVEMBER | | 1 | DECEMBER | |
| 1 | .97 | 6 | . 02 | 4.5 | 29 | .34 | 4.9 | 35 | .50 |
| 2 | 1.0 | 6 | . 02 | 3.6 | 23 | .22 | 6.7 | 49 | 1.5 |
| 3 | 1.2 | 7 | . 02 | 2.8 | 18 | .13 | 16 | 197 | 16 |
| 4 | 1.4 | 8 | .04 | 31 | 438 | 95 | 10 | 64 | 2.0 |
| 5 | 2.2 | 7 | . 05 | 24 | 138 | 10 | 6.5 | 40 | . 69 |
| 6 | 1.2 | 7 | .03 | 11 | 86 | 3.2 | 4.6 | 32 | .38 |
| 7 | 1.2 | 6 | .01 | 6.9 | 48 | . 93 | 3.3 | 30 | .27 |
| 8 | 1.3 | 8 | .03 | 4.9 | 34 | .48 | 2.7 | 30 | .23 |
| 9 | 1.8 | 11 | . 05 | 4.2 | 25 | .28 | 2.6 | 29 | .20 |
| 10 | 16 | 117 | 9.0 | 3.8 | 21 | .20 | 2.3 | 25 | .16 |
| 11 | e4.6 | e38 | ●.75 | 3.2 | 17 | .13 | 2.3 | 21 | . 13 |
| 12 | e1.6 | e14 | ●.07 | 2.7 | 13 | .08 | 2.1 | 20 | . 12 |
| 13 | •7.7 | e52 | e1.2 | 2.3 | 10 | .06 | 2.1 | 20 | . 12 |
| 14 | e 3.3 | e 23 | 45 | 2.3 | 9 | .06 | 6.1 | 39 | 1.0 |
| 15 | e5. 0 | e4 0 | ●.72 | 2.2 | 10 | .06 | 4.3 | 16 | . 17 |
| 16 | 40 | 386 | 107 | 3.1 | 10 | .08 | 3.4 | 9 | .08 |
| 17 | 31 | 259 | 36 | 2.5 | 10 | .07 | 2.4 | 3 | .02 |
| 18 | 50 | 347 | 108 | 1.8 | 10 | .05 | 1.7 | 6 | .03 |
| 19 | 34 | 191 | 29 | 1.6 | 15 | .06 | · 1.5 | 6 | .02 |
| 20 | 44 | 459 | 161 | 1.9 | 10 | .05 | 1.5 | 6 | .02 |
| 21 | 96 | 669 | 273 | 2.1 | 10 | .06 | 1.7 | 6 | .02 |
| 22 | 25 | 184 | 14 | 2.3 | 10 | .06 | 1.7 | 6 | . 02 |
| 23 | 12 | 88 | 3.0 | 2.0 | 10 | .05 | 1.6 | 6 | .02 |
| 24 | 27 | 233 | 57 | 1.7 | 10 | .04 | 1.9 | 7 | .04 |
| 25 | 77 | 517 | 273 | 1.3 | 10 | .03 | 1.8 | 5 | . 03 |
| 26 | 64 | 515 | 126 | 1.2 | 10 | .03 | 1.6 | 5 | . 02 |
| 27 | 31 | 200 | 17 | 1.9 | 14 | .08 | 1.6 | 5 | . 02 |
| 28 | 16 | 150 | 6.7 | 5.0 | 35 | .68 | 1.8 | 10 | . 06 |
| 29 | 11 | 74 | 2.1 | 2.3 | 16 | .12 | 6.0 | 43 | 1.4 |
| 30 | 8.5 | 56 | 1.2 | 6.8 | 47 | .99 | 6.3 | 43 | . 86 |
| 31 | 6.2 | 40 | . 67 | | | | 49 | 890 | 166 |
| TOTAL | 623.17 | | 1227.13 | 146.9 | | 113.62 | 162.0 | | 192.13 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR-Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | MEAN | | | | MEAN | | MBAN | | |
|-------|-----------|---------|------------|-----------|----------|------------|-----------|---------|------------|
| | MRAN | CONCEN- | SEDIMENT | MBAN | CONCEN- | SEDIMENT | mran | CONCEN- | SEDIMENT |
| | DISCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE | Discharge | TRATION | Discharge |
| DAY | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) |
| | | JANUARY | | 1 | FEBRUARY | | | MARCH | |
| 1 | 11 | 59 | 2.0 | 1.6 | 8 | .03 | 1.8 | 15 | . 09 |
| 2 | 6.2 | 35 | . 59 | 1.3 | 6 | .02 | 1.2 | 10 | . 04 |
| 3 | 3.8 | 25 | . 27 | 1.3 | 6 | .02 | 1.2 | 10 | . 02 |
| 4 | 2.9 | 18 | . 13 | 1.3 | 6 | .02 | 1.5 | 10 | . 03 |
| 5 | 6.0 | 50 | 1.8 | 3.8 | 24 | .53 | 1.5 | 10 | . 04 |
| 6 | 8.4 | 61 | 1.6 | 3.2 | 26 | .28 | 4.1 | 27 | .39 |
| 7 | 6.9 | 38 | .70 | 2.4 | 22 | . 15 | 2.0 | 13 | . 08 |
| 8 | 7.9 | 52 | 1.3 | 1.6 | 20 | .09 | 4.2 | 30 | . 50 |
| 9 | 6.4 | 42 | .77 | 1.6 | 20 | .08 | 2.3 | 20 | . 12 |
| 10 | 4.3 | 34 | .41 | 1.8 | 20 | .10 | 1.2 | 18 | .06 |
| 11 | 2.9 | 33 | . 25 | 7.9 | 55 | 1.8 | 1.1 | 13 | .04 |
| 12 | 2.5 | 32 | . 22 | 8.0 | 55 | 3.1 | 1.1 | 11 | . 03 |
| 13 | 2.5 | 32 | . 22 | 10 | 83 | 2.9 | 1.0 | 10 | .02 |
| 14 | 2.2 | 31 | .18 | 3.4 | 28 | .30 | 1.3 | 8 | .02 |
| 15 | 2.1 | 28 | . 15 | 2.2 | 13 | .07 | 1.3 | 6 | .02 |
| 16 | 2.3 | 23 | . 13 | 1.7 | 11 | . 05 | .97 | 6 | .02 |
| 17 | 2.1 | 19 | .11 | 1.3 | 10 | .03 | .82 | 6 | .02 |
| 18 | 1.8 | 15 | . 08 | 1.5 | 12 | .05 | 1.1 | 6 | .02 |
| 19 | 1.7 | 11 | . 05 | 4.4 | 20 | .25 | 1.2 | 6 | .01 |
| 20 | 1.7 | 10 | . 04 | 2.3 | 11 | .06 | 1.0 | 5 | .02 |
| 21 | 1.7 | 10 | . 04 | 1.7 | 9 | .05 | 1.1 | 5 5 | .02 |
| 22 | 1.4 | 8 | . 04 | 1.4 | 6 | .03 | 2.3 | 5 | . 03 |
| 23 | 1.3 | 8 | . 03 | 1.5 | 7 | .02 | 2.0 | 5 | . 02 |
| 24 | 1.3 | 8 | .02 | 1.2 | 5 | .01 | 1.2 | 5 | . 01 |
| 25 | 1.2 | 7 | . 02 | 1.2 | 5 | .01 | 1.0 | 5 | . 02 |
| 26 | 1.1 | 6 | . 02 | 1.4 | 5 | .02 | 1.8 | 11 | . 16 |
| 27 | 1.1 | 6 | . 02 | 1.1 | 5 | .01 | 2.6 | 14 | . 15 |
| 28 | 1.1 | 13 | .04 | 2.6 | 16 | .19 | 1.1 | 5 | .02 |
| 29 | 1.1 | 9 | . 02 | | | | .83 | 5 | . 02 |
| 30 | 1.0 | 6 | . 02 | | | | .83 | 5 | . 02 |
| 31 | 1.4 | 8 | . 03 | === | | | .83 | 5 | . 02 |
| TOTAL | 99.3 | | 11.30 | 74.7 | | 10.27 | 47.48 | | 2.08 |

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR-Continued

| | | MRAN | | | Mean Mean | | | | |
|-------|-----------|---------|------------|-----------|-----------|------------|-----------|---------|------------|
| | MEAN | CONCEN- | SEDIMENT | MBAN | CONCEN- | Sediment | MEAN | CONCEN- | SEDIMENT |
| | DISCHARGE | TRATION | DISCHARGE | Discharge | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE |
| DAY | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) |
| | | APRIL | | | MAY | | | JUNE | |
| 1 | .81 | 5 | . 02 | . 67 | 4 | .00 | 2.2 | 8 | . 04 |
| 2 | .75 | 5 | . 02 | . 67 | 4 | .00 | 2.1 | 9 | .06 |
| 3 | .78 | 5 | .02 | . 94 | 4 | .01 | 1.3 | 10 | . 03 |
| 4 | .73 | 5 | .01 | .81 | 4 | .00 | 1.0 | 11 | . 02 |
| 5 | .72 | 4 | . 00 | .75 | 4 | .00 | 2.6 | 11 | .08 |
| 6 | .83 | 4 | .00 | . 75 | 4 | .00 | 1.5 | 10 | . 04 |
| 7 | .82 | 3 | .00 | .75 | 4 | .00 | 1.3 | 10 | .04 |
| 8 | 3.9 | 9 | .09 | 1.1 | 4 | .01 | 1.1 | 10 | . 02 |
| 9 | 3.2 | 9 | .08 | 1.4 | 4 | .02 | .78 | 10 | .01 |
| 10 | 2.3 | 13 | .09 | 1.4 | 4 | .02 | .48 | 10 | .01 |
| 11 | 2.1 | 14 | . 08 | 4.9 | 32 | 1.3 | .90 | 9 | . 02 |
| . 12 | 1.8 | 11 | .06 | 4.7 | 35 | .61 | 2.2 | 20 | .16 |
| 13 | 1.6 | 10 | . 05 | 1.0 | 11 | .03 | .87 | 6 | .02 |
| 14 | 1.5 | 8 | . 03 | .72 | 11 | .02 | .50 | 4 | .00 |
| 15 | 1.3 | 8 | . 02 | . 84 | 11 | .02 | .50 | 4 | .00 |
| 16 | 1.4 | 8 | . 04 | . 65 | 11 | .03 | .42 | 3 | .00 |
| 17 | 1.1 | 7 | . 02 | . 99 | 12 | .04 | .47 | 4 | .00 |
| 18 | 1.2 | 6 | .01 | 2.6 | 18 | .14 | .60 | 4 | .00 |
| 19 | 1.4 | 6 | . 02 | 1.6 | 10 | .04 | .51 | 4 | .00 |
| 20 | 1.0 | 6 | .02 | .79 | 10 | .02 | .42 | 4 | .00 |
| 21 | .93 | 6 | . 02 | 1.2 | 10 | .04 | 1.9 | 13 | .18 |
| 22 | .90 | 5 | . 02 | 4.2 | 21 | .32 | 2.1 | 14 | . 11 |
| 23 | .80 | 5 | .01 | 1.2 | 6 | .02 | .77 | 5 | . 02 |
| 24 | . 67 | 5 | .00 | . 83 | 3 | .01 | .74 | 5 | .01 |
| 25 | . 67 | 5 | .00 | 4.1 | 20 | .33 | .65 | 5 | .00 |
| 26 | .88 | 5 | .01 | 2.9 | 12 | .10 | .49 | 5 | .00 |
| 27 | .78 | 5 | . 02 | 1.6 | 10 | . 05 | .67 | 5 | .01 |
| 28 | .73 | 4 | .00 | 1.1 | 10 | .04 | .75 | 5 | .01 |
| 29 | . 67 | Ã | .00 | .83 | 10 | .02 | .60 | 5 | .00 |
| 30 | . 67 | Ā | .00 | 1.1 | 6 | .02 | 23 | 188 | 44 |
| 31 | | | | 1.3 | 7 | .04 | | | |
| TOTAL | 36.94 | | 0.76 | 48.39 | | 3.30 | 53.42 | | 44.89 |

RIO GRANDE DE LOIZA BASIN
50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR-Continued

| | MEAN | | | | MRAN | | Mran | | |
|-------|------------|-------------|------------|-----------|---------|------------|------------|----------|------------|
| | MRAN | CONCEN- | SEDIMENT | MRAN | CONCEN- | Sediment | MRAN | CONCEN- | SEDIMENT |
| | DI SCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE | DI SCHARGE | TRATION | DISCHARGE |
| DAY | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) |
| | | | | | | | | | |
| | | JULY | | | AUGUST | | SI | EPTEMBER | |
| 1 | 52 | 372 | 201 | . 87 | 6 | .02 | 1.6 | 11 | .05 |
| 2 | 6.7 | 27 | . 75 | .71 | 5 | .01 | 1.3 | 10 | . 03 |
| 3 | 2.3 | 11 | . 07 | .70 | 5 | .01 | .87 | 10 | . 02 |
| 4 | 2.2 | 10 | .06 | . 57 | 5 | .00 | .73 | 8 | . 02 |
| 5 | 1.3 | 10 | .04 | .47 | 5 | .00 | .63 | 6 | .01 |
| 6 | . 85 | 5 | .01 | 1.1 | 5 | .01 | . 69 | 6 | .01 |
| 7 | .66 | 5 | . 01 | .88 | 5 | .01 | .98 | 6 | .01 |
| 8 | .66 | 5 | . 00 | . 56 | 5 | .00 | .77 | 5 | . 02 |
| 9 | . 65 | 5 | . 00 | .46 | 30 | .03 | 5.3 | 38 | 1.0 |
| 10 | .61 | 5 | . 00 | .47 | 5 | .00 | 2.1 | 17 | . 12 |
| 11 | .55 | 5 | . 00 | .48 | 5 | .00 | 1.4 | 7 | .03 |
| 12 | .51 | 5 | .00 | .47 | 5 | .00 | .72 | 5 | . 01 |
| 13 | .33 | 5 5 5 | .00 | .48 | 5 | .00 | .60 | - i | . 00 |
| 14 | .33 | 5 | .00 | 3.0 | 21 | .46 | .54 | ā | . 00 |
| 15 | 13 | 25 | .47 | 4.2 | 25 | .47 | .42 | 4 | .00 |
| 16 | 71 | 430 | 156 | 1.0 | 8 | .02 | .38 | 4 | .00 |
| 17 | 14 | 37 | 1.6 | 2.6 | 17 | .27 | 48 | 364 | 157 |
| 18 | 7.8 | 31 | . 66 | 4.9 | 33 | .50 | 8.5 | 37 | .91 |
| 19 | 4.2 | 30 | .34 | 1.8 | 20 | .11 | 2.4 | 16 | . 12 |
| 20 | 3.5 | 25 | . 23 | 1.2 | 14 | . 04 | 1.1 | 6 | .02 |
| 21 | 1.8 | 15 | .08 | 1.6 | 11 | . 05 | 2.7 | 18 | .29 |
| 22 | 1.2 | 8 | .03 | 15 | 112 | 9.0 | 44. | 267 | 102 |
| 23 | .80 | 5 | .01 | 7.6 | 53 | 1.3 | 17 | 34 | 1.8 |
| 24 | 2.4 | 14 | .11 | 2.0 | 19 | .11 | 8.2 | 17 | .39 |
| 25 | 1.4 | 9 | .04 | 1.1 | | .04 | 4.1 | 14 | . 15 |
| | | , | . 04 | 1.1 | 14 | .04 | 4.1 | 14 | . 15 |
| 26 | .94 | 6 | .02 | .77 | 11 | .02 | 2.1 | 12 | . 07 |
| 27 | . 85 | 6 | . 02 | 39 | 413 | 175 | 1.2 | 10 | .03 |
| 28 | . 83 | 6 | . 02 | 19 | 131 | 7.9 | 2.9 | 18 | .24 |
| 29 | .80 | 5 | .01 | 7.3 | 49 | 1.0 | 27 | 191 | 16 |
| 30 | 4.4 | 23 | .48 | 3.2 | 22 | .22 | 16 | 113 | 5.3 |
| 31 | 1.8 | 11 | .08 | 2.9 | 14 | .10 | | | |
| TOTAL | 200.37 | | 362.14 | 126.39 | | 196.70 | 204.23 | | 285.65 |
| YEAR | 1823.29 | | 2449.97 | | | | | | |

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued WATER QUALITY DATA, WATER YEAR AUGUST 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|--|--|--|--|--|---|--|---|
| OCT 1990 | | | | | | | |
| 16 | 1331 | 251 | 7090 | 4800 | 28 | 42 | 59 |
| 17 | 1646 | 73 | 936 | 180 | 37 | 50 | 62 |
| 18 | 2000 | 1321 | 2440 | 870 | 32 | 38 | 46 |
| DRC | | | | • | | | |
| 31 JUL 1991 | 0400 | 91 | 3470 | 850 | 16 | 21 | 22 |
| 15 | 1047 | 60 | E000 | 056 | 53 | 60 | 82 |
| AUG | 1947 | 60 | 5900 | 956 | 23 | 62 | 04 |
| 27 | 1546 | 340 | 3311 | 2700 | 26 | 47 | 65 |
| SEP | 1340 | 340 | 3311 | 2700 | 20 | • / | 03 |
| 17 | 0916 | 172 | 9648 | 4480 | 18 | 26 | 40 |
| 22 | 1901 | 46 | 6547 | 813 | 45 | 63 | 93 |
| | | SED. | sed. | SED. | SRD. | SED. | SED. |
| | SED. SUSP. FALL DIAM. | Susp. Fall Diam. | SUSP. SIEVE DIAM. | Susp. Sieve Diam. | SUSP. SIEVE DIAM. | SUSP. SIEVE DIAM. | SUSP. SIEVE DIAM. |
| | SUSP. FALL DIAM. PERCENT | SUSP. FALL DIAM. PERCENT | SUSP. SIEVE DIAM. PERCENT | Susp. Sieve Diam. Percent | SUSP. SIEVE DIAM. PERCENT | SIEVE DIAM. PERCENT | SIEVE DIAM. PERCENT |
| 2157 | SUSP. FALL DIAM. PERCENT FINER | SUSP. FALL DIAM. PERCENT FINER | Susp. Sieve Diam. Percent Finer | SUSP. SIEVE DIAM. PERCENT FINER | SUSP. SIEVE DIAM. PERCENT FINER | Sieve Diam. Percent Finer | Sieve Diam. Percent Finer |
| DATE | SUSP. FALL DIAM. PERCENT FINER THAN | SUSP. FALL DIAM. PERCENT FINER THAN | SUSP. SIEVE DIAM. PERCENT FINER THAN | SUSP. SIEVE DIAM. PERCENT FINER TRAN | SUSP. SIEVE DIAM. PERCENT FINER THAN | SIEVE DIAM. PERCENT FINER THAN | SIEVE DIAM. PERCENT FINER THAN |
| DATE | SUSP. FALL DIAM. PERCENT FINER | SUSP. FALL DIAM. PERCENT FINER | Susp. Sieve Diam. Percent Finer | SUSP. SIEVE DIAM. PERCENT FINER | SUSP. SIEVE DIAM. PERCENT FINER | Sieve Diam. Percent Finer | Sieve Diam. Percent Finer |
| | SUSP. FALL DIAM. PERCENT FINER THAN | SUSP. FALL DIAM. PERCENT FINER THAN | SUSP. SIEVE DIAM. PERCENT FINER THAN | SUSP. SIEVE DIAM. PERCENT FINER TRAN | SUSP. SIEVE DIAM. PERCENT FINER THAN | SIEVE DIAM. PERCENT FINER THAN | SIEVE DIAM. PERCENT FINER THAN |
| OCT 1990 | SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SUSP. SIEVE DIAM. PERCENT FINER TRAN .125 MM | SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SIEVE DIAM. PERCENT FINER THAN .500 MM | SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 16 | SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SUSP. SIEVE DIAM. PERCENT FINER TRAN .125 MM | SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SIEVE DIAM. PERCENT FINER THAN .500 MM | SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 16 17 | SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SUSP. SIEVE DIAM. PERCENT FINER TRAN .125 MM | SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SIEVE DIAM. PERCENT FINER THAN .500 MM | SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 16 17 18 | SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SUSP. SIEVE DIAM. PERCENT FINER TRAN .125 MM | SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SIEVE DIAM. PERCENT FINER THAN .500 MM | SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 16 17 18 DEC | SUSP. FALL DEAM. PERCENT FINER THAN .016 MM 72 70 59 | SUSP. FALL DIAM. PERCENT FINER THAN .031 MM 78 74 | SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SUSP. SIEVE DIAM. PERCENT FINER TRAN .125 MM | SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SIEVE DIAM. PERCENT FINER THAN .500 MM | SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 16 17 18 DEC 31 | SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SUSP. SIEVE DIAM. PERCENT FINER TRAN .125 MM | SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SIEVE DIAM. PERCENT FINER THAN .500 MM | SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 16 17 18 DEC 31 JUL 1991 | SUSP. FALL JOIAM. PERCENT FINER THAN .016 MM 72 70 59 | SUSP. FALL DIAM. PERCENT FINER THAN .031 MM 78 74 | SUSP. SIEVE JOHN. PERCENT FINER THAN .062 MM 97 98 92 | SUSP. SIEVE DIAM. PERCENT FINER TRAN .125 MM 98 99 98 | SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM 99 100 100 | SIEVE DIAM. PERCENT FINER THAN .500 MM | SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 16 17 18 DEC 31 JUL 1991 15 | SUSP. FALL DEAM. PERCENT FINER THAN .016 MM 72 70 59 | SUSP. FALL FALL PERCENT FINER THAN .031 MM 78 74 70 | SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SUSP. SIEVE DIAM. PERCENT FINER TRAN .125 MM | SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SIEVE DIAM. PERCENT FINER THAN .500 MM | SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 16 17 18 DEC 31 JUL 1991 | SUSP. FALL JOIAM. PERCENT FINER THAN .016 MM 72 70 59 | SUSP. FALL FALL PERCENT FINER THAN .031 MM 78 74 70 | SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM 97 98 92 64 | SUSP. SIEVE DIAM. PERCENT FINER TRAN .125 MM 98 99 98 78 | SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM 99 100 100 88 | SIEVE DIAM. PERCENT FINER THAN .500 MM | SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 16 17 18 DEC 31 JUL 1991 15 | SUSP. FALL DIAM. PERCENT FINER THAN .016 MM 72 70 59 32 | SUSP. FAIL DIAM. PERCENT FINER THAN .031 MM 78 74 70 | SUSP. SIEVE JOHN. PERCENT FINER THAN .062 MM 97 98 92 | SUSP. SIEVE DIAM. PERCENT FINER TRAN .125 MM 98 99 98 | SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM 99 100 100 | SIEVE DIAM. PERCENT FINER THAN .500 MM 100 100 100 | SIEVE DIAM. PERCEMT FINER THAN 1.00 MM |
| OCT 1990 16 17 18 DEC 31 JUL 1991 15 AUG 27 | SUSP. FALL DIAM. PERCENT FINER THAN .016 MM 72 70 59 32 | SUSP. FAIL DIAM. PERCENT FINER THAN .031 MM 78 74 70 | SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM 97 98 92 64 | SUSP. SIEVE DIAM. PERCENT FINER TRAN .125 MM 98 99 98 78 | SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM 99 100 100 88 | SIEVE DIAM. PERCENT FINER THAN .500 MM 100 100 100 | SIEVE DIAM. PERCEMT FINER THAN 1.00 MM |

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO--Continued WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|---|
| OCT 1990 | | | | | |
| 16 | 1338 | 200 | 7200 | 3900 | 98 |
| 16 | 1345 | 162 | 6800 | 3000 | 99 |
| 16 | 1352 | 133 | 6000 | 2200 | 98 |
| 17 | 1726 | 62 | 776 | 130 | 99 |
| 17 | 1736 | 59 | 774 | 122 | 99 |
| 18 | 1746 | 102 | 595 | 160 | 84 |
| 18 | 2010 | 166 | 2200 | 990 | 92 |
| 18 | 2130 | 198 | 920 | 490 | 86 |
| 20 | 2316 | 605 | 4100 | 670 | 83 |
| 20 | 2346 | 475 | 2520 | 3230 | 88 |
| 24 | 2131 | 198 | 1000 | 530 | 91 |
| 24 | 2221 | 122 | 1200 | 400 | 74 |
| 24 | 2311 | 106 | 450 | 130 | 93 |
| DEC | _ | | | | |
| 31 | 0500 | 162 | 1450 | 630 | 85 |
| JAN 1991 | | | | | |
| 08 | 1124 | 9 | 690 | 17 | 99 |
| AUG | | | | | |
| 27 | 1521 | 141 | 5110 | 2000 | 79 |
| 27 | 1656 | 101 | 1480 | 403 | 96 |
| SEP | | | | | |
| 17 | 0841 | 88 | 2290 | 544 | 87 |
| 17 | 0952 | 379 | 1550 | 1600 | 85 |
| 22 | 1441 | 77 | 727 | 151 | 81 |
| 22 | 1541 | 275 | 2240 | 1700 | 96 |

50051310 RIO CAYAGUAS AT CERRO GORDO, PR

LOCATION.--Lat 18°09'13", long 65°57'20", Hydrologic Unit 21010005, at downstream side of bridge on Highway 912, at Barrio Cerro Gordo, 2.8 mi (4.5 km) south of San Lorenzo.

DRAINAGE AREA. -- 10.2 mi 2 (26.4 km2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 490 ft (150 m), from topographic map. Prior to Oct. 1, 1983, at site 2,000 ft (610 m) downstream at different datum.

REMARKS.--Records poor. Sand removal at a commercial level is practiced at times during the year. This takes place about one hundred feet downstream from the low water control. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--14 years (1978-91), 44.5 ft²/s (1.260 m²/s), 59.24 in/yr (1,505 mm/yr), 32,240 acre-ft/yr (39.75 hm²/yr); median of yearly mean discharges, 40.0 ft²/s (1.13 m²/s), 29,000 acre-ft/yr (35.8 hm²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,200 ft³/s (374 m³/s), Aug. 31, 1979, gage height, 9.44 ft (2.877 m), site and datum then in use, from rating curve extended above 1,000 ft³/s (28.3 m³/s) on basis of slope-area measurement; minimum discharge, 7.1 ft³/s (0.201 m³/s), Feb. 4, May 3, 1981; Apr. 12, 13, 16, 17, 1983.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 2,500 ft3/s (70.8 m3/s) and maximum (*):

| Date | Time | Disch (ft³/s) | marge (m³/s) | Gage height (ft) (m) | Date | Time | Disc (ft³/s) | harge (m³/s) | Gage (ft) | height (m) |
|---------|------|------------------|-----------------|----------------------|------|------|-----------------|-----------------|--------------|------------|
| Oct. 21 | 0045 | *1,150 | 32.6 | *10.30 3.139 | | | | | | |

Minimum discharge, 8.6 ft³/s (0.244 m³/s), June 27.

| | | DI SCHAI | RGE, CUBIC | FERT PE | | WATER YE. | | R 1990 TO | SEPTEMBE | R 1991 | | |
|-------|------|----------|------------|---------|------|-----------|------|-----------|----------|--------|-------|-------|
| DAY | OCT | MOA | DEC | Jan | yeb | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 19 | 34 | 26 | 26 | 17 | 18 | 14 | 11 | 11 | 194 | 15 | 11 |
| 2 | 17 | 32 | 26 | 21 | 16 | 18 | 14 | 11 | 11 | 25 | 15 | 11 |
| 3 | 17 | 29 | 26 | 20 | 19 | 19 | 14 | 11 | 9.4 | 19 | 14 | 11 |
| 4 | 16 | 42 | 25 | 20 | 17 | 18 | 13 | 11 | 9.4 | 17 | 14 | 10 |
| 5 | 15 | 46 | 22 | 21 | 27 | 18 | 13 | 12 | 11 | 16 | 14 | 10 |
| 6 | 15 | 33 | 22 | 20 | 33 | 28 | 13 | 9.8 | 15 | 15 | 15 | 10 |
| 7 | 15 | 30 | 21 | 21 | 26 | 22 | 13 | 9.9 | 13 | 14 | 14 | 10 |
| 8 | 14 | 29 | 21 | 23 | 19 | 21 | 14 | 10 | 11 | 15 | 13 | 10 |
| 9 | 17 | 28 | 21 | 22 | 19 | 19 | 13 | 12 | 10 | 14 | 13 | 12 |
| 10 | 23 | 27 | 21 | 22 | 19 | 18 | 18 | 9.7 | 10 | 14 | 12 | 12 |
| 11 | 19 | 26 | 21 | 21 | 27 | 17 | 14 | 9.3 | 11 | 14 | 12 | 11 |
| 12 | 15 | 26 | 21 | 21 | 32 | 16 | 14 | 10 | 12 | 13 | 12 | 10 |
| 13 | 25 | 26 | 20 | 19 | 31 | 16 | 13 | 9.6 | 11 | 13 | 12 | 9.7 |
| 14 | 16 | 25 | 27 | 20 | 22 | 16 | 13 | 9.4 | 9.9 | 13 | 12 | 9.5 |
| 15 | 16 | 25 | 26 | 22 | 21 | 16 | 13 | 9.4 | 9.6 | 22 | 11 | 9.3 |
| 16 | 22 | 25 | 23 | 20 | 20 | 15 | 15 | 9.4 | 9.4 | 48 | 9.8 | 9.4 |
| 17 | 17 | 24 | 20 | 18 | 19 | 15 | 13 | 9.6 | 9.1 | 22 | 14 | 51 |
| 18 | 29 | 24 | 20 | 18 | 19 | 16 | 13 | 13 | 9.2 | 17 | 13 | 17 |
| 19 | 38 | 25 | 20 | 17 | 23 | 17 | 13 | 11 | 9.2 | 17 | 11 | 12 |
| 20 | 50 | 24 | 20 | 17 | 22 | 16 | 12 | 12 | 9.1 | 18 | 10 | 10 |
| 21 | 219 | 24 | 20 | 17 | 24 | 15 | 12 | 13 | 10 | 15 | 15 | 14 |
| 22 | 39 | 24 | 20 | 16 | 21 | 18 | 13 | 16 | 9.7 | 15 | 22 | 20 |
| 23 | 32 | 23 | 20 | 16 | 19 | 17 | 12 | 11 | 9.5 | 16 | 14 | 27 |
| 24 | 70 | 23 | 19 | 16 | 20 | 15 | 12 | 10 | 9.8 | 17 | 12 | 18 |
| 25 | 120 | 23 | 19 | 16 | 20 | 15 | 13 | 15 | 9.4 | 15 | 11 | 14 |
| 26 | 91 | 25 | 19 | 16 | 19 | 15 | 12 | 13 | 9.0 | 14 | 10 | 12 |
| 27 | 56 | 25 | 20 | 16 | 18 | 15 | 12 | 10 | 11 | 15 | 41 | 15 |
| 28 | 50 | 23 | 20 | 16 | 19 | 15 | 12 | 9.6 | 10 | 14 | 28 | 38 |
| 29 | 46 | 23 | 22 | 16 | | 14 | 12 | 9.4 | 13 | 14 | 14 | 68 |
| 30 | 38 | 39 | 23 | 15 | | 14, | 12 | 9.2 | 129 | 18 | 14 | 26 |
| 31 | 34 | | 65 | 17 | | 14 | | 9.0 | | 18 | 12 | |
| TOTAL | 1210 | 832 | 716 | 586 | 608 | 526 | 394 | 335.3 | 430.7 | 711 | 448.8 | 507.9 |
| MBYN | 39.0 | 27.7 | 23.1 | 18.9 | 21.7 | 17.0 | 13.1 | 10.8 | 14.4 | 22.9 | 14.5 | 16.9 |
| MAX | 219 | 46 | 65 | 26 | 33 | 28 | 18 | 16 | 129 | 194 | 41 | 68 |
| MIN | 14 | 23 | 19 | 15 | 16 | 14 | 12 | 9.0 | 9.0 | 13 | 9.8 | 9.3 |
| AC-FT | 2400 | 1650 | 1420 | 1160 | 1210 | 1040 | 781 | 665 | 854 | 1410 | 890 | 1010 |
| CFSM | 3.83 | 2.72 | 2.26 | 1.85 | 2.13 | 1.66 | 1.29 | 1.06 | 1.41 | 2.25 | 1.42 | 1.66 |
| IN. | 4.41 | 3.03 | 2.61 | 2.14 | 2.22 | 1.92 | 1.44 | 1.22 | 1.57 | 2.59 | 1.64 | 1.85 |

CAL YR 1990 TOTAL 7383.5 MEAN 20.2 MAX 219 MIN 8.6 AC-FT 14650 CFSM 1.98 IN. 26.93 WTR YR 1991 TOTAL 7305.7 MEAN 20.0 MAX 219 MIN 9.0 AC-FT 14490 CFSM 1.96 IN. 26.64

50051310 RIO CAYAGUAS AT CERRO GORDO, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD .-- WATER YEARS AUGUST 1981 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | 7 | PIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (DEG C) |
|---------|--------|---------------------------------------|--------------------------------------|-----------------------------|------|----|------|---------------------------------------|--------------------------------------|-----------------------------|
| FEB. 20 | 0 1213 | 20.9 | 139 | 22.0 | JUL. | 17 | 1202 | 21.2 | 130 | 25.5 |
| MAR. 19 | 9 1120 | 16.5 | 145 | 23.0 | AUG. | 15 | 1008 | 11.0 | 140 | 24.5 |
| MAY. 19 | 5 1050 | 9.58 | 145 | 24.5 | SEP. | 13 | 1357 | 9.75 | 150 | 27.5 |
| JUN. 21 | 1 1116 | 12.0 | 135 | 25.3 | | | | | | |

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR

LOCATION.--Lat 18°11'09°, long 65°57'42°, Hydrologic Unit 21010005, at upstream side of bridge on Highway 183 by-pass, 0.4 mi (0.6 km) south from Plaza de San Lorenzo, 1.4 mi (2.2 km), southwest from Escuela Rafael Colón Garcia and 2.0 mi (3.2 km) northwest from Escuela Segunda Unidad de Carlos Zayas.

DRAINAGE AREA. -- 25.0 mi 2 (64.8 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- February 1990 to current year.

GAGE. -- Water-stage recorder. Elevation of gage is 262 ft (80 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Water purification plant located about 0.2 mi (0.3 km) upstream from gage. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,510 ft³/s (213 m²/s), Oct. 20, 1990, gage height, 16.60 ft (5.060 m), from rating curve extended above 2,000 ft³/s (56.6 m³/s) on basis of step-backwater analysis; minimum daily discharge, 15 ft³/s (0.425 m³/s), May 25, 30, 1990.

EXTREMES FOR PERIOD FEBRUARY TO SEPTEMBER 1990 AND WATER YEAR 1991.--Peak discharge greater than base discharge of 2,500 ft³/s (70.8 m³/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

| Discharge | | Gage | height | | | Disc | harge | Gage height | | | |
|--------------|------|---------|--------|--------|-------|---------------|--------|-------------|---------------------|--------|-------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) |
| June 14,1990 | 1945 | 2,590 | 73.3 | 12.12 | 3.694 | Oct. 20,1990 | 2350 | *7,510 | 213 | *16.60 | 5.060 |
| Aug. 10 | 0900 | 3,730 | 106 | 13.23 | 4.032 | Oct. 24 | 2125 | 4,180 | 118 | 13.68 | 4.170 |
| Aug. 28 | 1800 | *4,290 | 121 | *13.80 | 4.206 | June 30, 1991 | L 1400 | 4,590 | 130 | 14.06 | 4.285 |
| Oct. 16,1990 | 1445 | 2,590 | 73.3 | 12.12 | 3.694 | July 1 | 0545 | 2,690 | 76.2 | 12.22 | 3.725 |

Minimum daily discharge, 15 ft³/s (0.425 m³/s), May 25, 30, 1990, 17 ft³/s (0.481 m³/s) June 26, 1991.

| | | | , | | DAIL | MEAN VA | LUES | | | | | | |
|-------------|-----|-----|-----|-----|-------------|---------|------|------|------|------|------|--------|--|
| DAY | OCT | MOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | ÀUG | SEP | |
| 1 | | | | | e4 6 | 40 | 27 | 19 | 18 | 57 | 36 | 40 | |
| | | | | | e38 | 37 | 26 | 20 | 19 | 49 | 40 | 39 | |
| 2 3 4 | | | | | e35 | 33 | 27 | 19 | 18 | 38 | 40 | 39 | |
| 4 | | | | | e3 0 | 32 | 26 | 19 | 19 | 42 | 46 | 55 | |
| 5 | | | | | e2 9 | 30 | 27 | 19 | 41 | 41 | 56 | 35 | |
| 6 | | | | | e4 0 | 28 | 25 | 18 | 53 | 138 | 44 | 31 | |
| 7 | | | | | e50 | 27 | 23 | 18 | 39 | 77 | 54 | 29 | |
| 8 | | | | | e65 | 26 | 22 | 22 | 24 | 58 | 210 | 33 | |
| 9 | | | | | e50 | 29 | 22 | 154 | 38 | 42 | 81 | 32 | |
| 10 | | | | | 46 | 35 | 21 | 247 | 26 | 41 | 800 | 34 | |
| 11 | | | | | 36 | 34 | 20 | 118 | 21 | 39 | 193 | 28 | |
| 12 | | | | | 32 | 46 | 21 | 44 | 19 | 36 | 102 | 30 | |
| 13 | | | | | 33 | 50 | 42 | 34 | 19 | 37 | 115 | 52 | |
| 14 | | | | | 41 | 130 | 37 | 36 | 515 | 52 | 82 | 84 | |
| 15 | | | | | 37 | 64 | 24 | 30 | 399 | 55 | 67 | 79 | |
| 16 | | | | | 32 | 56 | 23 | 27 | 136 | 54 | 61 | 111 | |
| 17 | | | | | 35 | 56 | 24 | 25 | 77 | 49 | 54 | 76 | |
| 18 | | | | | 41 | 40 | 23 | 24 | 54 | 70 | 51 | 85 | |
| 19 | | | | | 35 | 34 | 26 | 21 | 46 | 135 | 51 | 78 | |
| 20 | | | | | 39 | 33 | 26 | 20 | 78 | 62 | 46 | 45 | |
| 21 | | | | | 60 | 30 | 21 | 17 | 50 | 44 | 43 | 39 | |
| 22 | | | | | 64 | 27 | 19 | 19 | 41 | 36 | 46 | 36 | |
| 23 | | | | | 57 | 31 | 19 | 19 | 38 | 31 | 49 | 99 | |
| 24 | | | | | 204 | 29 | 19 | 18 | 52 | 48 | 53 | 58 | |
| 25 | | | | | 60 | 28 | 53 | 15 | 263 | 224 | 47 | 44 | |
| 26 | | | | | 48 | 26 | 76 | 30 | 123 | 222 | 50 | 103 | |
| 27 | | | | | 41 | 27 | 49 | 25 | 72 | 89 | 38 | 70 | |
| 28 | | | | | 36 | 29 | 27 | 20 | 52 | 55 | 526 | 143 | |
| 29 | | | | | | 32 | 22 | 19 | 44 | 46 | 134 | 94 | |
| 30 | | | | | | 30 | 19 | 15 | 40 | 41 | 60 | 70 | |
| 31 | | | | | | 29 | | 17 | | 37 | 45 | | |
| TOTAL | | | | | 1360 | 1178 | 836 | 1148 | 2434 | 2045 | 3320 | 1791 | |
| MBAN | | | | | 48.6 | 38.0 | 27.9 | 37.0 | 81.1 | 66.0 | 107 | 59.7 | |
| MAX | | | | | 204 | 130 | 76 | 247 | 515 | 224 | 800 | 143 | |
| MIN | | | | | 29 | 26 | 19 | 15 | 18 | 31 | 36 | 28 | |
| AC-FT | | | | | 2700 | 2340 | 1660 | 2280 | 4830 | 4060 | 6590 | 3550 | |
| CFSM | | | | | 1.94 | 1.52 | 1.11 | 1.48 | 3.25 | 2.64 | 4.28 | 2.39 | |
| IN. | | | | | 2.02 | 1.75 | 1.24 | 1.71 | 3.62 | 3.04 | 4.94 | 2.67 | |

e Estimated

RIO GRANDE DE LOIZA BASIN
50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

| | | DI SCHARGE | CUBIC | FERT PER | | | YEAR OCTOBER VALUES | 1990 TO | Suptember | 1991 | | |
|--------|----------|------------|-------|----------|------|------|---------------------|-------------|-----------|------------|----------|----------|
| DAY | OCT | NOV | DEC | JAN | FEB | MAJ | | MAY | JUN | JUL | AUG | SEP |
| _ | | | | | | | | | | | | |
| 1 | 65 | 163 | 102 | 124 | 54 | 50 | | e22 | 25 | 597 143 | 38 36 | 43 60 |
| 2 | 51 57 | 152 | 84 | 77 | 46 | 50 | | e21 | 30 22 | 83 | 33 | 35 |
| 3 4 | | 138 | 122 | 65 | 56 | 53 | | e22 | | | 33 29 | 35 31 |
| | 50 | 359 | 95 | 59 | 50 | 67 | | e30 | 23 | 71 | | 29 |
| 5 | 46 | 320 | 70 | 82 | 121 | 63 | e28 | e 26 | 28 | 53 | 28 | 29 |
| 6 | 41 | 199 | 61 | 80 | 129 | 100 | | e25 | 52 | 47 | 30 | 33 |
| 7 | 37 | 152 | 56 | 86 | 81 | 89 | | e27 | 42 | 40 | 29 | 28 |
| 8 | 45 | 130 | 54 | 90 | 45 | 93 | | e25 | 33 | 34 | 25 | 31 |
| 9 | 135 | 113 | 53 | 89 | 40 | 67 | | e24 | 29 | 33 | 24 | 67 |
| 10 | 133 | 105 | 51 | 79 | 42 | 54 | e57 | e22 | 26 | 33 | 22 | 55 |
| 11 | 88 | 96 | 55 | 69 | 111 | 49 | e38 | e23 | 32 | 27 | 23 | 49 |
| 12 | 60 | 89 | 49 | 70 | 133 | 50 | -44 | e 55 | 82 | 25 | 20 | 37 |
| 13 | 142 | 84 | 42 | 66 | 155 | 45 | •34 | e2 8 | 38 | 25 | 22 | 34 |
| 14 | 117 | 79 | 229 | 67 | 68 | 47 | 7 •29 | e23 | 27 | 24 | 26 | 34 |
| 15 | 97 | 76 | 120 | 80 | 60 | 4! | 5 e 55 | e24 | 31 | 75 | 32 | 33 |
| 16 | 353 | 76 | 86 | 65 | 51 | 40 | -4 6 | e 26 | 23 | 371 | 26 | 31 |
| 17 | 144 | 74 | 70 | 55 | 46 | 37 | | e23 | 20 | 117 | 49 | 330 |
| 18 | 301 | 71 | 61 | 50 | 45 | 3(| e37 | e 39 | 20 | 69 | 62 | 132 |
| 19 | 724 | 70 | 56 | 49 | 80 | 47 | | e29 | 19 | 56 | 40 | 80 |
| 20 | 410 | 69 | 56 | 47 | 74 | 30 | | e 30 | 19 | 65 | 29 | 61 |
| 21 | 1390 | 66 | 52 | 46 | 94 | 34 | ı ⊕ 26 | e 54 | 26 | 50 | 61 | 79 |
| 22 | 243 | 70 | 53 | 44 | 69 | 40 | | 57 | 25 | 42 | 145 | 187 |
| 23 | 170 | 64 | 51 | 46 | 58 | 40 | | 31 | 21 | 44 | 95 | 217 |
| 24 | 484 | 60 | 52 | 44 | 59 | 3! | | 23 | 22 | 56 | 49 | 130 |
| 25 | 810 | 60 | 48 | 48 | 59 | 32 | | 197 | 21 | 48 | 38 | 85 |
| 26 | 800 | 74 | 45 | 46 | 58 | 31 | L e 26 | 62 | 17 | 38 | 35 | 69 |
| 27 | 398 | 90 | 47 | 46 | 49 | 31 | | 32 | 19 | 42 | 118 | 88 |
| 28 | 269 | 83 | 54 | 46 | 59 | 3(| | 26 | 24 | 40 | 170 | 165 |
| 29 | 213 | 64 | 70 | 45 | | e34 | | 22 | 30 | 39 | 71 | 268 |
| 30 | 192 | 159 | 78 | 43 | | e29 | | 21 | 609 | 64 | 56 | 198 |
| 31 | 188 | | 566 | 47 | | e29 | | 20 | | 51 | 46 | |
| TOTAL | 8253 | 3405 | 2688 | 1950 | 1992 | 1511 | L 954 | 1089 | 1435 | 2502 | 1507 | 2719 |
| MEAN | 266 | | 86.7 | 62.9 | 71.1 | 48.7 | | 35.1 | 47.8 | 80.7 | 48.6 | 90.6 |
| MAX | 1390 | 359 | 566 | 124 | 155 | 100 | | 197 | 609 | 597 | 170 | 330 |
| MIN | 37 | 60 | 42 | 43 | 40 | 29 | | 20 | 17 | 24 | 20 | 28 |
| AC-FT | 16370 | | 5330 | 3870 | 3950 | 3000 | | 2160 | 2850 | 4960 | 2990 | 5390 |
| CFSM | 10.6 | | 3.47 | 2.52 | 2.85 | 1.95 | | 1.41 | 1.91 | 3.23 | 1.94 | 3.63 |
| IN. | 12.28 | | 1.00 | 2.90 | 2.96 | 2.2 | | 1.62 | 2.14 | 3.72 | 2.24 | 4.05 |
| | | 3.0, | | 4.70 | 4.50 | 4.4 | . 1.44 | 1.45 | 4.44 | 3.74 | **** | #. U3 |

WTR YR 1991 TOTAL 30005 MEAN 82.2 MAX 1390 MIN 17 AC-FT 59510 CFSM 3.29 IN. 44.65

e Estimated

WATER QUALITY RECORDS

PERIOD OF RECORD .-- OCTOBER 1990 TO SEPTEMBER 1991

| DATE | | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) WATER QUALI | TEMPERA- TURE (DEG C) TY RECORDS | DATE | | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|------|----|------|---------------------------------------|---|---|------|----|------|---------------------------------------|--------------------------------------|-----------------------------|
| FRB. | 20 | 1420 | 49.0 | 174 | 24.5 | JUL. | 15 | 1104 | 19.3 | 180 | 28.0 |
| MAR. | 20 | 1352 | 33.7 | 175 | 27.0 | AUG. | 15 | 0834 | 35.8 | 190 | 28.0 |
| MAY | 14 | 1236 | 18.0 | 180 | 29.0 | SEP. | 12 | 1040 | 32.8 | 170 | 28.0 |
| JUN. | 19 | 1324 | 17.1 | 180 | 31.5 | | | | | | |

50053025 RIO TURABO ABOVE BORINQUEN, PR

LOCATION.--Lat 18°09'35", long 66°02'26", Hydrologic Unit 21010005, on left bank at Highway 765, 1.2 mi (1.9 km) south of Villa Borinquen, 8.1 mi (13.0 km) upstream from Río Grande de Loísa.

DRAINAGE AREA. -- 7.14 mi* (18.49 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- January 1990 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 492 ft (150 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 2,400 ft³/s (68.0 m²/s), Oct. 21, 1990, estimated based on a mean daily discharge correlation with station 50055000 and other stations in the same basin; minimum discharge, 3.9 ft³/s (0.110 m³/s), May 22, 23, 1990.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s (34.0 m³/s) and maximum (*):

| | | Disch | arge | Gage height | | | Disc | harge | Gage height |
|-----------|------------|------------------------|-------------|-------------------|----------|------|---------|--------|-------------|
| Date | Time | (ft³/s) | (m³/s) | (ft) (m) | Date | Time | (ft³/s) | (m³/s) | (ft) (m) |
| Oct. 21 | unknown | +2,400 | 68.0 | unknown | Sept. 17 | 0900 | 2,320 | 65.7 | 12.86 3.920 |
| Minimum d | discharge, | 4.4 ft ³ /s | (0.125 m³/s |), Aug. 8-17, 19, | 20. | | | | |

DISCHARGE, CUBIC FRET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES

| DAY | OCT | NOA | DBC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
|-------|-------------|------------|------|-------|-------|-------|-------------|-------|-------|-------|-------|-------|
| 1 | 13 | 18 | 17 | 29 | 11 | 12 | 6.9 | 5.7 | 6.2 | 102 | 5.1 | 6.2 |
| 2 | 8.0 | 17 | 16 | 19 | 9.8 | 11 | 6.7 | 5.7 | 6.5 | 14 | 5.1 | 7.4 |
| 3 | 8.4 | 16 | 36 | 16 | 10 | 11 | 6.6 | 5.7 | 6.2 | 9.4 | 5.1 | 5.7 |
| 4 | 7.7 | 63 | 22 | 13 | 10 | 16 | 6.6 | 7.1 | 6.0 | 8.5 | 4.8 | 5.4 |
| 5 | 6.5 | 5 5 | 16 | 45 | 19 | 13 | 6.6 | 6.3 | 6.4 | 7.6 | 4.9 | 5.4 |
| 6 | 6.1 | 26 | 15 | 21 | 14 | 18 | 6.6 | 6.1 | 7.7 | 7.4 | 4.9 | 5.7 |
| 7 | 6.4 | 21 | 14 | 19 | 12 | 20 | 6.5 | 5.7 | 7.6 | 6.8 | 4.8 | 5.6 |
| 8 | 7.4 | 19 | 13 | 21 | 11 | 15 | 10 | 5.7 | 6.9 | 6.3 | 4.4 | 5.3 |
| 9 | 6.4 | 17 | 13 | 21 | 9.8 | 12 | 7.5 | 6.3 | 6.7 | 6.4 | 4.4 | 11 |
| 10 | 8.3 | 16 | 13 | 21 | 12 | 11 | 10 | 6.1 | 6.3 | 6.3 | 4.4 | 7.3 |
| 11 | 7.4 | 15 | 13 | 18 | 32 | 11 | 7.6 | 21 | 8.3 | 6.2 | 4.4 | 7.5 |
| 12 | 6.3 | 15 | 13 | 17 | 97 | 10 | 7.9 | 11 | 19 | 5.7 | 4.4 | 6.3 |
| 13 | 22 | 15 | 12 | 15 | 41 | 9.7 | 7.2 | 6.1 | 8.3 | 5.6 | 4.4 | 6.0 |
| 14 | 30 | 14 | 87 | 15 | 19 | 10 | 6.9 | 5.8 | 7.3 | 5.1 | 4.4 | 6.0 |
| 15 | 25 | 14 | 35 | 17 | 15 | 9.1 | e8.4 | 6.0 | 6.7 | 68 | 4.7 | 5.7 |
| 16 | 148 | 14 | 18 | 15 | 13 | 8.5 | 8.2 | 5.8 | 6.1 | 277 | 4.7 | 5.7 |
| 17 | e45 | 14 | 15 | 13 | 12 | 8.0 | 6.9 | 5.5 | 6.2 | 19 | 7.1 | 240 |
| 18 | e 60 | 13 | 14 | 12 | 13 | 9.1 | 7.1 | 6.9 | 6.0 | 10 | 7.6 | 20 |
| 19 | ●70 | 13 | 13 | 11 | 17 | 10 | 6.4 | 6.3 | 5.8 | 8.6 | 5.7 | 18 |
| 20 | e 50 | 13 | 12 | 11 | 18 | 8.5 | 6.3 | 6.0 | 5.7 | 7.7 | 4.4 | 12 |
| 21 | ●300 | 14 | 12 | 11 | 19 | 7.6 | 6.3 | 6.5 | 6.1 | 6.3 | 5.3 | 11 |
| 22 | 42 | 16 | 12 | 11 | 15 | 12 | 6.3 | 6.8 | 6.1 | 6.2 | 62 | 52 |
| 23 | 33 | 13 | 11 | 11 | 14 | 9.5 | 6.2 | 5.9 | 5.8 | 6.0 | 13 | 37 |
| 24 | 64 | 12 | 11 | 9.9 | 14 | 7.4 | 6.1 | 5.4 | 5.9 | 8.0 | 7.3 | 17 |
| 25 | 126 | 12 | 11 | 9.1 | 13 | 7.3 | 5.9 | 130 | 5.7 | 6.1 | 6.1 | 12 |
| 26 | 204 | 14 | 11 | 9.0 | 12 | 43 | 6.3 | 11 | 5.7 | 5.7 | 5.5 | 10 |
| 27 | 80 | 19 | 10 | 8.9 | 12 | 9.7 | 6.2 | 7.8 | 5.8 | 5.7 | 91 | 9.2 |
| 28 | 37 | 15 | 10 | 9.6 | 12 | 8.1 | 5.7 | 7.0 | 5.5 | 5.4 | 21 | 32 |
| 29 | 26 | 15 | 12 | 9.3 | | 7.6 | 5.7 | 6.6 | 8.3 | 5.1 | 9.2 | 69 |
| 30 | 22 | 22 | 15 | 9.2 | | 7.4 | 5.7 | 6.6 | 87 | 8.0 | 7.4 | 22 |
| 31 | 19 | | 195 | 12 | | 6.9 | | 6.4 | | 6.0 | 6.5 | |
| TOTAL | 1494.9 | 560 | 717 | 479.0 | 506.6 | 359.4 | 207.3 | 340.8 | 287.8 | 656.1 | 334.0 | 663.4 |
| MEAN | 48.2 | 18.7 | 23.1 | 15.5 | 18.1 | 11.6 | 6.91 | 11.0 | 9.59 | 21.2 | 10.8 | 22.1 |
| MAX | 300 | 63 | 195 | 45 | 97 | 43 | 10 | 130 | 87 | 277 | 91 | 240 |
| MIN | 6.1 | 12 | 10 | 8.9 | 9.8 | 6.9 | 5.7 | 5.4 | 5.5 | 5.1 | 4.4 | 5.3 |
| AC-PT | 2970 | 1110 | 1420 | 950 | 1000 | 713 | 411 | 676 | 571 | 1300 | 662 | 1320 |
| CFSM | 6.75 | 2.61 | 3.24 | 2.16 | 2.53 | 1.62 | . 97 | 1.54 | 1.34 | 2.96 | 1.51 | 3.10 |
| IN. | 7.79 | 2.92 | 3.74 | 2.50 | 2.64 | 1.87 | 1.08 | 1.78 | 1.50 | 3.42 | 1.74 | 3.46 |

CAL YR 1990 TOTAL 6364.3 MEAN 17.4 MAX 300 MIN 4.1 AC-FT 12620 CFSM 2.44 IN. 33.16 WTR YR 1991 TOTAL 6606.3 MEAN 18.1 MAX 300 MIN 4.4 AC-FT 13100 CFSM 2.53 IN. 34.42

e Estimated

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RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | STRRAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) | DATE | TIME | STRRAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) |
|--------------------|------|---------------------------------------|--------------------------------------|-----------------------------|--------------------|------|---------------------------------------|--------------------------------------|-----------------------------|
| FEB. 19 JUNE 25 | | 3.21 5.57 | 152 175 | 22.5 27.5 | JULY 12 AUG. 22 | | 5.63 29.2 | 175 160 | 27.5 24.5 |

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR

LOCATION.--Lat 18°14'33", long 66°00'34", Hydrologic Unit 21010005, on right bank 250 ft (76 m) upstream from bridge on Highway 189, 1.2 mi (1.9 km) downstream from Río Turabo, and 1.8 mi (2.9 km) east of Plaza de Caguas.

DRAINAGE AREA. -- 89.8 mi2 (232.6 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- 1959 (low-flow measurement only), February to November 1959 (monthly measurements only), December 1959 to current year.

GAGE. -- Water-stage recorder. Datum of gage is 143.28 ft (43.672 m) above mean sea level.

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

Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGES.--31 years (1961-91), 220 ft³/s (6.230 m²/s), 33.27 in/yr (845 mm/yr), 159,400 acre-ft/yr (196 hm²/yr), median of yearly mean discharges, 210 ft³/s (5.95 m³/s), 152,000 acre-ft/yr (190 hm²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,500 ft³/s (2,020 m³/s), Sept. 6, 1960, gage height, 31.17 ft (9.501 m), from rating curve extended above 6,000 ft³/s (170 m³/s) on basis of slope-area measurement; minimum daily discharge, 10 ft³/s (0.283 m³/s), Apr. 5, 10, 29, 1968.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 8,000 ft³/s (226 m³/s) and maximum (*):

| D -4 | | Disch | | | height | | | Disc! (ft³/s) | harge | Gage hei | |
|-------------|------|---------|--------|--------|--------|------|----------|------------------|------------|--------------|----|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | | (m³/s) | | m) |
| Oct. 21 | 0050 | *12,900 | 365 | *15.27 | 4.654 | No | other pe | ak greathe | r than bas | e discharge. | |

Minimum daily discharge, 20 ft3/s (0.566 m3/s), Aug. 13.

| | | DI SCHARGE | , CUBIC | FEET PER | | WATER Y Y MRAN V | TEAR OCTOBER ALUES | 1990 TO | September | 1991 | | |
|-------|---------------|--------------|---------|----------|------|---------------------|-----------------------|--------------|---------------|--------------|------|--------------|
| DAY | OCT | NOV | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 119 | e2 00 | 208 | 377 | 89 | 80 | 42 | 22 | 34 | e1610 | 46 | 54 |
| 2 | 75 | 185 | 124 | 207 | 71 | 65 | 40 | 23 | 45 | 296 | 39 | 82 |
| 3 | 75 | 164 | 227 | 147 | 77 | 65 | 42 | 24 | 35 | 137 | 37 | 46 |
| 4 | 91 | 399 | 195 | 126 | 75 | 95 | 38 | 21 | 31 | 111 | 35 | 38 |
| 5 | 68 | 460 | 116 | 141 | 182 | 89 | 36 | 26 | 45 | 84 | 31 | 35 |
| 6 | 65 | 287 | 99 | 208 | 270 | 159 | 37 | 26 | 64 | 69 | 34 | 32 |
| 7 | e128 | 192 | 89 | 165 | 165 | 136 | 35 | 26 | 65 | 60 | 38 | 33 |
| 8 | 64 | 180 | 86 | 164 | 87 | 123 | 50 | 26 | 53 | 54 | 29 | 34 |
| 9 | e144 | 156 | 85 | 180 | 76 | 102 | 62 | 32 | 41 | 51 | 26 | 65 |
| 10 | e 326 | 144 | 85 | 150 | 71 | 72 | 55 | 37 | 35 | 45 | 25 | 91 |
| 11 | 169 | 136 | 116 | 140 | 221 | 63 | 55 | 59 | 42 | 44 | 23 | 54 |
| 12 | 93 | 128 | 107 | 124 | 243 | 66 | 55 | 133 | 106 | 37 | 23 | 46 |
| 13 | 192 | 122 | 73 | 131 | 383 | 61 | 47 | 47 | 72 | 36 | 20 | 33 |
| 14 | 161 | 117 | 418 | 117 | 132 | 62 | 39 | 29 | 42 | 36 | 25 | 31 |
| 15 | e4 79 | 113 | 235 | 136 | 102 | 61 | 36 | 30 | 39 | 166 | 42 | 29 |
| 16 | e1400 | 115 | 142 | 128 | 86 | 56 | 69 | 27 | 33 | e1480 | 29 | 24 |
| 17 | 397 | 115 | 99 | 106 | 75 | 52 | 42 | 26 | 28 | 248 | 53 | e1300 |
| 18 | 679 | 105 | 84 | 97 | 73 | 53 | 39 | 44 | 25 | 110 | 107 | 227 |
| 19 | 843 | 102 | 77 | 89 | 141 | 72 | 40 | 43 | 25 | 82 | 53 | 169 |
| 20 | 508 | 102 | 74 | 85 | 103 | 58 | 34 | 33 | 24 | 89 | 36 | 106 |
| 21 | 3580 | 97 | 72 | 80 | 123 | 52 | 31 | 39 | 29 | 63 | 59 | 114 |
| 22 | 500 | 112 | 70 | 76 | 99 | 93 | 31 | 84 | 39 | 52 | 235 | e4 87 |
| 23 | 276 | 100 | 71 | 74 | 77 | 101 | 30 | 43 | 33 | 47 | 217 | 429 |
| 24 | e1 000 | 89 | 73 | 73 | 77 | 61 | 28 | 31 | 33 | 61 | 73 | 209 |
| 25 | e1 700 | 83 | 66 | 72 | 76 | 51 | 25 | e4 63 | 29 | 64 | 49 | 123 |
| 26 | e1 500 | 91 | 60 | 74 | 76 | 75 | 29 | 138 | 28 | 44 | 38 | 95 |
| 27 | e 750 | 122 | 61 | 70 | 65 | 76 | 27 | 64 | 22 | 47 | e643 | 89 |
| 28 | e 700 | 137 | 72 | 69 | 72 | 53 | 24 | 44 | 32 | 44 | e421 | 204 |
| 29 | € 700 | 93 | 101 | 68 | | 46 | 22 | 39 | 28 | 40 | 122 | 727 |
| 30 | e750 | 187 | 132 | 68 | | 44 | 21 | 35 | e104 0 | 55 | 77 | 360 |
| 31 | €300 | • | 1450 | 66 | | 42 | | 33 | | 69 | 64 | |
| TOTAL | 17832 | | 4967 | 3808 | 3387 | 2284 | 1161 | 1747 | 2197 | 5431 | 2749 | 5366 |
| MBAN | 575 | 154 | 160 | 123 | 121 | 73.7 | 38.7 | 56.4 | 73.2 | 175 | 88.7 | 179 |
| MAX | 3580 | | 1450 | 377 | 383 | 159 | 69 | 463 | 1040 | 1610 | 643 | 1300 |
| MIN | 64 | 83 | 60 | 66 | 65 | 42 | 21 | 21 | 22 | 36 | 20 | 24 |
| AC-PT | 35370 | | 9850 | 7550 | 6720 | 4530 | 2300 | 3470 | 4360 | 10770 | 5450 | 10640 |
| CPSM | 6.41 | | 1.78 | 1.37 | 1.35 | . 82 | .43 | . 63 | . 82 | 1.95 | .99 | 1.99 |
| IN. | 7.39 | 1.92 | 2.06 | 1.58 | 1.40 | . 95 | .48 | .72 | .91 | 2.25 | 1.14 | 2.22 |

CAL YR 1990 TOTAL 51010 MEAN 140 MAX 3580 MIN 17 AC-FT 101200 CFSM 1.56 IN. 21.13 WTR YR 1991 TOTAL 55562 MEAN 152 MAX 3580 MIN 20 AC-FT 110200 CFSM 1.70 IN. 23.02

e Estimated

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1959 to current year.

PERIOD OF DAILY RECORD. --SUSPENDED-SEDIMENT DISCHARGE: October 1983 to September 1989.

INSTRUMENTATION. -- USD-49 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD. --

SEDIMENT CONCENTRATION: Maximum daily mean, 14,500 mg/L Nov 27, 1987; Minimum daily mean, 11 mg/L

August 12, 1985.

SEDIMENT LOADS: Maximum daily mean, 227,000 tons (205,890 tonnes) Nov 27, 1987; Minimum daily mean, 1.3 tons (1.2) July 14, 1985.

EXTREMES FOR CURRENT YEAR.--SEDIMENT CONCENTRATION: Maximum daily mean, 691 mg/L October 23,1989 ; minimum daily mean,

12 mg/L October 27, 1989.

SEDIMENT LOADS: Maximum daily mean, 2,830 tons (2,580 tonnes) August 10, 1990; minimum daily 1.4 ton (1.3 tonnes) May 25, 1990.

REVISIONS . --

MEAN CONCENTRATION (mg/L): On May 13, 1986 is 1,550. SEDIMENT DISCHARGE (tons/day): On May 13, 1986 is 36,300.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|--|---|---|---|--|--|---|---|---|---|---|---|
| NOV 1990 | | | | | | | | | | | |
| 01 DEC | 0945 | 217 | 216 | 7.6 | 26.0 | 360 | 7.3 | 89 | 22 | 25000 | 4700 |
| 11 FRB 1991 | 0920 | 80 | 258 | 7.4 | 23.5 | 19 | 7.7 | 90 | 10 | K27 | K170 |
| 14 APR | 0910 | 138 | 187 | 7.4 | 23.0 | 51 | 8.0 | 93 | 21 | 4300 | 720 |
| 11 | 0845 | 192 | 250 | 7.3 | 24.5 | 54 | 7.0 | 84 | 19 | 27000 | 3900 |
| JUN 25 AUG | 1015 | 30 | 273 | 7.7 | 29.5 | 10 | 7.0 | 91 | 15 | 490 | K20 |
| 22 | 0910 | 75 | 223 | 7.3 | 28.5 | 40 | 8.5 | 110 | 19 | K9100 | 700 |
| | | | | | | | | | | | |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 01 DEC | ness Total (MG/L As | NESS NONCARB WH WAT TOT FLD MG/L AS | DIS- SOLVED (MG/L | SIUM, DIS- SOLVED (MG/L | DIS- SOLVED (MG/L | AD- SORP- TION | SIUM, DIS- SOLVED (MG/L | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 01 DEC 11 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 01 DBC 11 FEB 1991 14 | NESS TOTAL (MG/L AS CACO3) | NESS MONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 01 DEC 11 FEB 1991 14 APR 11 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS 8) <0.5 | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 01 DEC 11 FEB 1991 14 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARE WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) 5.7 | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) <0.5 | DIS- SOLVED (MG/L AS SO4) 13 | RIDE, DIS- SOLVED (MG/I AS CL) |

K = non-ideal count

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50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI- TURNTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DRG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------------|---|---|---|---|---|---|---|---|--|---|
| NOV 1990 | | | | | | | | | | |
| 01 Dec | <0.10 | 31 | 151 | 88.5 | 572 | 0.430 | 0.070 | 0.500 | 0.110 | 0.59 |
| 11 FEB 1991 | | | | | 37 | 0.470 | 0.030 | 0.500 | 0.080 | 0.32 |
| 14 | | | | | 54 | 0.650 | 0.050 | 0.700 | 0.100 | 0.20 |
| 11 JUN | <0.10 | 30 | 161 | 83.0 | 84 | 0.330 | 0.080 | 0.410 | 0.130 | 0.37 |
| 25 AUG | | | | | 10 | 0.530 | 0.030 | 0.560 | 0.060 | 2.2 |
| 22 | 0.10 | 31 | 152 | 30.8 | 61 | 0.270 | 0.040 | 0.310 | 0.110 | 1.5 |
| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
| NOV 1990 | | | | | | | | | | |
| 01 DEC | 0.70 | 1.2 | 5.3 | 0.170 | <1 | 200 | <10 | <1 | 3 | 60 |
| 11 FRB 1991 | 0.40 | 0.90 | 4.0 | 0.190 | | | | | | |
| 14 | 0.30 | 1.0 | 4.4 | 0.170 | | | | | | |
| APR 11 | 0.50 | 0.91 | 4.0 | 0.220 | 1 | <100 | 30 | <1 | 2 | 10 |
| JUN 25 | 2.3 | 2.9 | 13 | 0.310 | | | | | | |
| AUG 22 | 1.6 | 1.9 | 8.5 | 0.220 | | | | | | |
| | IRON, TOTAL RECOV- ERABLE | LEAD, TOTAL RECOV- ERABLE | MANGA - NESE, TOTAL RECOV - ERABLE | MERCURY TOTAL RECOV- ERABLE | SELE- NIUM, TOTAL | SILVER, TOTAL RECOV- ERABLE | ZINC, TOTAL RECOV- ERABLE | CYANIDE TOTAL | PHENOLS | METHY- LENE BLUE ACTIVE SUB- |
| DATE | (UG/L As fr) | (UG/L AS PB) | (UG/L As mn) | (UG/L AS HG) | (UG/L As se) | (UG/L As ag) | (UG/L AS ZN) | (MG/L AS CN) | TOTAL (UG/L) | Stance (MG/L) |
| NOV 1990 | | | | | | | | | | |
| 01 DEC | 26000 | 9 | 1700 | 0.60 | <1 | <1 | 110 | <0.010 | 5 | <0.01 |
| 11 FRB 1991 | | | | | | | | | | |
| 14 APR | | | | | | | | | | |
| 11 | 3500 | 2 | 310 | <0.10 | <1 | <1 | 20 | <0.010 | <1 | 0.04 |
| 25 AUG | | | | | | | | | | |
| 22 | | | | | | | | | | |

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

WATER-OUALITY RECORDS

PERIOD OF RECORD. -- Water years 1959 to current year.

PERIOD OF DAILY RECORD . --

SUSPENDED-SEDIMENT DISCHARGE: October 1983 to September 1991.

INSTRUMENTATION .-- USD-49 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD . --

SEDIMENT CONCENTRATION: Maximum daily mean, 14,500 mg/L Nov 27, 1987; Minimum daily mean, 11 mg/L

August 12, 1985.
SEDIMENT LOADS: Maximum daily mean, 227,000 tons (205,890 tonnes) Nov 27, 1987; Minimum daily mean, 1.1 tons (1.0) August 13, 1991.

EXTREMES FOR CURRENT YEAR.-SEDIMENT CONCENTRATION: Maximum daily mean, 1,650 mg/L October 21,1990; minimum daily mean,
8 mg/L February 27, 1991.
SEDIMENT LOADS: Maximum daily mean, 25,500 tons (23,100 tonnes) October 21, 1990; minimum daily
1.1 ton (1.0 tonnes) August 13, 1991.

| WATER-QUALITI DATA, WATER IEAR OCTOBER 1990 TO SEPTEMBER . | TY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 19 | : 1 | ĸ | KK | MBI | 'EL | T | ъ. | SKI | o s | TO |) | 90 | 199 | R | TOBE | oc | EAR. | Y | TER | NA? | TA. | DA | LITY | -QUA | TER: | WA |
|--|--|-----|---|----|-----|-----|---|----|-----|-----|----|---|----|-----|---|------|----|------|---|-----|-----|-----|----|------|------|------|----|
|--|--|-----|---|----|-----|-----|---|----|-----|-----|----|---|----|-----|---|------|----|------|---|-----|-----|-----|----|------|------|------|----|

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEBT PER SECOND | SPR- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|--|---|---|---|--|--|---|---|---|---|---|---|
| NOV 1990 | 2045 | 217 | | | 25.0 | | | 89 | 22 | 25000 | 4700 |
| 01 DBC | 0945 | 21/ | 216 | 7.6 | 26.0 | 360 | 7.3 | 69 | 44 | 25000 | 4700 |
| 11 FEB 1991 | 0920 | 80 | 258 | 7.4 | 23.5 | 19 | 7.7 | 90 | 10 | K27 | K170 |
| 14 APR | 0910 | 138 | 187 | 7.4 | 23.0 | 51 | 8.0 | 93 | 21 | 4300 | 720 |
| 11 JUN | 0845 | 192 | 250 | 7.3 | 24.5 | 54 | 7.0 | 84 | 19 | 27000 | 3900 |
| 25 AUG | 1015 | 30 | 273 | 7.7 | 29.5 | 10 | 7.0 | 91 | 15 | 490 | K20 |
| 22 | 0910 | 75 | 223 | 7.3 | 28.5 | 40 | 8.5 | 110 | 19 | K9100 | 700 |
| | | | | | | | | | | | |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| DATE NOV 1990 01 | ness Total (MG/L As | NESS NONCARB WH WAT TOT FLD MG/L AS | DIS- SOLVED (MG/L | SIUM, DIS- SOLVED (MG/L | DIS- SOLVED (MG/L | AD- SORP- TION | SIUM, DIS- SOLVED (MG/L | LINITY WAT WH TOT FET FIELD MG/L AS | TOTAL (MG/L | DIS- SOLVED (MG/L | RIDE, DIS- SOLVED (MG/L |
| NOV 1990 01 DEC | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 01 DEC 11 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 01 DEC 11 FEB 1991 14 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 01 DEC 11 FEB 1991 14 APR 11 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WE WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) 18 | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) <0.5 | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 01 DEC 11 FEB 1991 14 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) 18 | SIUM, DIS- SOLVED (MG/L AS MG) 5.7 | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 69 86 | TOTAL (MG/L AS S) <0.5 | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |

K = non-ideal count

RIO GRANDE DE LOIZA BASIN 50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------------|---|---|---|---|---|---|---|---|--|--|
| NOV 1990 01 | <0.10 | 31 | 151 | | 572 | 0.430 | 0.070 | 0.500 | 0.110 | 0.59 |
| DEC | ₹0.10 | 31 | 151 | 88.5 | 5/2 | 0.430 | 0.070 | 0.500 | | U.39 |
| 11 FEB 1991 | | | | | 37 | 0.470 | 0.030 | 0.500 | 0.080 | 0.32 |
| 14 APR | | | | | 54 | 0.650 | 0.050 | 0.700 | 0.100 | 0.20 |
| 11 Jun | <0.10 | 30 | 161 | 83.0 | 84 | 0.330 | 0.080 | 0.410 | 0.130 | 0.37 |
| 25 | | | | | 10 | 0.530 | 0.030 | 0.560 | 0.060 | 2.2 |
| 22 | 0.10 | 31 | 152 | 30.8 | 61 | 0.270 | 0.040 | 0.310 | 0.110 | 1.5 |
| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
| NOV 1990 | | | | | | | | | | |
| 01 DRC | 0.70 | 1.2 | 5.3 | 0.170 | <1 | 200 | <10 | <1 | 3 | 60 |
| 11 FRB 1991 | 0.40 | 0.90 | 4.0 | 0.190 | | | | | | |
| 14 | 0.30 | 1.0 | 4.4 | 0.170 | | | | | | |
| 11 JUN | 0.50 | 0.91 | 4.0 | 0.220 | 1 | <100 | 30 | <1 | 2 | 10 |
| 25 AUG | 2.3 | 2.9 | 13 | 0.310 | | | | | | |
| 22 | 1.6 | 1.9 | 8.5 | 0.220 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA - NESE, TOTAL RECOV- BRABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 | | | | | | | | | | |
| 01 | 26000 | 9 | 1700 | 0.60 | <1 | <1 | 110 | <0.010 | 5 | <0.01 |
| 11 FEB 1991 | | | | | | | | | | |
| 14 | | | | | | | | | | |
| 11 JUN | 3500 | 2 | 310 | <0.10 | <1 | <1 | 20 | <0.010 | <1 | 0.04 |
| 25 AUG | | | | 1- | | | | | | |
| 22 | | | | | | | | | | |

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | OCTOBER | | 1 | NOVEMBER | | 1 | DECEMBER | |
| 1 | 119 | 99 | 35 | e200 | e147 | e 79 | 208 | 147 | 85 |
| 2 | 75 | 64 | 13 | 185 | 285 | 138 | 124 | 73 | 25 |
| 3 | 75 | 66 | 14 | 164 | 265 | 119 | 227 | 117 | 97 |
| 4 | 91 | 103 | 27 | 399 | 368 | 624 | 195 | 141 | 83 |
| 5 | 68 | 90 | 16 | 460 | 329 | 500 | 116 | 67 | 22 |
| 6 | 65 | 76 | 13 | 287 | 361 | 302 | 99 | 42 | 11 |
| 7 | e128 | e104 | e 68 | 192 | 288 | 161 | 89 | 40 | 9.5 |
| 8 | 64 | 64 | 12 | 180 | 238 | 122 | 86 | 39 | 8.8 |
| 9 | 0144 | e109 | ●87 | 156 | 195 | 86 | 85 | 37 | 8.4 |
| 10 | e 326 | e 318 | e 291 | 144 | 170 | 68 | 85 | 33 | 7.3 |
| 11 | 169 | 153 | 80 | 136 | 138 | 49 | 116 | 58 | 34 |
| 12 | 93 | 97 | 25 | 128 | 113 | 39 | 107 | 90 | 32 |
| 13 | 192 | 88 | 46 | 122 | 95 | 32 | 73 | 63 | 12 |
| 14 | 161 | 79 | 53 | 117 | 85 | 28 | 418 | 267 | 415 |
| 15 | e4 79 | e 305 | ●666 | 113 | 73 | 22 | 235 | 172 | 121 |
| 16 | e1400 | e924 | ●8730 | 115 | 62 | 19 | 142 | 76 | 34 |
| 17 | 397 | 229 | 283 | 115 | 55 | 17 | 99 | 33 | 8.8 |
| 18 | 679 | 478 | 2850 | 105 | 51 | 14 | 84 | 29 | 6.5 |
| 19 | 843 | 443 | 2150 | 102 | 50 | 14 | 77 | 24 | 5.0 |
| 20 | 508 | 256 | 508 | 102 | 47 | 13 | 74 | 20 | 4.1 |
| 21 | 3580 | 1650 | 25500 | 97 | 44 | 12 | 72 | 20 | 3.9 |
| 22 | 500 | 272 | 388 | 112 | 36 | 11 | 70 | 19 | 3.8 |
| 23 | 276 | 188 | 144 | 100 | 31 | 8.4 | 71 | 18 | 3.5 |
| 24 | e1000 | e540 | e1460 | 89 | 30 | 7.1 | 73 | 18 | 3.6 |
| 25 | €1700 | e 1120 | e 5140 | 83 | 27 | 6.1 | 66 | 12 | 2.1 |
| 26 | e1500 | e943 | e3820 | 91 | 28 | 7.3 | 60 | 16 | 2.6 |
| 27 | e750 | e424 | e859 | 122 | 100 | 34 | 61 | 37 | 6.0 |
| 28 | ●700 | -4 00 | e756 | 137 | 110 | 42 | 72 | 57 | 11 |
| 29 | ● 700 | e4 00 | ● 756 | 93 | 80 | 20 | 101 | 80 | 22 |
| 30 | e750 | 0424 | e859 | 187 | 139 | 81 | 132 | 111 | 42 |
| 31 | e 300 | e 200 | e 162 | | | | e14 50 | e795 | e 5410 |
| TOTAL | 17832 | | 55811 | 4633 | | 2674.9 | 4967 | | 6539.9 |

e Estimated

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

| | | | | MBAN | | | MRAN | | |
|----------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MEAN Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN Discharge (CPS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | JANUARY | | 1 | PEBRUARY | | | MARCH | |
| 1 | 377 | 256 | 301 | 89 | 41 | 9.4 | 80 | 12 | 2.6 |
| 2 | 207 | 153 | 92 | 71 | 43 | 8.1 | 65 | 20 | 3.5 |
| 3 | 147 | 46 | 18 | 77 | 43 | 9.3 | 65 | 26 | 4.5 |
| 4 | 126 | 27 | 9.5 | 75 | 44 | 9.0 | 95 | 31 | 7.7 |
| 5 | 141 | 65 | 34 | 182 | 118 | 156 | 89 | 28 | 6.8 |
| 6 | 208 | 153 | 100 | 270 | 188 | 176 | 159 | 114 | 54 |
| 7 | 165 | 118 | 53 | 165 | 130 | 67 | 136 | 114 | 44 |
| 8 | 164 | 77 | 37 | 87 | 74 | 17 | 123 | 99 | 35 |
| 9 | 180 | 129 | 70 | 76 | 64 | 12 | 102 | 69 | 21 |
| 10 | 150 | 77 | 32 | 71 | 71 | 14 | 72 | 31 | 6.2 |
| 11 | 140 | 51 | 20 | 221 | 153 | 105 | 63 | 29 | 5.1 |
| 12 | 124 | 35 | 12 | 243 | 168 | 256 | 66 | 30 | 5.2 |
| 13 | 131 | 29 | 11 | 383 | 207 | 310 | 61 | 30 | 4.8 |
| 14 | 117 | 33 | 11 | 132 | 59 | 23 | 62 | 30 | 4.9 |
| 15 | 136 | 44 | 17 | 102 | 44 | 12 | 61 | 30 | 4.7 |
| 16 | 128 | 75 | 26 | 86 | 36 | 8.6 | 56 | 30 | 4.5 |
| 17 | 106 | 83 | 23 | 75 | 31 | 6.2 | 52 | 34 | 4.9 |
| 18 | 97 | 58 | 15 | 73 | 29 | 5.9 | 53 | 38 | 5.6 |
| 19 | 89 | 40 | 9.4 | 141 | 108 | 45 | 72 | 38 | 7.3 |
| 20 | 85 | 45 | 10 | 103 | 100 | 30 | 58 | 33 | 5.0 |
| 21 | 80 | 58 | 12 | 123 | 99 | 35 | 52 | 78 | 11 |
| 22 | 76 | 64 | 13 | 99 | 115 | 30 | 93 | 80 | 23 |
| 23 | 74 | 61 | 11 | 77 | 81 | 16 | 101 | 67 | 20 |
| 24 | 73 | 64 | 12 | 77 | 55 | 11 | 61 | 30 | 5.0 |
| 25 | 72 | 60 | 11 | 76 | 30 | 6.4 | 51 | 26 | 3.7 |
| 26 | 74 | 49 | 9.2 | 76 | 16 | 3.0 | 75 | 61 | 16 |
| 27 | 70 | 41 | 7.8 | 65 | 8 | 1.5 | 76 | 53 | 13 |
| 28 | 69 | 33 | 6.2 | 72 | 9 | 1.9 | 53 | 20 | 2.7 |
| 29 | 68 | 34 | 6.2 | | | | 46 | 51 | 6.5 |
| 30 31 | 6 8 66 | 38 | 6.6 | | | | 44 | 22 | 2.6 |
| 31 | 00 | 39 | 7.2 | | | | 42 | 24 | 2.8 |
| TOTAL | 3808 | | 1003.1 | 3387 | | 1384.3 | 2284 | | 343.6 |

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

| DAY | Mean Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | Sediment Discharge (Tons/Day) | Mean Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|--------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 42 | 25 | 2.9 | 22 | 40 | 2.4 | 34 | 47 | 4.3 |
| 2 3 | 40 | 23 | 2.4 | 23 | 65 | 4.0 | 45 | 37 | 4.4 |
| 3 | 42 | 20 | 2.3 | 24 | 50 | 3.2 | 35 | 27 | 2.4 |
| 4 | 38 | 73 | 7.4 | 21 | 30 | 1.7 | 31 | 21 | 1.8 |
| 5 | 36 | 21 | 2.1 | 26 | 31 | 2.1 | 45 | 20 | 2.4 |
| 6 | 37 | 27 | 2.8 | 26 | 38 | 2.7 | 64 | 88 | 15 |
| 7 | 35 | 29 | 2.8 | 26 | 44 | 3.1 | 65 | 32 | 5.7 |
| 8 | 50 | 42 | 6.1 | 26 | 51 | 3.6 | 53 | 30 | 4.4 |
| 9 | 62 | 41 | 7.9 | 32 | 58 | 5.0 | 41 | 27 | 3.1 |
| 10 | 55 | 42 | 6.9 | 37 | 60 | 6.0 | 35 | 24 | 2.2 |
| 11 | 55 | 51 | 7.6 | 59 | 49 | 14 | 42 | 22 | 2.4 |
| 12 | 55 | 88 | 14 | 133 | 107 | 47 | 106 | 83 | 30 |
| 13 | 47 | 40 | 5.2 | 47 | 52 | 6.4 | 72 | 99 | 21 |
| 14 | 39 | 41 | 4.3 | 29 | 48 | 3.6 | 42 | 79 | 8.7 |
| 15 | 36 | 42 | 4.1 | 30 | 44 | 3.8 | 39 | 74 | 7.1 |
| 16 | 69 | 59 | 12 | 27 | 42 | 3.0 | 33 | 71 | 6.4 |
| 17 | 42 | 39 | 4.6 | 26 | 40 | 2.8 | 28 | 69 | 5.0 |
| 18 | 39 | 40 | 4.1 | 44 | 40 | 4.6 | 25 | 74 | 4.9 |
| 19 | 40 | 40 | 4.3 | 43 | 39 | 4.4 | 25 | 85 | 5.6 |
| 20 | 34 | 41 | 3.7 | 33 | 35 | 3.2 | 24 | 85 | 5.4 |
| 21 | 31 | 45 | 3.8 | 39 | 44 | 4.6 | 29 | 79 | 6.2 |
| 22 | 31 | 39 | 3.3 | 84 | 72 | 17 | 39 | 66 | 6.7 |
| 23 | 30 | 32 | 2.6 | 43 | 63 | 7.6 | 33 | 38 | 3.5 |
| 24 | 28 | 36 | 2.7 | 31 | 26 | 2.1 | 33 | 18 | 1.6 |
| 25 | 25 | 43 | 2.9 | e4 63 | e1430 | e5350 | 29 | 21 | 1.6 |
| 26 | 29 | 26 | 2.0 | 138 | 113 | 48 | 28 | 21 | 1.5 |
| 27 | 27 | 21 | 1.5 | 64 | 74 | 14 | 22 | 28 | 1.7 |
| 28 | 24 | 20 | 1.3 | 44 | 68 | 8.4 | 32 | 33 | 2.8 |
| 29 | 22 | 30 | 1.6 | 39 | 65 | 6.4 | 28 | 30 | 2.3 |
| 30 | 21 | 40 | 2.3 | 35 | 61 | 5.7 | e1040 | e910 | e 9890 |
| 31 | | | | 33 | 56 | 4.9 | | | |
| TOTAL | 1161 | | 131.5 | 1747 | | 5595.3 | 2197 | | 10060.1 |

e Estimated

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

| | | Mean | | | MRAN | | | MRAN | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MRAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | JULY | | | A UGU <i>S</i> T | | SI | ep tember | |
| 1 | e 1610 | e 986 | e7050 | 46 | 37 | 4.5 | 54 | 54 | 8.1 |
| 2 | 296 | 100 | 83 | 39 | 34 | 3.5 | 82 | 75 | 17 |
| 3 | 137 | 108 | 47 | 37 | 31 | 2.9 | 46 | 64 | 8.5 |
| 4 | 111 | 72 | 20 | 35 | 28 | 2.7 | 38 | 61 | 6.2 |
| 5 | 84 | 54 | 13 | 31 | 26 | 2.1 | 35 | 65 | 5.7 |
| 6 | 69 | 51 | 9.4 | 34 | 23 | 2.2 | 32 | 70 | 5.8 |
| 7 | 60 | 53 | 8.5 | 38 | 21 | 2.1 | 33 | - 65 | 5.1 |
| 8 | 54 | 74 | 11 | 29 | 21 | 1.6 | 34 | 55 | 5.0 |
| 9 | 51 | 37 | 4.9 | 26 | 21 | 1.4 | 65 | 95 | 19 |
| 10 | 45 | 27 | 3.2 | 25 | 20 | 1.4 | 91 | 155 | 40 |
| 11 | 44 | 23 | 3.0 | 23 | 20 | 1.2 | 54 | 150 | 22 |
| 12 | 37 | 20 | 1.9 | 23 | 21 | 1.3 | 46 | 149 | 19 |
| 13 | 36 | 20 | 1.9 | 20 | 20 | 1.1 | 33 | 141 | 12 |
| 14 | 36 | 20 | 1.9 | 25 | 20 | 1.4 | 31 | 122 | 9.8 |
| 15 | 166 | 98 | 159 | 42 | 20 | 2.4 | 29 | 103 | 7.5 |
| 16 | e1480 | e1040 | e 6450 | 29 | 20 | 1.6 | 24 | 88 | 5.7 |
| 17 | 248 | 208 | 155 | 53 | 47 | 9.3 | e1300 | e1150 | e 8740 |
| 18 | 110 | 40 | 13 | 107 | 96 | 30 | 227 | 155 | 114 |
| 19 | 82 | 170 | 35 | 53 | 56 | 8.5 | 169 | 96 | 57 |
| 20 | 89 | 20 | 4.5 | 36 | 40 | 3.9 | 106 | 47 | 15 |
| 21 | 63 | 20 | 3.6 | 59 | 61 | 11 | 114 | 107 | 34 |
| 22 | 52 | 21 | 3.0 | 235 | 164 | 167 | e4 87 | e 316 | e 609 |
| 23 | 47 | 21 | 2.8 | 217 | 103 | 92 | 429 | 295 | 373 |
| 24 | 61 | 39 | 7.0 | 73 | 38 | 7.5 | 209 | 170 | 106 |
| 25 | 64 | 112 | 19 | 49 | 36 | 4.9 | 123 | 96 | 36 |
| 26 | 44 | 58 | 7.4 | 38 | 34 | 3.6 | 95 | 50 | 13 |
| 27 | 47 | 50 | 6.5 | e643 | e 538 | e2 850 | 89 | 54 | 13 |
| 28 | 44 | 51 | 6.1 | e421 | e23 0 | e382 | 204 | 156 | 114 |
| 29 | 40 | 52 | 5.4 | 122 | 88 | 33 | 727 | 364 | 900 |
| 30 | 55 | 64 | 9.9 | 77 | 57 | 12 | 360 | 148 | 167 |
| 31 | 69 | 58 | 12 | 64 | 51 | 8.8 | | | |
| TOTAL | 5431 | | 14157.9 | 2749 | | 3656.9 | 5366 | | 11487.4 |
| YRAR | 55562 | | 112845.9 | | | | | | |

e Estimated

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SEDI - MENT , SUS - PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FAIL DIAM. PERCENT FINER THAN .008 MM |
|----------------|---|---|--|--|--|--|--|
| OCT 1990 | | | | | | | |
| 21 | 0045 | 12900 | 5590 | 195000 | 23 | 37 | 54 |
| JUN 1991 30 | 1531 | 6940 | 8350 | 156000 | 27 | 40 | 60 |
| AUG | | | | | | | |
| 27 SEP | 1759 | 2080 | 1820 | 10200 | 52 | 60 | 76 |
| 17 | 1120 | 6480 | 3280 | 57400 | 40 | 57 | 84 |
| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 | | | | | | | |
| 21 JUN 1991 | 67 | 82 | 92 | 98 | 99 | 100 | 100 |
| 30 | 82 | 95 | 99 | 100 | 100 | 100 | 100 |
| 27 SEP | 86 | 95 | 98 | 99 | 99 | 99 | 100 |
| 17 | 92 | 96 | 98 | 98 | 99 | 98 | 99 |

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50055000 RIO GRANDE DE LOIZA AT CAGUAS--Continued WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| | | | | | SED. |
|----------|------|---------|--------|---------|---------|
| | | | | SEDI – | SUSP. |
| | | | | MENT, | SIEVE |
| | | STREAM- | SEDI- | DIS- | DIAM. |
| | | FLOW, | MENT. | CHARGE, | PERCENT |
| | | INSTAN- | SUS- | SUS- | FINER |
| DATE | TIME | TANEOUS | PENDED | PENDED | THAN |
| | | (CFS) | (MG/L) | | .062 MM |
| | | •• | | | |
| OCT 1990 | | | | | |
| 16 | 1505 | 6490 | 3770 | 66100 | 97 |
| 16 | 1635 | 4430 | 3100 | 37100 | 98 |
| 21 | 0115 | 12100 | 5800 | 189000 | 92 |
| 21 | 1630 | 1660 | 414 | 1850 | 98 |
| DEC | | | | | |
| 31 | 0717 | 3940 | 3400 | 36200 | 96 |
| FEB 1991 | | | | | |
| 07 | 0722 | 200 | 400 | 216 | 99 |
| 19 | 1305 | 149 | 500 | 201 | 100 |
| APR | | | | | |
| 12 | 0729 | 57 | 191 | 29 | 99 |
| MAY | | | | | |
| 25 | 1205 | 2120 | 8290 | 47400 | 96 |
| JUN | | | | | |
| 30 | 2011 | 1400 | 5610 | 21200 | 92 |
| JUL | | | | | |
| 01 | 1535 | 2260 | 806 | 4920 | 96 |
| AUG | | | | | |
| 27 | 1719 | 1800 | 945 | 4590 | 98 |
| 27 | 2259 | 1520 | 1260 | 5170 | 99 |
| SEP | | | | | |
| 17 | 1005 | 1800 | 3200 | 15500 | 71 |
| 17 | 1550 | 1660 | 1700 | 7620 | 97 |
| | | | | | |

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR

LOCATION.--Lat 18°14'48", long 66°05'37", Hydrologic Unit 21010005, on right bank 450 ft (137 m) upstream from bridge on Highway 777, 1.0 mi (1.6 km) southeast from Aguas Buenas 3.9 mi (6.3 km) northwest from Caguas and 2.1 mi (3.4 km) southwest from Las Carolinas.

DRAINAGE AREA. -- 5.30 mi 2 (13.72 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- February 1990 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 394 ft (120 m), from topographic map.

REMARKS .-- Records fair. Gage-height and precipitation satellite telmstry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,460 ft³/s (41.3 m³/s), Oct. 15, 1990, gage height, 15.24 ft (4.645 m), from rating curve extended above 100 ft³/s (2.83 m³/s) on basis of step-backwater analysis; minimum discharge, 1.8 ft³/s (0.051 m³/s), May 3, 6-8, 24-26, 28-30.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 100 ft3/s (2.83 m3/s) and maximum (*):

| Discharge | | harge | Gage height | | | | Disc | Discharge | | Gage height | |
|-----------|------|---------|-------------|--------|-------|---------|------|------------|--------|-------------|-------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft^3/s) | (m³/s) | (ft) | (m) |
| Oct. 7 | 1550 | 166 | 4.70 | 11.11 | 3.386 | Oct. 26 | 1630 | 146 | 4.13 | 10.99 | 3.350 |
| Oct. 15 | 1600 | *1,460 | 41.3 | *15.24 | 4.645 | Dec. 31 | 0445 | 316 | 8.95 | 11.82 | 3.603 |
| Oct. 16 | 1245 | 114 | 3.23 | 10.79 | 3.289 | Feb. 5 | 1735 | 424 | 12.0 | 12.25 | 3.734 |
| Oct. 18 | 1700 | 369 | 10.4 | 12.04 | 3.670 | July 16 | 0945 | 1,030 | 29.2 | 14.10 | 4.298 |
| Oct. 20 | 2345 | 482 | 13.6 | 12.45 | 3.795 | Aug. 27 | 1645 | 117 | 3.31 | 10.81 | 3.295 |

Minimum discharge, 2.8 ft3/s (0.079 m3/s), June 17-23.

| | | DI SCHARGE | , CUBIC | FEET PER | | WATER MEAN | YEAR OCTOBER | 1990 TO | SEPTEMBER | 1991 | | |
|-------|-------|------------|---------|----------|-------|---------------|--------------|---------|-----------|-------|-------|-------|
| | | | | | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
| 1 | 3.8 | 7.3 | 9.5 | 32 | 5.7 | 5.6 | 5.4 | 7.7 | 3.3 | 13 | 4.2 | 4.1 |
| 2 | 3.3 | 7.0 | 7.4 | 10 | 5.6 | 5.5 | 5.5 | 7.5 | 3.2 | 4.2 | 4.0 | 4.2 |
| 3 | 3.8 | 6.7 | 29 | 7.8 | 5.6 | 5.5 | 5.5 | 6.2 | 3.2 | 3.4 | 4.0 | 4.1 |
| 4 | 4.1 | 6.5 | 9.7 | 6.8 | 5.3 | 5.8 | 5.5 | 5.8 | 3.2 | 3.5 | 4.1 | 4.1 |
| 5 | 3.6 | 6.1 | 6.2 | 7.4 | 41 | 6.0 | | 5.7 | 3.2 | 3.3 | 4.1 | 4.0 |
| 6 | 3.6 | 6.0 | 5.4 | 10 | 14 | 6.1 | | 5.7 | 3.6 | 3.3 | 4.3 | 3.8 |
| 7 | 11 | 5.9 | 5.1 | 7.2 | 7.7 | 5.8 | 5.2 | 7.3 | 3.3 | 3.8 | 4.3 | 3.9 |
| 8 | 4.2 | 5.8 | 4.9 | 6.8 | 6.0 | 6.0 | 6.6 | 7.0 | 3.2 | 5.2 | 4.3 | 4.1 |
| 9 | 3.5 | 5.5 | 4.9 | 7.3 | 5.5 | 5.8 | 5.8 | 4.1 | 3.1 | 4.1 | 4.2 | 4.3 |
| 10 | 11 | 5.4 | 4.7 | 8.6 | 5.3 | 5.4 | 5.6 | 4.4 | 3.0 | 3.3 | 4.4 | 4.3 |
| 11 | 5.8 | 5.2 | 4.6 | 7.4 | 5.8 | 5.5 | | 4.3 | 3.0 | 3.3 | 4.3 | 4.2 |
| 12 | 4.2 | 5.2 | 4.4 | 6.7 | 15 | 5.5 | | 4.4 | 3.1 | 3.4 | 4.4 | 4.1 |
| 13 | 5.5 | 5.1 | 4.5 | 6.3 | 9.8 | 5.5 | 7.2 | 3.6 | 3.1 | 3.3 | 4.3 | 4.1 |
| 14 | 6.6 | 5.0 | 5.0 | 5.9 | 6.6 | 5.5 | 5.9 | 3.5 | 3.0 | 3.4 | 4.4 | 4.1 |
| 15 | 100 | 5.1 | 6.2 | 5.9 | 6.1 | 5.5 | 5.8 | 3.4 | 2.9 | 9.7 | 4.4 | 3.9 |
| 16 | 30 | 6.8 | 5.2 | 5.8 | 5.8 | 5.7 | 5.9 | 3.4 | 2.9 | 82 | 4.7 | 3.9 |
| 17 | 13 | 5.4 | 4.7 | 5.7 | 5.7 | 5.7 | 5.6 | 3.4 | 2.9 | 8.1 | 4.9 | 17 |
| 18 | 77 | 5.3 | 4.6 | 5.7 | 6.3 | 6.2 | 5.5 | 3.9 | 2.8 | 6.2 | 5.0 | 5.4 |
| 19 | 32 | 5.2 | 4.5 | 5.7 | 8.2 | 6.3 | 5.5 | 6.5 | 2.8 | 5.7 | 4.8 | 5.5 |
| 20 | 36 | 6.2 | 4.4 | 5.6 | 6.4 | 5.9 | | 4.1 | 2.8 | 5.3 | 4.8 | 4.5 |
| 21 | 109 | 5.4 | 4.4 | 5.5 | 6.1 | 5.8 | 5.5 | 3.7 | 2.8 | 4.9 | 5.2 | 4.3 |
| 22 | 19 | 5.6 | 4.5 | 5.5 | 6.0 | 23 | 5.4 | 3.6 | 2.8 | 4.7 | 8.3 | 5.2 |
| 23 | 11 | 5.3 | 4.6 | 5.3 | 5.9 | 8.2 | 5.3 | 3.4 | 4.0 | 4.6 | 5.5 | 6.7 |
| 24 | 17 | 5.0 | 4.6 | 5.3 | 5.9 | 6.7 | 5.3 | 3.3 | 3.5 | 4.8 | 4.7 | 4.7 |
| 25 | 25 | 4.9 | 4.4 | 5.2 | 5.8 | 6.1 | 5.3 | 11 | 3.3 | 4.5 | 4.4 | 4.2 |
| 26 | 47 | 7.1 | 4.4 | 5.2 | 5.7 | 5.8 | 5.7 | 4.1 | 3.2 | 4.1 | 4.2 | 4.1 |
| 27 | 20 | 6.4 | 6.1 | 5.2 | 5.6 | 5.7 | 5.3 | 3.7 | 3.3 | 4.1 | 18 | 5.1 |
| 28 | 12 | 5.4 | 5.4 | 5.2 | 5.7 | 5.6 | 5.3 | 3.5 | 3.2 | 4.2 | 7.2 | 4.9 |
| 29 | 9.5 | 5.0 | 9.5 | 5.2 | | 5.5 | | 3.3 | 3.3 | 4.2 | 5.0 | 7.1 |
| 30 | 8.5 | 6.1 | 12 | 5.2 | | 5.5 | 6.1 | 3.3 | 11 | 4.2 | 4.5 | 6.3 |
| 31 | 7.6 | | 93 | 5.5 | | 5.4 | | 3.3 | | 4.1 | 4.3 | |
| TOTAL | 647.6 | 172.9 2 | 87.8 | 222.9 | 224.1 | 198.1 | 169.2 | 148.1 | 102.0 | 225.9 | 159.2 | 150.2 |
| MBAN | 20.9 | 5.76 | 9.28 | 7.19 | 8.00 | 6.39 | | 4.78 | 3.40 | 7.29 | 5.14 | 5.01 |
| MAX | 109 | 7.3 | 93 | 32 | 41 | 23 | | 11 | 11 | 82 | 18 | 17 |
| MIN | 3.3 | 4.9 | 4.4 | 5.2 | 5.3 | 5.4 | | 3.3 | 2.8 | 3.3 | 4.0 | 3.8 |
| AC-FT | 1280 | 343 | 571 | 442 | 445 | 393 | | 294 | 202 | 448 | 316 | 298 |
| CFSM | 3.94 | | 1.75 | 1.36 | 1.51 | 1.21 | | .90 | .64 | 1.37 | .97 | .94 |
| IN. | 4.55 | | 2.02 | 1.56 | 1.57 | 1.39 | | 1.04 | .72 | 1.59 | 1.12 | 1.05 |

WTR YR 1991 TOTAL 2708.0 MEAN 7.42 MAX 109 MIN 2.8 AC-FT 5370 CFSM 1.40 IN. 19.01

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- OCTOBER 1989 TO CURRENT YEAR

| DATE TI | STREAMFLOW, IR INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|--------------------------|--|--------------------------------------|-----------------------------|-------------------|------|---------------------------------------|--------------------------------------|-----------------------------|
| FEB. 19 14 JUN. 21 14 | | 290 350 | 21.0 24.5 | JUL. 10 AUG. 2 | | 3.35 11.9 | 340 300 | 24.0 23.5 |

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR

LOCATION.--Lat 18°14'55", long 66°01'40", Hydrologic Unit 21010005, on left bank, at C. 4 street Villa Blanca housing area at Caguas, 1.8 mi (2.9 km) upstream from Río Grande de Loíza, and 0.95 mi (1.53 km) northeast from Caguas Plasa.

DRAINAGE AREA. -- 11.71 mi* (30.33 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- December 1990 to September 1991.

GAGE. -- Water-stage recorder. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR CURRENT PERIOD. -- Peak discharges greater than base discharge of 1,000 ft³/s (28.3 m³/s) and maximum (*):

| | | | harge | Gage 1 | height | | | | charge | Gage 1 | height | |
|--------------------|--------------|-----------------|---------------------|-----------------|----------------|----------|------|---------|---------------------|--------|--------|--|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | |
| Dec. 31 July 16 | 0700 1150 | 1,380 *2,060 | 39.1 58.3 | 12.02 *13.16 | 3.664 4.011 | Sept. 17 | 0940 | 1,090 | 30.9 | 11.43 | 3.484 | |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum daily discharge, 5.6 ft³/s (0.158 m³/s), June 29.

| | | | , | | DAIL | y mran va | LUES | | | | | |
|---------------|-----|-----|-----|------|-------|-----------|-------|-------|-------|--------------|--------------|--------------|
| DAY | OCT | MOA | DEC | JAN | PEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | | | | 97 | 14 | 12 | 10 | 10 | 11 | 93 | e7.0 | e 7.8 |
| 2 3 | | | | 37 | 13 | 10 | 10 | 9.6 | 10 | 16 | e6.4 | e8. 0 |
| | | | | 26 | 14 | 13 | 11 | 13 | 9.5 | 9.0 | e6.0 | e7.8 |
| 4 | | | | 22 | 14 | 16 | 12 | 9.2 | 10 | 8.1 | e5.8 | e7.8 |
| 5 | | | | 23 | 119 | 19 | 13 | 8.7 | 15 | 8.1 | e5.8 | e7.4 |
| 6 | | | | 29 | 45 | 25 | 13 | 10 | 15 | 7.6 | e6. 0 | e7.1 |
| 7 | | | | 23 | 30 | 14 | 13 | 16 | 11 | 10 | e6. 0 | e7 · 4 |
| 8 | | | | 23 | 18 | 15 | 38 | 26 | 10 | 12 | e 6.0 | e7.7 |
| 9 | | | | 20 | 15 | 13 | 16 | 19 | 8.5 | 11 | e5.8 | e8. 0 |
| 10 | | | | 25 | 14 | 10 | 11 | 15 | 7.4 | 7.3 | e 6.0 | e8.1 |
| 11 | | | | 22 | 28 | 11 | 13 | 34 | 9.5 | 6.8 | e5.8 | e7.9 |
| 12 | | | | 19 | 50 | 11 | 23 | 36 | 14 | 6.7 | e 6.0 | e7.7 |
| 13 | | | | 16 | 39 | 11 | 21 | 14 | 7.9 | 6.4 | e5.8 | e 7.7 |
| 14 | | | | 15 | 24 | 13 | 12 | 13 | 7.2 | 6.3 | e 6.0 | e7.8 |
| 15 | | | | 16 | 21 | 12 | 14 | 13 | 7.7 | 55 | e6.1 | e7.3 |
| 16 | | | | 16 | 16 | 9.8 | 12 | 13 | 7.8 | 360 | e6.6 | e7 · 4 |
| 17 | | | | 15 | 14 | 8.9 | 9.8 | 12 | 6.7 | 30 | e 6.8 | e120 |
| 18 | | | | 14 | 22 | 14 | 9.5 | 23 | 6.5 | 18 | e6.2 | e15 |
| 19 | | | | 15 | 35 | 11 | 9.5 | 43 | 6.7 | 19 | e 6.0 | e 20 |
| 20 | | | | 14 | 20 | 11 | 9.8 | 26 | 6.3 | 14 | e 6.0 | e13 |
| 21 | | | | 16 | 17 | 11 | 11 | 17 | 6.5 | 10 | e7.0 | e15 |
| 22 | | | | 12 | 13 | 73 | 10 | 16 | 6.5 | 9.3 | e65 | e25 |
| 23 | | | | 13 | 13 | 32 | 9.0 | 13 | 13 | 9.1 | e2 0 | e27 |
| 24 | | | | 13 | 12 | 16 | 8.9 | 12 | 7.8 | 12 | e9. 0 | e18 |
| 25 | | | | 13 | 13 | 14 | 9.3 | 37 | 6.3 | 8.7 | e8. 3 | e 13 |
| 26 | | | | 13 | 10 | 17 | 8.9 | 17 | 7.6 | 6.9 | e8. 0 | e11 |
| 27 | | | | 13 | 9.8 | 12 | 8.6 | 13 | 5.8 | 6.7 | e126 | e12 |
| 28 | | | 16 | 12 | 13 | 11 | 8.1 | 12 | 6.7 | 6.4 | e 37 | e21 |
| 29 30 | | | 39 | 12 | | 10 | 7.9 | 12 | 5.6 | e6.4 | e 9.2 | e35 |
| 31 | | | 46 | 12 | | 10 | 8.5 | 11 | 61 | 96.4 | e8.4 | e25 |
| | | | 357 | 13 | | 10 | | 10 | | e 6.6 | e8. 0 | |
| TOTAL MRAN | | | | 629 | 665.8 | 475.7 | 370.8 | 533.5 | 314.5 | 792.8 | 428.0 | 492.9 |
| MAX | | | | 20.3 | 23.8 | 15.3 | 12.4 | 17.2 | 10.5 | 25.6 | 13.8 | 16.4 |
| MIN | | | | 97 | 119 | 73 | 38 | 43 | 61 | 360 | 126 | 120 |
| YC-LL WTM | | | | 12 | 9.8 | 8.9 | 7.9 | 8.7 | 5.6 | 6.3 | 5.8 | 7.1 |
| CFSM | | | | 1250 | 1320 | 944 | 735 | 1060 | 624 | 1570 | 849 | 978 |
| IN. | | | | 1.73 | 2.03 | 1.31 | 1.06 | 1.47 | .90 | 2.18 | 1.18 | 1.40 |
| TE4 • | | | | 2.00 | 2.12 | 1.51 | 1.18 | 1.69 | 1.00 | 2.52 | 1.36 | 1.57 |

e Estimated

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- OCTOBER 1990 TO SEPTEMBER 1991

| DATE TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) |
|--------------|---------------------------------------|--------------------------------------|-----------------------------|---------|------|---------------------------------------|--------------------------------------|-----------------------------|
| FEB. 22 1412 | 3.42 | 304 | 24.5 | JUL. 10 | 1402 | 7.0 | 435 | 31.5 |
| JUN. 25 1417 | 6.29 | 430 | 32.0 | AUG. 13 | 0950 | 8.7 | 500 | 31.0 |

50055250 RIO CAGUITAS AT HIGHWAY 30 AT CAGUAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'11", long 66°01'26", at Highway 30 bridge, and 0.8 mi (1.3 km) east of Caguas plaza. DRAINAGE AREA.--14.1 mi² (36.5 km²).

PERIOD OF RECORD. -- Water years 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | *************************************** | W-Anwri'i | DELE, WA | IIBN IBNI | K OCIOD | BAR 1330 I | OBEILLE | BK 1331 | • | | |
|------------------|---|---|---|--|--|-------------------------|--------------------------|---|--|--|---|---|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | BI IT | D- DI Y SOL | SOL EN, (PE S- CE | S- DE VED C R- I NT (UR- LE | YGEN MAND, HEM- CAL HIGH (VEL) KG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 | | | | | | | | | | | | |
| 26 DEC | 0800 | 75 | 288 | 7.5 | 24. | 5 90 | 4 | .7 | 56 | 35 | 41000 | 37000 |
| 10 FEB 1991 | 0915 | 22 | 561 | 7.3 | 24.0 | 15 | 3 | . 6 | 42 | 50 | 2700 | 55000 |
| 14 APR | 1040 | 42 | 490 | 7.3 | 25.6 | 15 | 5 | . 5 | 66 | 49 | 250000 | 28000 |
| 11 JUN | 1100 | 28 | 590 | 7.4 | 26.6 | 3 | . 6 3 | .1 | 38 | 73 | K60000 | 7800 |
| 12 AUG | 1120 | 23 | 540 | 7.3 | 30.0 | 3 | .4 1 | . 8 | 24 | 67 | 470000 | 29000 |
| 20 | 1020 | 23 | 653 | 7.5 | 29.6 | 5 | .0 1 | .4 | 18 | 81 | K730000 | 78000 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | Sor Ti Rat | D- SI P- DI ON SOL | UM, WAT S- TOT VED FIE /L MG/L | TY WH FET SU ILD T AS (| LFIDE OTAL MG/L S S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDB, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 | | | | | | | | | _ | | | |
| 26 DEC | 93 | 0 | 22 | 9.3 | 14 | | 0.6 3 | .7 | 95 | <0.5 | 22 | 19 |
| 10 FEB 1991 | | | | | | - | - - | - | 150 | | | |
| 14 | | | | | | - | | _ | 140 | | | |
| APR 11 | 160 | 1 | 41 | 13 | 42 | | 1 6 | .3 | 170 | <0.5 | 44 | 49 |
| JUN 12 AUG | | | | | | - | | - | 140 | | | |
| 20 | 150 | 0 | 39 | 12 | 50 | | 2 7 | . 5 | 180 | | 51 | 52 |
| | | | ICA, SUM | | IDS, TO | ESIDUE OTAL F 105 | NITRO- GEN, | NITRO- GEN, | NITRO GEN, | | | TRO- |
| | | | | NTS, SC | LVED DE | BG. C, | NITRATE | NITRITE | NO2+NO | 3 AMM | ONIA ORG | ANIC |
| DAT | | | | | | BUS- BNDED | TOTAL (MG/L | TOTAL (MG/L | TOTAL (MG/L | | | T AL IG/L |
| | λS | F) SI | (O2) (M | G/L) D | AY) | (MG/L) | AS N) | AS N) | AS N) | λS | N) À | N) |
| OCT 199 26 | | 0.30 | 1 | 188 3 | 8.1 | 104 | 0.630 | 0.170 | 0.80 | 0 0 | .900 | 1.1 |
| DEC 10 | | | | | | 6 | 0.530 | 0.170 | 0.70 | 0 9 | . 10 | 0.90 |
| FEB 199 | | | | | | 14 | 0.670 | 0.130 | 0.80 | 0 6 | .20 | 3.0 |
| APR 11 | • | 0.10 3 | 0 | 327 2 | 4.7 | 14 | 0.420 | 0.170 | 0.59 | 0 9 | .40 | 2.6 |
| JUN 12 | • | | | | | 2 | 0.270 | 0.140 | 0.41 | 0 1 | .70 | 9.3 |
| AUG 20 | , | 0.10 2 | 7 | 347 2 | 1.8 | 7 | 0.110 | 0.070 | 0.18 | 0 12 | . 0 | 5.0 |
| | n-ideal c | | | | | • | | | ,. | - | | - / - |

RIO GRANDE DE LOIZA BASIN

50055250 RIO CAGUITAS AT HIGHWAY 30 AT CAGUAS, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | MITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 26 DEC | 2.0 | 2.8 | 12 | 0.430 | 1 | 200 | 50 | <1 | 16 | 40 |
| 10 | 10 | 11 | 47 | 2.60 | | | | | | |
| FEB 1991 14 APR | 9.2 | 10 | 44 | 1.50 | | | | | | |
| 11 JUN | 12 | 13 | 56 | 2.40 | 2 | <100 | 100 | <1 | 5 | 20 |
| 12 | 11 | 11 | 51 | 2.40 | | | | | | |
| 20 | 17 | 17 | 76 | 4.20 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA - NESE, TOTAL RECOV - ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE |
| OCT 1990 26 DEC 10 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- BRABLE (UG/L | TOTAL (MG/L | TOTAL | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 26 DEC 10 FEB 1991 14 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 26 DEC 10 FEB 1991 14 APR 11 | TOTAL RECOV- ERABLE (UG/L AS FE) 11000 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 26 DEC 10 FEB 1991 14 | TOTAL RECOV- ERABLE (UG/L AS FE) 11000 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) 0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- RRABLE (VQ/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) 5 | LENE BLUE ACTIVE SUB- STANCE (MG/L) |

50055390 RIO BAIROA AT BAIROA, PR

LOCATION.--Lat 18°15'32", long 66°02'24", Hydrologic Unit 21010005, on left bank, in the Hairoa Housing Area, 1.6 mi (2.6 km) northwest of Plaza de Caguas, 4.1 mi (6.6 km) east of Plaza de Aguas Buenas, and 0.9 mi (1.4 km) northwest of Escuela Pepita Garriga.

DRAINAGE ARRA. -- 5.08 mi 2 (13.15 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- November 1990 to September 1991.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. Mean daily discharge affected by domestic discharge nearby station.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 400 ft³/s (11.3 m³/s) and maximum (*):

| | | Disc | harge | Gage 1 | height | | | | charge | Gage | height |
|---------|------|------------|--------|--------|--------|---------|------|---------|--------|--------|--------|
| Date | Time | (ft^3/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Dec. 14 | 0345 | 450 | 12.7 | 8.82 | 2.688 | June 30 | 1140 | 450 | 12.7 | 8.82 | 2.688 |
| Feb. 5 | 1830 | 529 | 15.0 | 9.23 | 2.813 | July 16 | 1145 | *742 | 21.0 | *10.24 | 3.121 |
| May 19 | 1315 | 502 | 14.2 | 9.08 | 2.768 | July 18 | 1615 | 632 | 18.0 | 9.75 | 2.972 |

Minimum daily discharge, 2.6 ft $^3/s$ (0.074 m^3/s), June 16, 17.

| | | DI SCHA | RGE, CUBI | C FEET PE | | WATER YE Y MBAN VA | | IR 1990 TO | SEPTEMBE | IR 1991 | | |
|-------|-------------|----------------|-----------|-----------|-------|-----------------------|-------|------------|----------|--------------|--------------|--------------|
| DAY | OCT | NOV | DEC | Jan | PRB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
| 1 | e4.7 | e9. 0 | 12 | 35 | 5.6 | 4.4 | 3.7 | 3.6 | 3.1 | 40 | e4.2 | e3.7 |
| 2 | e4.1 | e8.6 | 12 | 7.4 | 5.7 | 4.2 | 3.6 | 3.4 | 3.0 | 6.9 | e3.5 | e3.8 |
| 3 | e4.7 | e8.2 | 51 | 6.0 | 5.2 | 4.4 | 3.6 | 3.4 | 2.9 | 5.6 | e3.2 | e3.8 |
| 4 | e5.0 | e8.0 | 9.6 | 5.1 | 5.0 | 4.7 | 3.5 | 3.5 | 3.0 | 5.0 | e3.3 | e3.7 |
| 5 | e4.5 | e7.6 | 5.9 | 7.9 | 94 | 5.2 | 3.5 | 3.7 | 3.6 | 4.5 | e3.5 | e3.6 |
| 6 | e4.5 | e7.2 | 5.1 | 10 | 11 | 5.8 | 3.5 | 3.7 | 4.0 | 4.3 | e3.3 | e3.4 |
| 7 | e14 | e7.2 | 4.9 | 6.5 | 6.2 | 4.6 | 3.5 | 6.2 | 4.1 | 28 | e3.3 | e3.5 |
| 8 | e5.2 | e7.0 | 4.6 | 6.0 | 5.2 | 5.0 | 7.2 | 11 | 3.3 | 8.0 | e3.1 | e3.7 |
| 9 | 04.4 | e6.8 | 4.5 | 17 | 4.8 | 4.6 | 4.1 | 5.2 | 3.1 | 4.8 | e3.3 | e3.9 |
| 10 | e14 | e 6.6 | 4.4 | 21 | 4.7 | 4.8 | 3.4 | 4.9 | 3.0 | 4.0 | e3.1 | e3.8 |
| 11 | e7.2 | e6.4 | 4.6 | 8.1 | 6.6 | 4.4 | 3.5 | 4.6 | 3.2 | 4.0 | e3.0 | e3.8 |
| 12 | e5.4 | e6.2 | 4.8 | 7.9 | 6.2 | 4.2 | 6.4 | 4.0 | 3.7 | 3.9 | e2.9 | e3.7 |
| 13 | e7.0 | e6.2 | 5.0 | 6.1 | 5.5 | 4.1 | 5.2 | 3.4 | 2.9 | 4.0 | e2.8 | e3.7 |
| 14 | 08.4 | e 6.0 | 20 | 5.8 | 4.7 | 4.3 | 3.6 | 3.3 | 2.8 | 3.6 | e2.9 | e3.7 |
| 15 | e120 | e 6.0 | 14 | 6.1 | 4.8 | 4.2 | 3.8 | 3.2 | 2.7 | 17 | e2.8 | e3.6 |
| 16 | e30 | e22 | 5.0 | 5.9 | 5.5 | 4.2 | 3.5 | 3.2 | 2.6 | 191 | e3.1 | e3.5 |
| 17 | e16 | 6.4 | 4.6 | 5.6 | 4.5 | 4.1 | 3.4 | 3.1 | 2.6 | 9.8 | e3.2 | e15 |
| 18 | e94 | 5.7 | 4.8 | 5.7 | 6.8 | 4.4 | 3.4 | 9.4 | 2.8 | 79 | e3.3 | e4.8 |
| 19 | -40 | 5.0 | 4.4 | 5.7 | 6.7 | 4.1 | 3.3 | 55 | 3.0 | 14 | e3.2 | e5.0 |
| 20 | e45 | 6.0 | 4.4 | 5.7 | 5.0 | 3.8 | 3.3 | 7.3 | 2.9 | 7.2 | e3.1 | e4 .0 |
| 21 | e130 | 11 | 4.4 | 5.7 | 5.2 | 3.8 | 3.3 | 3.8 | 3.3 | 5.9 | e3.1 | e3.9 |
| 22 | e22 | 7.3 | 5.0 | 5.8 | 4.7 | 25 | 3.2 | 4.0 | 3.1 | 20 | e7.4 | e 6.0 |
| 23 | -14 | 5.8 | 4.6 | 5.9 | 4.8 | 4.8 | 3.3 | 3.0 | 6.9 | e5.6 | e5.2 | e4 .6 |
| 24 | e23 | 6.0 | 5.1 | 5.9 | 4.6 | 4.2 | 3.4 | 3.0 | 3.9 | e5.2 | e4.3 | e4.2 |
| 25 | e36 | 5.5 | 4.9 | 5.6 | 4.8 | 4.1 | 3.3 | 7.6 | 3.5 | e4.8 | e4. 0 | e3.8 |
| 26 | e54 | 6.1 | 4.9 | 5.4 | 4.3 | 9.2 | 3.2 | 3.3 | 3.7 | e4.5 | e3.8 | e3.7 |
| 27 | e22 | 8.9 | 5.0 | 5.3 | 4.4 | 4.8 | 3.1 | 3.1 | 3.4 | e4 .3 | e 16 | e4.6 |
| 28 | e15 | 5.9 | 5.7 | 5.1 | 4.4 | 4.0 | 3.1 | 3.0 | 3.6 | e7.0 | e6.4 | 04.4 |
| 29 | e12 | 6.4 | 22 | 5.0 | | 3.9 | 3.1 | 3.0 | 3.5 | e3.7 | e4.5 | e6.4 |
| 30 | e10 | 8.7 | 15 | 4.9 | | 3.7 | 4.7 | 3.0 | 34 | e3.5 | e4.1 | e5.8 |
| 31 | e9.4 | | 57 | 6.0 | | 3.5 | | 3.0 | | e3.8 | e3.9 | |
| TOTAL | 785.5 | 224.5 | 319.2 | 245.1 | 240.9 | 160.5 | 112.7 | 184.9 | 131.2 | 512.9 | 126.8 | 135.1 |
| MBAN | 25.3 | 7.48 | 10.3 | 7.91 | 8.60 | 5.10 | 3.76 | 5.96 | 4.37 | 16.5 | 4.09 | 4.50 |
| MAX | 130 | _22 | 57 | 35 | 94 | 25 | 7.2 | 55 | 34 | 191 | 16 | 15 |
| MIN | 4.1 | 5.5 | 4.4 | 4.9 | 4.3 | 3.5 | 3.1 | 3.0 | 2.6 | 3.5 | 2.8 | 3.4 |
| AC-FT | 1560 | 445 | 633 | 486 | 478 | 318 | 224 | 367 | 260 | 1020 | 252 | 268 |
| CFSM | 4.99 | 1.47 | 2.03 | 1.56 | 1.69 | 1.02 | .74 | 1.17 | .86 | 3.26 | .81 | . 89 |
| IN. | 5.75 | 1.64 | 2.34 | 1.79 | 1.76 | 1.18 | .83 | 1.35 | .96 | 3.76 | .93 | . 99 |

WTR YR 1991 TOTAL 3179.3 MEAN 8.71 MAX 191 MIN 2.6 AC-FT 6310 CFSM 1.71 IN. 23.28

e Estimated

50055390 RIO BAIROA AT BAIROA, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- OCTOBER 1990 TO SEPTEMBER 1991

| DATE TIM | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|----------------------------|---------------------------------------|--------------------------------------|-----------------------------|--------------------|------|---------------------------------------|--------------------------------------|-----------------------------|
| FRB. 22 154 JUN. 25 123 | | 384 400 | 23.0 26.5 | JUL. 10 AUG. 13 | | 3.83 2.86 | 395 430 | 29.0 26.0 |

50055400 RIO BAIROA NEAR CAGUAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'28", long 66°02'13", at bridge on Highway 1, about 2.5 mi (4.0 km) upstream from Río Grande de Loiza, and 1.4 mi (2.3 km) north of Caguas plaza.

DRAINAGE AREA. -- 5.4 mi2 (14.0 km2).

PERIOD OF RECORD. -- Water years 1958, 1962-66, 1973-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | ****** | ev. Acumiti | DAIR, WA | TEN TENN | OCTOB | BK 1330 1 | O BULLIAN | - 1771 | | |
|-------------------------------------|--|---|---|---|--|--|--|---|--|---|---|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FERT PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUI BII IT (NT | D- DI Y S OL | S- CE VED SAT | S- DEM/ VED CHI R- IC/ NT (HI UR- LEVI | AND, FOI SM- FEG AL 0.4 IGH UM- EL) (COI | RM, STREP- CAL, TOCOCCI 15 FECAL, -MF (COLS. LS./ PER |
| OCT 1990 | | | | | | | | | | | |
| 26 DEC | 1005 | 346 | 255 | 7.6 | 24.0 | 180 | 7 | .7 | 91 | 50 23 | L000 20000 |
| 10 FEB 1991 | 1100 | 5.8 | 473 | 7.6 | 23.0 | 20 | 6 | .3 | 73 | 95 K6000 | 0000 430000 |
| 14 | 1130 | 6.3 | 388 | 7.8 | 24.0 | 4 | .0 8 | . 0 | 94 | 18 K | 300 K1100 |
| APR 19 JUN | 1335 | 3.0 | 418 | 7.9 | 27.5 | 1 | .0 8 | .1 | 100 | 18 47 | 7000 1900 |
| 12 | 1240 | 3.8 | 400 | 7.8 | 28.0 | 2 | .3 6 | . 6 | 84 | 16 120 | 2000 |
| AUG 22 | 1240 | 8.3 | 160 | 7.0 | 25.0 | 1 | .1 6 | . 5 | 78 | 17 100 | 72000 |
| DATE | HARD - NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SOD A SOR TI RAT | D- SI P- DI ON SOL | VED FIR | TY WH FRT SULI LD TO: AS (MO | FIDE DIS FAL SOI 3/L (M | LVED SOLVED 3/L (MG/L |
| OCT 1990 26 | 100 | 1 | 28 | 8.4 | 16 | | 0.7 | .3 | 90 | <0.5 1 | 20 |
| DEC 10 | | | | | | _ | | | 150 | | |
| FEB 1991 14 | | | | | | _ | | | 130 - | . | |
| APR 19 | 160 | 2 | 38 | 4.5 | 24 | | | | | <0.5 1 | 5 35 |
| JUN | 100 | 4 | 38 | 15 | 24 | | 0.8 3 | | | <0.5 I | 35 |
| 12 | | | | | | - | | - | 130 - | | |
| 22 | 160 | 0 | 38 | 15 | 31 | | 1 4 | . 5 | 54 - | 2 | 34 |
| OCT 1 26. DEC 10. FEB 1 | RI I SC DATE (I AI 1990 | IDE, DI DIS- SC DLVED (1 MG/L J S F) SI 0.30 2 | LICA, SUM IS- CON IS- CON IUS | STI- I NTS, SC IS- (T LVRD F G/L) I 166 15 | LIDS, TO DIS- AT DLVED DE CONS SI PER PEI DAY) (1 | SIDUE TAL 105 G. C, US- NDED MG/L) | NITROGEN, NITRATE TOTAL (MG/L AS N) 0.930 | NITRO- GEN, NITRITE TOTAL (MG/L AS N) 0.070 | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) 1.00 | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) 0.120 | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) 0.88 |
| 14. APR | ••• | | | | | 13 | 1.96 | 0.040 | 2.00 | 0.070 | 0.43 |
| 19 . JUN | ••• | 0.20 | 29 | 242 | 1.98 | 9 | 1.96 | 0.040 | 2.00 | 0.150 | 0.35 |
| 12 | ••• | | | | | 4 | 1.55 | 0.050 | 1.60 | 0.100 | 0.60 |
| AUG 22. | | 0.20 | 31 | 262 | 5.87 | 1 | 0.530 | 0.040 | 0.570 | 0.120 | 0.98 |
| | | | | | | | | | | | |

K = non-ideal count

50055400 RIO BAIROA NEAR CAGUAS, PR--Continued

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 26 DBC | 1.0 | 2.0 | 8.9 | 0.290 | <1 | 200 | 30 | <1 | 36 | 50 |
| 10 | 10 | 12 | 52 | 2.20 | | | | | | |
| FRB 1991 | 0.50 | 2.5 | 11 | 0.390 | | | | | | |
| APR 19 JUN | 0.50 | 2.5 | 11 | 0.540 | 2 | 100 | 70 | <1 | <1 | 10 |
| 12 AUG | 0.70 | 2.3 | 10 | 0.500 | | | | | | |
| 22 | 1.1 | 1.7 | 7.4 | 0.570 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | MRTHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 26 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| OCT 1990 26 DEC 10 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 26 DEC 10 FEB 1991 14 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- RRABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 26 DEC 10 FEB 1991 14 APR 19 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) 7 | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 26 DEC 10 FEB 1991 14 | TOTAL RECOV- ERABLE (UG/L AS FE) 13000 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUB ACTIVE SUB- STANCE (MG/L) |

50055750 RIO GURABO BELOW EL MANGO, PR

LOCATION.--Lat 18°14'02", long 65°53'07", Hydrologic Unit 21010005, on left bank, 2.43 mi (3.91 km) northeast of Plaza de Juncos, 1.3 mi (2.1 km) of Escuela La Placita and 0.35 mi (0.56 km) of El Mango.

DRAINAGE AREA. -- 22.3 ml 2 (57.8 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- March 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS. -- Records fair. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,760 ft³/s (106 m³/s), Oct. 21, 1990, gage height, 15.90 ft
(4.846 m), from rating curve extended above 1,000 ft³/s (28.3 m²/s) on basis of step-backwater analysis; minimum discharge, 1.4 ft³/s (0.040 m³/s), Aug. 14, 1991.

EXTREMES FOR PERIOD MARCH TO SEPTEMBER 1990 AND WATER YEAR 1991.-Peak discharges greater than base discharge of 1,000 ft³/s (20.3 m²/s) and maximum (*):

| | | Disch | arge | Gage 1 | height | | | Discl | narge | Gage h | eight |
|--------------|------|---------|---------------------|--------|--------|--------------|------|---------|--------|--------|-------|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| July 18,1990 | 1945 | *1,080 | 30.6 | *13.45 | 4.100 | June 30,1991 | 1500 | 1,080 | 30.6 | 13.45 | 4.100 |
| Oct. 21,1990 | 0930 | *3,760 | 106 | *15.90 | 4.846 | Aug. 17 | 1830 | 1,420 | 40.2 | 13.87 | 4.228 |
| Oct. 26 | 1300 | 1,460 | 41.3 | 13.92 | 4.243 | Sept.27 | 1555 | 1,680 | 47.6 | 14.15 | 4.313 |
| Dec. 29 | 1755 | 1,950 | 55.2 | 14.42 | 4.395 | Sept.29 | 1115 | 1,640 | 46.4 | 14.11 | 4.301 |
| Dec. 31 | 0515 | 3,400 | 96.3 | 15.63 | 4.764 | - | | • - | | | |

Minimum discharge, 2.1 ft³/s (0.059 m³/s), May 30, 31, 1990; 1.4 ft³/s (0.040 m³/s), Aug. 14, 1991.

| DISCHARGE, | CUBIC | Pert | PER | SECOND, | WATER | YEAR | OCTOBER | 1989 | TO | September | 1990 |
|------------|-------|------|-----|---------|-------|--------|---------|------|----|-----------|------|
| | | | | DATES | WRAN | VALIII | 2.6 | | | | |

| DAY | OCT | MOV | DEC | jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------------------|-----|-----|-----|-----|-----|-----|-------|-------|-------|-----------|----------|----------|
| 1 | | | | | | | 4.6 | 3.4 | 5.0 | 6.0 | 6.5 | 6.8 |
| 1 2 3 4 | | | | | | | 4.5 | 3.2 | 5.6 | 7.7 | 9.1 | 6.4 |
| 3 | | | | | | | 5.1 | 3.0 | 6.1 | 5.5 | 12 | 6.6 |
| 4 | | | | | | | 4.2 | 2.7 | 3.7 | 5.0 | 7.3 | 8.1 |
| 5 | | | | | | | 4.7 | 2.7 | 9.7 | 5.0 | 65 | 6.8 |
| 6 7 8 9 | | | | | | | 4.0 | 2.7 | 32 | 60 | 27 | 6.3 |
| 7 | | | | | | | 3.7 | 2.6 | 8.3 | 238 | 35 | 5.7 |
| 8 | | | | | | | 3.7 | 2.7 | 4.6 | 29 | 94 | 6.1 |
| 9 | | | | | | | 3.5 | 2.9 | 3.9 | 12 | 26 | 31 |
| 10 | | | | | | 22 | 3.3 | 17 | 3.7 | 10 | 218 | 80 |
| 11 | | | | | | 22 | 3.5 | 15 | 5.4 | 8.0 | 109 | 47 |
| 12 13 | | | | | | 50 | 3.9 | 5.1 | 4.5 | 6.7 | 34 | 121 |
| 14 | | | | | | 67 | 9.4 | 4.3 | 3.3 | 5.7 | 61 | 142 |
| 15 | | | | | | 71 | 11 | 14 | 32 | 8.3 14 | 56 18 | 95 52 |
| | | | | | | 18 | 7.0 | 13 | 77 | 14 | 19 | 54 |
| 16 | | | | | | 22 | 5.7 | 7.5 | 63 | 14 | 13 | 40 |
| 17 | | | | | | 22 | 5.6 | 5.7 | 28 | 20 | 10 | 36 |
| 18 | | | | | | 10 | 4.2 | 6.2 | 30 | 143 | 9.6 | 81 |
| 19 | | | | | | 7.0 | 3.8 | 4.1 | 18 | 65 | 8.9 | 46 |
| 20 | | | | | | 6.6 | 5.0 | 3.3 | 69 | 15 | 7.5 | 22 |
| 21 | | | | | | 6.1 | 6.5 | 3.1 | 21 | 8.7 | 6.9 | 15 |
| 22 | | | | | | 5.4 | 4.4 | 2.9 | 10 | 6.4 | 23 | 11 |
| 23 | | | | | | 6.0 | 3.5 | 2.6 | 7.7 | 5.5 | 58 | 9.6 |
| 24 | • | | | | | 4.8 | 3.1 | 2.5 | 92 | 123 | 36 | 23 |
| 25 | | | | | | 4.6 | 57 | 2.4 | 120 | 117 | 20 | 79 |
| 26 | | | | | | 5.1 | 31 | 2.6 | 37 | 33 | 22 | 22 |
| 27 | | | | | | 13 | 7.4 | 2.4 | 15 | 20 | 9.6 | 12 |
| 28 | | | | | | 9.6 | 4.9 | 2.6 | 9.5 | 12 | 51 | 11 |
| 29 | | | | | | 9.3 | 3.9 | 2.8 | 7.4 | 9.1 | 20 | 9.2 |
| 30 | | | | | | 6.1 | 3.5 | 2.4 | 6.1 | 7.9 | 11 | 9.2 |
| 31 | | | | | | 5.6 | | 2.4 | | 7.1 | 8.0 | |
| TOTAL | | | | | | | 225.6 | 149.8 | 738.5 | 1027.6 | 1092.4 | 1046.8 |
| MEYN | | | | | | | 7.52 | 4.83 | 24.6 | 33.1 | 35.2 | 34.9 |
| MAX | | | | | | | 57 | 17 | 120 | 238 | 218 | 142 |
| MIN | | | | | | | 3.1 | 2.4 | 3.3 | 5.0 | 6.5 | 5.7 |
| AC-FT | | | | | | | 447 | 297 | 1460 | 2040 | 2170 | 2080 |
| CFSM | | | | | | | .34 | .22 | 1.10 | 1.49 | 1.58 | 1.56 |
| IN. | | | | | | | .38 | . 25 | 1.23 | 1.71 | 1.82 | 1.75 |

50055750 RIO GURABO BRLOW EL MANGO, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES DAY OCT NOV DEC JAN FRB MAR APR MAY JUN JUL AUG SEP 19 194 57 218 32 9.5 5.4 3.6 5.9 14 9.7 7.4 6.0 58 71 22 28 34 5.3 3.8 8.0 12 66 5.4 7.9 3.5 3.6 12 5.6 7.2 25 39 3 53 214 44 15 2.1 39 27 33 2.1 111 27 34 6.5 5.7 15 53 41 51 21 4.7 5.9 56 7.5 9.1 6.8 5.7 6 7 14 47 5.8 4.8 5.9 2.1 24 98 69 142 55 5.3 6.1 9.5 8.3 2.3 18 16 46 21 60 86 33 122 1.9 16 14 11 8.4 17 7.4 5.2 4.7 9 107 23 39 24 20 1.8 94 43 10 9.1 156 16 12 21 67 1.7 6.0 34 12 184 17 71 48 5.4 18 11 13 9.9 11 4.0 1.6 8.5 37 12 11 59 121 3.7 3.3 1.5 1.5 1.7 12 13 39 19 14 25 19 8.9 18 14 11 94 34 7.4 6.0 23 14 15 17 12 29 10 6.8 3.1 36 16 23 2.3 4.8 11 75 18 27 7.6 35 5.8 18 7.8 6.0 147 16 88 11 28 24 17 6.8 21 4.4 1.9 4.3 34 93 83 8.4 3.7 148 63 17 13 17 19 14 40 6.1 6.9 30 10 18 12 13 20 16 12 64 187 14 161 48 6.5 11 20 240 32 9.8 13 123 8.2 4.9 39 3.9 5.3 5.3 21 1180 26 9.5 12 67 6.9 4.6 24 45 4.5 42 5.4 77 72 17 25 21 20 4.7 4.3 4.2 4.8 22 23 135 93 42 11 11 41 51 36 3.8 78 62 14 9.9 12 13 23 9.4 15 15 222 10 4.0 18 11 25 7.7 336 18 9.6 11 29 12 6.1 4.3 9.5 9.0 384 14 6.6 4.7 6.5 10 26 15 8.3 10 32 8.6 13 3.9 3.2 209 10 11 14 12 9.0 7.4 5.5 4.7 4.1 3.9 166 237 256 40 20 5.3 3.8 3.0 101 28 62 29 228 17 151 12 12 ___ 5.8 5.5 4.2 3.0 3.3 400 ---30 40 4.0 31 119 679 18 5.5 3.6 32 441.4 14.7 TOTAL 4991 1065.9 1828.2 1232 561.7 798.8 1055.5 1122 266.8 1341.3 161 1180 59.0 679 44.0 161 12 8.89 37 3.7 25.8 325 3.0 34.0 237 44.7 MEAN 35.5 36.2 18.1 15.8 MAX 194 9.9 146 3.4 142 51 218 MIN 11 8.3 10 5.5 3.5 1.5 4.3

WTR YR 1991 TOTAL 15194.1 MEAN 41.6 MAX 1180 MIN 1.5 AC-FT 30140 CFSM 1.87 IN. 25.35

2440

1.97 2.06

2230

1.62 1.87

WATER QUALITY RECORDS

1110

. 81

. 94

529

.40

971

.71

. 82

876

.66

1580

1.16 1.33 2090

1.53 1.76 2660

2.00 2.24

PERIOD OF RECORD. -- OCTOBER 1990 TO SEPTEMBER 1991

3630

2.64 3.05

AC-FT

CFSM

IN.

9900

7.22 8.33 2110

1.59 1.78

| DATE TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|--------------|---------------------------------------|--------------------------------------|-----------------------------|---------|------|---------------------------------------|--------------------------------------|-----------------------------|
| MAR. 21 1147 | 6.86 | 350 | 29.0 | JUL. 18 | 1045 | 10.0 | 300 | 27.0 |
| MAY 17 1308 | 8.09 | 345 | 28.5 | AUG. 21 | 1338 | 30.9 | 240 | 26.0 |
| JUN. 20 1136 | 3.52 | 410 | 27.5 | SEP. 13 | 1046 | 7.35 | 350 | 28.0 |

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS. -- Water years 1985 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD . --

SUSPENDED-SEDIMENT DISCHARGE: March 1990 to September 1991.

EXTREMES FOR PERIOD OF DAILY RECORD.-SEDIMENT CONCENTRATION: Maximum daily mean, 1,000 mg/L Oct. 21, 1990; Minimum daily mean,
4 mg/L April 7,1991.

SEDIMENT LOADS: Maximum daily mean, 5,100 tons (4,630 tonnes) October 21, 1990; Minimum daily mean, 0.4 ton (0.3 tonne) several days.

EXTREMES FOR WATER YEARS 1990-91.--

| Water | Suspended-sediment c | oncentration (mg/L) | Suspended-sediment disch | arge (tons per day) |
|-------|----------------------|---------------------|--------------------------|---------------------|
| Year | maximum | minimum | maximum | minimum |
| 1990 | 246 (Jul. 07) | 5 (few days) | 326 (Jul. 07) | 0.06 (few days) |
| 1991 | 1,000 (Oct. 21) | 4 (few days) | 5,100 (Oct. 21) | 0.04 (several days) |

| | MBAN | | | | MRAN | | mban | | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MRAN Discharge (CPS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN Discharge (CPS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CPS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | JANUARY | | 1 | FEBRUARY | | | MARCH | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | 22 | 33 | 2.2 |
| 11 | | | | | | | 22 | 33 | 2.3 |
| 12 | | | | | | | 50 | 58 | 8.9 |
| 13 | | | | | | | 67 | 67 | 12 |
| 14 | | | | | | | 71 | 76 | 17 |
| 15 | | | | | | | 18 | 30 | 1.5 |
| 16 | | | | | | | 22 | 31 | 2.9 |
| 17 | | | | | | | 22 | 34 | 2.4 |
| 18 | | | | | | | 10 | 20 | . 56 |
| 19 | | | | | | | 7.0 | 17 | .32 |
| 20 | | | | | | | 6.6 | 16 | .30 |
| 21 | | | | | | | 6.1 | 15 | .24 |
| 22 | | | | | | | 5.4 | 13 | .18 |
| 23 | | | | | | | 6.0 | 14 | .22 |
| 24 | | | | | | | 4.8 | 13 | . 18 |
| 25 | | | | | | | 4.6 | 12 | . 15 |
| 26 | | | | | | | 5.1 | 15 | .21 |
| 27 | | | | | | | 13 | 23 | 1.0 |
| 28 | | | | | | | 9.6 | 19 | .50 |
| 29 | | | | | | | 9.3 | 18 | . 43 |
| 30 | | | | | | | 6.1 | 14 | .24 |
| 31 | | | | | | | 5.6 | 13 | .19 |
| TOTAL | | | | | | | | | |

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

| | Mran | | | | MEAN | | mran | | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | mean Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 4.6 | 12 | . 16 | 3.4 | 20 | .19 | 5.0 | 14 | .20 |
| 2 | 4.5 | 11 | . 14 | 3.2 | 20 | .18 | 5.6 | 18 | . 26 |
| 3 | 5.1 | 11 | . 15 | 3.0 | 23 | .18 | 6.1 | 19 | .31 |
| 4 | 4.2 | 11 | . 12 | 2.7 | 28 | .20 | 3.7 | 17 | . 17 |
| 5 | 4.7 | 11 | .13 | 2.7 | 30 | .23 | 9.7 | 18 | 1.0 |
| 6 | 4.0 | 11 | . 12 | 2.7 | 28 | .21 | 32 | 43 | 4.3 |
| 7 | 3.7 | 10 | .10 | 2.6 | 23 | .16 | 8.3 | 18 | . 43 |
| 8 | 3.7 | 10 | .09 | 2.7 | 15 | .12 | 4.6 | 12 | .16 |
| 9 | 3.5 | 9 | .08 | 2.9 | 10 | .09 | 3.9 | 11 | . 12 |
| 10 | 3.3 | 9 | .08 | 17 | 27 | 1.5 | 3.7 | 11 | .11 |
| 11 | 3.5 | 9 | .09 | 15 | 26 | 1.3 | 5.4 | 10 | .14 |
| 12 | 3.9 | 10 | . 12 | 5.1 | 14 | .19 | 4.5 | 10 | . 12 |
| 13 | 9.4 | 18 | . 59 | 4.3 | 10 | .12 | 3.3 | 10 | . 09 |
| 14 | 11 | 20 | . 64 | 14 | 23 | 1.2 | 32 | 38 | 16 |
| 15 | 7.0 | 16 | .31 | 13 | 23 | .85 | 77 | 85 | 26 |
| 16 | 5.7 | 9 | . 13 | 7.5 | 13 | .28 | 63 | 72 | 17 |
| 17 | 5.6 | 8 | . 12 | 5.7 | 11 | .18 | 28 | 40 | 3.6 |
| 18 | 4.2 | 8 | .09 | 6.2 | 14 | .25 | 30 | 52 | 4.0 |
| 19 | 3.8 | 8 | .08 | 4.1 | 10 | .11 | 18 | 51 | 2.3 |
| 20 | 5.0 | 9 | . 12 | 3.3 | 13 | .11 | 69 | 81 | 23 |
| 21 | 6.5 | 9 | . 15 | 3.1 | 18 | .15 | 21 | 26 | 1.8 |
| 22 | 4.4 | 9 | . 10 | 2.9 | 21 | .17 | 10 | 17 | . 47 |
| 23 | 3.5 | 8 | .08 | 2.6 | 25 | .19 | 7.7 | 13 | .26 |
| 24 | 3.1 | 11 | .10 | 2.5 | 29 | .20 | 92 | 103 | 94 |
| 25 | 57 | 63 | 47 | 2.4 | 31 | .21 | 120 | 128 | 52 |
| 26 | 31 | 57 | 5.6 | 2.6 | 32 | .21 | 37 | 34 | 3.7 |
| 27 | 7.4 | 28 | .59 | 2.4 | 30 | .20 | 15 | 22 | .91 |
| 28 | 4.9 | 20 | .26 | 2.6 | 26 | .18 | 9.5 | 20 | .50 |
| 29 | 3.9 | 20 | .22 | 2.8 | 20 | .14 | 7.4 | 19 | . 37 |
| 30 | 3.5 | 20 | . 19 | 2.4 | 15 | .10 | 6.1 | 15 | . 23 |
| 31 | | | | 2.4 | 11 | .08 | | | |
| TOTAL | 225.6 | | 57.75 | 149.8 | | 9.48 | 738.5 | | 253.55 |

50055750 RIO GURABO BELOW EL MANGO, PR--Continued
SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

| | MBAN | | | | MRAN | | MEAN | | |
|-------|-------------------|--------------------|-----------------------|-------------------|--------------------|-----------------------|-------------------|--------------------|-----------------------|
| | MEAN DISCHARGE | CONCEN- TRATION | Sediment Discharge | Mean Discharge | CONCEN- TRATION | Sediment Discharge | MEAN DISCHARGE | CONCEN- TRATION | SEDIMENT DISCHARGE |
| DAY | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) |
| | | JULY | | | august | | 81 | EPTEMBER | |
| 1 | 6.0 | 11 | . 18 | 6.5 | 14 | .25 | 6.8 | 13 | .23 |
| 2 | 7.7 | 10 | .20 | 9.1 | 19 | .52 | 6.4 | 10 | . 17 |
| 3 | 5.5 | 7 | . 10 | 12 | 18 | .69 | 6.6 | 10 | . 17 |
| 4 | 5.0 | 5 | .06 | 7.3 | 13 | .26 | 8.1 | 8 | . 18 |
| 5 | 5.0 | 5 | .06 | 65 | 71 | 40 | 6.8 | 7 | . 12 |
| 6 | 60 | 65 | 16 | 27 | 39 | 3.4 | 6.3 | 6 | .10 |
| 7 | 238 | 246 | 326 | 35 | 44 | 7.4 | 5.7 | 6 | .09 |
| 8 | 29 | 29 | 2.6 | 94 | 112 | 34 | 6.1 | 7 | .11 |
| 9 | 12 | 20 | . 68 | 26 | 38 | 2.9 | 31 | 35 | 14 |
| 10 | 10 | 20 | . 54 | 218 | 239 | 237 | 80 | 86 | 31 |
| 11 | 8.0 | 19 | . 42 | 109 | 115 | 41 | 47 | 57 | 11 |
| 12 | 6.7 | 17 | .30 | 34 | 42 | 3.9 | 121 | 134 | 99 |
| 13 | 5.7 | 13 | .20 | 61 | 72 | 26 | 142 | 142 | 60 |
| 14 | 8.3 | 16 | . 39 | 56 | 77 | 14 | 95 | 101 | 35 |
| 15 | 14 | 24 | 1.0 | 18 | 35 | 1.9 | 52 | 76 | 13 |
| 16 | 14 | 26 | 1.1 | 13 | 25 | .89 | 40 | 52 | 6.2 |
| 17 | 20 | 30 | 2.8 | 10 | 20 | .56 | 36 | 52 | 5.4 |
| 18 | 143 | 162 | 214 | 9.6 | 20 | .53 | 81 | 90 | 40 |
| 19 | 65 | 72 | 18 | 8.9 | 17 | .43 | 46 | 56 | 8.2 |
| 20 | 15 | 26 | 1.1 | 7.5 | 12 | .25 | 22 | 42 | 2.6 |
| 21 | 8.7 | 18 | .43 | 6.9 | 13 | .26 | 15 | 23 | .94 |
| 22 | 6.4 | 14 | .26 | 23 | 32 | 2.6 | 11 | 20 | .58 |
| 23 | 5.5 | 12 | .18 | 58 | 69 | 22 | 9.6 | 19 | .50 |
| 24 | 123 | 137 | 174 | 36 | 59 | 7.3 | 23 | 31 | 3.7 |
| 25 | 117 | 85 | 34 | 20 | 35 | 2.0 | 79 | 93 | 42 |
| 26 | 33 | 27 | 2.7 | 22 | 34 | 2.3 | 22 | 32 | 2.3 |
| 27 | 20 | 20 | 1.1 | 9.6 | 19 | .50 | 12 | 29 | .91 |
| 28 | 12 | 17 | . 55 | 51 | 58 | 22 | 11 | 33 | .94 |
| 29 | 9.1 | 14 | .35 | 20 | 34 | 2.3 | 9.2 | 35 | . 87 |
| 30 | 7.9 | 14 | .30 | 11 | 21 | .61 | 9.2 | 33 | . 80 |
| 31 | 7.1 | 14 | .27 | 8.0 | 17 | .38 | | | |
| TOTAL | 1027.6 | | 799.87 | 1092.4 | | 478.13 | 1046.8 | | 380.11 |

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

| | Mran | | | | MRAN | | MRAN | | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MEAN Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | OCTOBER | | 1 | NOVEMBER | | 1 | DECRMBER | |
| 1 | 19 | 33 | 1.7 | 194 | 204 | 149 | 57 | 64 | 12 |
| 2 | 11 | 29 | . 85 | 88 | 90 | 22 | 58 | 66 | 16 |
| 3 | 12 | 26 | 1.0 | 53 | 59 | 8.5 | 214 | 224 | 216 |
| 4 | 66 | 71 | 17 | 39 | 50 | 5.3 | 111 | 106 | 35 |
| 5 | 27 | 39 | 3.2 | 53 | 61 | 9.9 | 41 | 38 | 4.6 |
| 6 | 14 | 26 | 1.1 | 47 | 55 | 7.5 | 24 | 27 | 1.8 |
| 7 | 55 | 65 | 34 | 60 | 63 | 19 | 18 | 22 | 1.0 |
| 8 | 122 | 129 | 73 | 46 | 61 | 8.5 | 16 | 20 | . 84 |
| 9 | 107 | 122 | 143 | 23 | 50 | 3.2 | 14 | 20 | .77 |
| 10 | 156 | 160 | 80 | 21 | 49 | 2.8 | 16 | 19 | .75 |
| 11 | 184 | 167 | 133 | 17 | 43 | 2.1 | 13 | 16 | .56 |
| 12 | 39 | 43 | 4.7 | 19 | 36 | 1.9 | 12 | 16 | . 51 |
| 13 | 23 | 37 | 2.3 | 14 | 27 | 1.0 | 11 | 19 | . 60 |
| 14 | 17 | 32 | 1.5 | 12 | 20 | . 64 | 59 | 65 | 15 |
| 15 | 36 | 45 | 7.3 | 11 | 18 | .52 | 75 | 83 | 25 |
| 16 | 88 | 113 | 42 | 11 | 17 | .53 | 28 | 40 | 3.2 |
| 17 | 93 | 101 | 36 | 13 | 16 | .53 | 17 | 26 | 1.3 |
| 18 | 83 | 93 | 41 | 12 | 15 | .48 | 13 | 18 | . 60 |
| 19 | 187 | 198 | 133 | 17 | 22 | 1.7 | 11 | 17 | . 49 |
| 20 | 240 | 276 | 423 | 32 | 43 | 4.4 | 9.8 | 16 | . 43 |
| 21 | 1180 | 1000 | 5100 | 26 | 49 | 3.8 | 9.5 | 14 | .35 |
| 22 | 135 | 137 | 55 | 42 | 62 | 7.3 | 11 | 12 | .33 |
| 23 | 93 | 98 | 34 | 14 | 60 | 2.4 | 12 | 13 | . 48 |
| 24 | 222 | 258 | 318 | 9.9 | 53 | 1.4 | 13 | 16 | . 62 |
| 25 | 336 | 363 | 424 | 18 | 39 | 1.8 | 9.6 | 11 | .28 |
| 26 | 384 | 410 | 578 | 15 | 27 | 1.2 | 8.3 | 10 | .22 |
| 27 | 209 | 195 | 131 | 62 | 68 | 17 | 10 | 12 | .34 |
| 28 | 256 | 268 | 228 | 40 | 59 | 7.0 | 20 | 32 | 1.8 |
| 29 | 228 | 241 | 169 | 17 | 27 | 1.2 | 151 | 163 | 324 |
| 30 | 250 | 261 | 204 | 40 | 48 | 5.7 | 87 | 93 | 29 |
| 31 | 119 | 104 | 35 | | | | 679 | 465 | 1780 |
| TOTAL | 4991 | | 8454.65 | 1065.9 | | 298.30 | 1828.2 | | 2473.87 |

TOTAL

321.84

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

MRAN MEAN CONCEN- SEDIMENT TRATION DISCHARGE CONCENTRATION DISCHARGE
(MG/L) (TONS/DAY) MEAN DISCHARGE CONCEN- SEDIMENT TRATION DISCHARGE MBAN MEAN DISCHARGE DISCHARGE DAY (MG/L) (TONS/DAY) (CFS) (MG/L) (TONS/DAY) (CFS) (CFS) MARCH JANUARY PEBRUARY 9.5 8.0 15 3.8 .50 1 2 3 44 27 5.9 1.9 5.0 28 34 51 1.9 2.9 4.8 45 20 .33 1.6 2.0 4.4 39 67 52 70 5.9 13 1.5 .55 .46 24 12 50 3.9 11 14 .29 .23 .20 .21 2.6 1.5 3.3 12 13 37 25 124 8.2 61 9.9 27 18 42 34 37 34 8.3 15 4.1 8.4 1.0 7.6 17 1.3 .98 .78 .59 6.8 6.1 6.9 19 10 19 24 1.3 . 19 .17 14 13 16 12 153 108 10 10 20 41 8.2 .30 . 25 22 23 6.9 . 19 .29 6.1 11 .26 21 22 21 1.8 24 32 8.4 2.6 .56 . 32 7.7 . 32 3.3 .41 . 32 3.8 .34 .90 9.0 .49 29 12 12 .37 .39 12 .65 6.1 5.8 11 .19

335.42

133.39

561.7

50055750 RIO GURABO BELOW EL MANGO, PR--Continued SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | mban | | | | MRAN | | MBAN | | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | mran Discharge (CFS) | CONCEN- TRATION (MG/L) | Sediment Discharge (Tons/Day) | MRAN Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 5.4 | 7 | .11 | 3.6 | 12 | .11 | 5.9 | 13 | .22 |
| 2 | 5.3 | 6 | . 09 | 3.8 | 11 | .12 | 12 | 22 | . 86 |
| | 5.4 | ě | . 09 | 3.5 | 11 | .10 | 12 | 23 | . 84 |
| 3 | 7.9 | ž | .16 | 3.6 | 10 | .10 | 5.6 | 15 | .22 |
| 5 | 6.5 | 9 | . 15 | 5.7 | 10 | .15 | 7.2 | 15 | .30 |
| 6 | 5.8 | 7 | . 11 | 4.8 | 10 | .12 | 7.5 | 14 | .31 |
| 7 | 5.3 | 4 | . 06 | 5.9 | 10 | .15 | 9.5 | 13 | . 33 |
| 8 | 6.1 | 4 | . 07 | 24 | 32 | 3.4 | 8.3 | 11 | . 25 |
| 9 | 11 | 10 | .31 | 20 | 21 | 1.3 | 17 | 26 | 1.3 |
| 10 | 8.4 | 9 | .21 | 9.1 | 14 | .37 | 7.4 | 13 | .26 |
| 11 | 11 | 10 | .30 | 6.0 | 12 | .20 | 5.4 | 11 | . 16 |
| 12 | 8.5 | 10 | . 24 | 34 | 41 | 6.1 | 18 | 29 | 1.5 |
| 13 | 37 | 48 | 7.2 | 12 | 19 | .73 | 14 | 26 | 1.1 |
| 14 | 29 | 35 | 3.8 | 10 | 10 | .27 | 6.8 | 16 | .29 |
| 15 | 16 | 28 | 1.3 | 35 | 44 | 5.1 | 5.8 | 16 | .23 |
| 16 | 18 | 29 | 1.5 | 21 | 28 | 1.8 | 4.4 | 18 | .20 |
| 17 | 7.8 | 20 | .44 | 8.4 | 12 | .26 | 3.7 | 22 | .21 |
| 18 | 6.0 | 19 | .31 | 34 | 39 | 13 | 3.4 | 27 | . 25 |
| 19 | 5.7 | 15 | . 22 | 48 | 56 | 10 | 3.6 | 30 | .28 |
| 20 | 4.9 | 11 | . 13 | 39 | 38 | 5.6 | 3.9 | 16 | . 17 |
| 21 | 4.6 | 10 | . 12 | 24 | 32 | 2.2 | 45 | 62 | 21 |
| 22 | 4.7 | 10 | . 12 | 51 | 53 | 10 | 36 | 51 | 6.8 |
| 23 | 4.3 | 10 | .11 | 23 | 33 | 2.5 | 15 | 27 | 1.3 |
| 24 | 4.2 | 10 | .11 | 9.4 | 20 | .51 | 15 | 23 | 1.0 |
| 25 | 4.8 | 10 | .13 | 12 | 24 | .87 | 6.1 | 15 | . 23 |
| 26 | 14 | 21 | . 87 | 13 | 23 | .89 | 3.9 | 18 | .20 |
| 27 | 6.6 | 20 | .36 | 7.4 | 16 | .33 | 3.9 | 18 | .18 |
| 28 | 4.7 | 19 | .22 | 5.5 | 13 | .19 | 5.3 | 17 | .24 |
| 29 | 4.2 | 17 | .20 | 4.7 | 12 | .15 | 3.8 | 10 | .11 |
| 30 | 3.7 | 14 | . 13 | 4.1 | 12 | .13 | 146 | 149 | 215 |
| 31 | | | | 4.0 | 11 | .12 | | | |
| TOTAL | 266.8 | | 19.17 | 489.5 | | 66.87 | 441.4 | | 255.34 |

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

| | MRAN | | | MRAN | | MBAN | | | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MRAN Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | JULY | | AUGUST | | | SI | PTEMBER | |
| 1 | 325 | 319 | 358 | 2.5 | 11 | .07 | 14 | 22 | .88 |
| 2 | 88 | 100 | 25 | 2.3 | 10 | .06 | 9.7 | 14 | .38 |
| 3 | 25 | 27 | 2.0 | 2.1 | 10 | .06 | 7.4 | 12 | .24 |
| Ã | 39 | 48 | 5.6 | 2.1 | 12 | .07 | 6.0 | ii | .17 |
| 5 | 15 | 19 | .87 | 2.2 | 15 | .08 | 5.0 | 10 | .13 |
| 5 | 15 | 19 | .87 | 2.2 | 15 | .06 | 3.0 | 10 | • 13 |
| 6 | 9.1 | 11 | .28 | 2.1 | 17 | .09 | 4.7 | 10 | . 12 |
| 7 | 6.8 | 10 | . 17 | 2.3 | 18 | .11 | 5.9 | 12 | .30 |
| 8 | 5.7 | 10 | . 15 | 1.9 | 16 | .08 | 56 | 88 | 35 |
| 9 | 5.2 | 10 | . 14 | 1.8 | 15 | .08 | 94 | 101 | 30 |
| 10 | 4.7 | 10 | . 12 | 1.7 | 13 | .05 | 43 | 53 | 7.4 |
| 11 | 4.0 | 9 | .10 | 1.6 | 10 | .04 | 18 | 32 | 1.5 |
| 12 | 3.7 | 8 | . 09 | 1.5 | 10 | .04 | 11 | 31 | . 94 |
| 13 | 3.3 | 8 | . 07 | 1.5 | 10 | .04 | 7.4 | 28 | .56 |
| 14 | 3.1 | 8 | .06 | 1.7 | 10 | .06 | 6.0 | 19 | .32 |
| 15 | 23 | 29 | 8.9 | 2.3 | 10 | .06 | 4.8 | 12 | . 15 |
| 16 | 147 | 152 | 72 | 1.9 | 10 | .06 | 4.3 | 11 | . 12 |
| 17 | 30 | 41 | 4.1 | 148 | 233 | 379 | 34 | 26 | 3.5 |
| 18 | 10 | 21 | .59 | 63 | 70 | 15 | 20 | 27 | 1.7 |
| 19 | 6.5 | 17 | .31 | 12 | 22 | 77 | 7.4 | 20 | .39 |
| 20 | 5.3 | 17 | .24 | 64 | 75 | 45 | 5.3 | 20 | .29 |
| 21 | 4.5 | 19 | .23 | 42 | 83 | 11 | 5.4 | 20 | .27 |
| 22 | 3.8 | 21 | . 22 | 78 | 131 | 40 | 77 | 89 | 35 |
| 23 | 3.6 | 24 | .23 | 62 | 115 | 22 | 72 | 79 | 19 |
| 24 | 4.0 | 27 | .30 | 18 | 73 | 3.7 | 17 | 28 | 1.4 |
| 25 | 4.3 | 25 | .30 | 9.5 | 65 | 1.7 | 9.0 | 20 | .51 |
| 26 | 3.2 | 20 | . 17 | 6.5 | 49 | .89 | 10 | 17 | .47 |
| 27 | 3.1 | 17 | .14 | 166 | 160 | 152 | 178 | 197 | 401 |
| 28 | 3.0 | 15 | .13 | 237 | 213 | 185 | 101 | 104 | 36 |
| 29 | 3.0 | 15 | .13 | 62 | 57 | 10 | 400 | 335 | 560 |
| 30 | 3.3 | 14 | .13 | 24 | 37 | 2.5 | 108 | 110 | 38 |
| 31 | 3.6 | 12 | . 12 | 32 | 45 | 4.5 | | | |
| TOTAL | 798.8 | | 480.89 | 1055.5 | | 874.11 | 1341.3 | | 1175.74 |
| YEAR | 15194.1 | | 14889.59 | | | | | | |

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI - MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|-----------|---|--|--|--|--|--|--|
| JUN 1991 | | | | | | | |
| 30 | 1424 | 246 | 1250 | 830 | 18 | 39 | 54 |
| AUG | | | | | | | |
| 17 | 1815 | 1400 | 1760 | 6650 | 32 | 50 | 64 |
| 27 | 2021 | 595 | 662 | 1060 | 38 | 45 | 47 |
| SEP | | | | | _ | | |
| 22 | 1338 | 235 | 460 | 292 | 1 | 20 | 35 |
| DATE | SED. SUSP. PALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. PALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | PINER THAN | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MN | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| JUNE 1991 | | | | | | | |
| 30 | 64 | 74 | 89 | 95 | 98 | 99 | 100 |
| AUG | | | | | | | |
| 17 | 73 | 84 | 96 | 98 | 99 | 100 | 100 |
| 27 | 56 | 67 | 96 | 97 | 98 | 99 | 100 |
| SEP | | | | | | | |
| 22 | 43 | 60 | 92 | 95 | 96 | 98 | 99 |

50055750 RIO GURABO BELOW EL MANGO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|--|
| APR 1990 | | | | | |
| 02 | 1306 | 3.4 | 10 | 0.09 | 94 |
| JUN | | | | | |
| 16 | 1025 | 118 | 141 | 45 | 99 |
| JUL | | | | | |
| 07 | 1615 | 122 | 93 | 31 | 93 |
| 07 | 1630 | 120 | 92 | 30 | 84 |
| 07 | 1645 | 116 | 97 | 30 | 93 |
| 19 | 0917 | 63 | 75 | 13 | 96 |

50055750 RIO GURABO BELOW EL MANGO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|---|
| MAY 1991 | | | | | |
| 18 | 2124 | 184 | 176 | 87 | 92 |
| 18 | 2209 | 486 | 190 | 249 | 91 |
| JUN | | | | | |
| 21 | 1841 | 219 | 370 | 219 | 93 |
| 21 | 2031 | 162 | 181 | 79 | 99 |
| 30 | 1434 | 824 | 1180 | 2620 | 96 |
| 30 | 1809 | 290 | 275 | 215 | 90 |
| JOT | | | | | |
| 01 | 1753 | 308 | 256 | 212 | 98 |
| 01 | 1909 | 252 | 230 | 156 | 96 |
| 01 | 2214 | 191 | 168 | 87 | 95 |
| AUG | | | | | |
| 17 | 1740 | 371 | 1730 | 1730 | 69 |
| 17 | 1930 | 830 | 603 | 1350 | 98 |
| SEP | | | | | |
| 08 | 2026 | 280 | 357 | 270 | 92 |
| 08 | 2241 | 191 | 351 | 181 | 98 |
| 22 | 1253 | 252 | 280 | 190 | 93 |
| 22 | 1513 | 184 | 194 | 96 | 95 |

50056400 RIO VALENCIANO NEAR JUNCOS, PR

LOCATION.--Lat 18°12'58", long 65°55'34", Hydrologic Unit 21010005, on left bank at Highway 919, 0.5 mi (0.8 km) upstream from Quebrada Don Víctor, 1.7 mi (2.7 km) upstream from Río Gurabo and 1.0 mi (1.6 km) south of Juncos.

DRAINAGE AREA. -- 16.4 ml 2 (42.5 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- January 1971 to current year.

GAGE. -- Water-stage recorder. Elevation of gage is 320 ft (98 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Minor diversion from public water supply tank, 0.5 mi upstream, during low flow. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--20 years (1972-91), 51.2 ft³/s (1.450 m²/s), 42.40 in/yr (1,077 mm/yr), 37,090 acre-ft/yr (45.7 hm²/yr); median of yearly mean discharges, 51 ft³/s (1.44 m³/s), 36,900 acre-ft/yr (45 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft³/s (1,130 m³/s), Dec. 8, 1987, gage height, 25.63 ft (7.812 m), from floodmark and rating curve extended above 100 ft³/s (2.83 m³/s) on basis of slope-area measurement and step-backwater analysis; minimum discharge, 1.4 ft³/s (0.040 m³/s), Apr. 21, 1988, result of diversion and June 12, 1990.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate discharges (no stages were recorded) of major floods are as follows: Sept. 6, 1960, 37,100 ft³/s (1,050 m³/s); Oct. 9, 1970, 18,200 ft³/s (515 m³/s).

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 3,400 ft³/s (96.3 m³/s) and maximum (*):

| Date | Time | Disch (ft³/s) | marge (m³/s) | Gage (ft) | height (m) | Date | Time | Disc (ft³/s) | harge (m³/s) | Gage (ft) | height (m) |
|--------|------|------------------|-----------------|--------------|------------|------|----------|-----------------|-----------------|--------------|------------|
| July 1 | 0530 | *3,610 | 102 | *7.86 | 2.396 | No | other pe | ak greathe | r than base | e dischar | rge. |

Minimum discharge, 3.1 ft3/s (0.088 m3/s), May 2, 3.

| DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES | | | | | | | | | | | | |
|---|--------|------|------|------|------|------------|-------|-------|-------|--------|-------|-------|
| DAY | OCT | NOA | DEC | Jan | PEB | MAR | APR | MAY | JUN | JOL | AUG | SRP |
| 1 | 6.7 | 47 | 34 | 44 | 15 | 18 | 5.7 | 3.9 | 12 | 594 | 7.6 | 13 |
| 2 | 39 | 36 | 29 | 23 | 12 | 13 | 5.8 | 3.2 | 9.7 | 45 | 6.8 | 10 |
| 3 | 8.7 | 28 | 33 | 20 | 14 | 14 | 6.3 | 3.5 | 6.3 | 20 | 7.9 | 8.3 |
| 4 | 7.4 | 27 | 24 | 16 | 12 | 21 | 6.3 | 3.7 | 5.4 | 66 | 6.4 | 7.3 |
| 5 | 7.1 | 56 | 17 | 27 | 12 | 16 | 5.3 | 3.7 | 11 | 20 | 6.4 | 6.3 |
| 6 | 6.2 | 37 | 15 | 29 | 108 | 88 | 5.5 | 6.5 | 11 | 13 | 7.6 | 6.6 |
| 7 | 7.8 | 25 | 13 | 36 | 33 | 19 | 5.2 | 6.0 | 9.3 | 9.9 | 7.1 | 7.0 |
| 8 | 6.7 | 22 | 13 | 27 | 15 | e13 | 6.1 | 4.4 | 8.2 | 8.8 | 5.8 | 7.0 |
| 9 | 6.5 | 20 | 13 | 20 | 13 | e11 | 6.6 | 9.1 | 7.1 | 7.8 | 4.9 | 12 |
| 10 | 222 | 19 | 13 | 20 | 13 | e10 | 10 | 6.2 | 6.0 | 7.3 | 4.3 | 9.9 |
| 11 | 41 | 17 | 18 | 17 | 35 | e9.4 | 7.3 | 5.2 | 6.9 | 7.0 | 4.5 | 8.9 |
| 12 | 13 | 17 | 15 | 17 | 81 | 9.8 | 8.5 | 6.2 | 11 | 7.2 | 4.6 | 7.8 |
| 13 | 20 | 17 | 12 | 17 | 46 | 8.9 | 6.8 | 6.4 | 8.3 | 6.6 | 4.2 | 7.1 |
| 14 | 11 | 16 | 79 | 23 | 18 | 9.5 | 6.1 | 4.5 | 6.1 | 6.8 | 11 | 6.5 |
| 15 | 25 | 15 | 23 | 21 | 35 | 8.8 | 6.4 | 6.5 | 5.6 | 34 | 7.4 | 5.8 |
| 16 | | . 15 | 17 | 18 | 17 | 8.0 | 9.6 | 8.0 | 4.6 | 183 | 5.5 | 5.5 |
| 17 | 34 | 15 | 15 | 17 | 14 | 7.3 | 5.4 | 6.2 | 4.4 | 26 | 55 | 58 |
| 18 | 74 | 15 | 13 | 15 | 12 | 7.8 | 6.7 | 18 | 5.7 | 12 | 45 | 14 |
| 19 | 129 | 27 | 12 | 14 | 25 | 8.8 | 5.2 | 9.2 | 7.0 | 11 | 9.2 | 8.1 |
| 20 | 207 | 15 | 12 | 13 | 16 | 7.4 | 4.4 | 7.8 | 5.2 | 14 | 9.7 | 8.2 |
| 21 | 774 | 28 | 12 | 13 | 14 | 7.2 | 4.5 | 19 | 9.6 | 9.3 | 11 | 17 |
| 22 | 66 | 29 | 12 | 12 | 13 | 10 | 4.8 | 33 | 16 | 8.2 | 15 | 116 |
| 23 | 57 | 14 | 12 | 12 | 14 | 9.1 | 4.5 | 9.0 | 6.8 | 8.5 | 13 | 71 |
| 24 | 388 | 13 | 12 | 12 | 16 | 7.3 | 4.1 | 6.2 | 6.3 | 10 | 7.2 | 32 |
| 25 | 333 | 13 | 11 | 11 | 14 | 6.8 | 4.5 | 36 | 6.1 | 8.9 | 6.1 | 17 |
| 26 | 271 | 14 | 10 | 11 | 13 | 6.8 | 6.1 | 12 | 4.6 | 7.2 | 5.9 | 12 |
| 27 | 113 | 27 | 11 | 11 | 12 | 7.2 | 4.6 | 7.4 | 7.9 | 7.2 | 253 | 16 |
| 28 | 127 | 24 | 11 | 11 | 25 | 6.3 | 4.1 | 6.2 | 7.6 | 7.5 | 132 | 53 |
| 29 | 108 | 16 | 20 | 11 | | 5.8 | 4.1 | 5.2 | 5.1 | 7.7 | 23 | 284 |
| 30 | 88 | 39 | 23 | 11 | | 5.9 | 4.2 | 4.8 | 225 | 22 | 13 | 71 |
| 31 | 56 | | 402 | 14 | | 5.5 | | 5.1 | | 11 | 22 | |
| TOTAL | 3375.1 | 703 | 956 | 563 | 667 | 386.6 | 174.7 | 272.1 | 445.8 | 1206.9 | 722.1 | 906.3 |
| MBAN | 109 | 23.4 | 30.8 | 18.2 | 23.8 | 12.5 | 5.82 | 8.78 | 14.9 | 38.9 | 23.3 | 30.2 |
| MAX | 774 | 56 | 402 | 44 | 108 | _88 | 10 | 36 | 225 | 594 | 253 | 284 |
| MIN | 6.2 | 13 | 10 | 11 | 12 | 5.5 | 4.1 | 3.2 | 4.4 | 6.6 | 4.2 | 5.5 |
| AC-FT | 6690 | 1390 | 1900 | 1120 | 1320 | 767 | 347 | 540 | 884 | 2390 | 1430 | 1800 |
| CFSM | 6.64 | 1.43 | 1.88 | 1.11 | 1.45 | .76 | .36 | . 54 | .91 | 2.37 | 1.42 | 1.84 |
| IN. | 7.66 | 1.59 | 2.17 | 1.28 | 1.51 | . 88 | .40 | . 62 | 1.01 | 2.74 | 1.64 | 2.06 |

CAL YR 1990 TOTAL 9247.4 MEAN 25.3 MAX 774 MIN 1.8 AC-FT 18340 CFSM 1.54 IN. 20.98 WTR YR 1991 TOTAL 10378.6 MEAN 28.4 MAX 774 MIN 3.2 AC-FT 20590 CFSM 1.73 IN. 23.54

e Estimated

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS AUGUST 1981 TO CURRENT YEAR

| DATE | TIME | STRRAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) WATER QUALI | TEMPERA- TURE (DEG C) TY RECORDS | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|-------------------------------|------|---------------------------------------|---|---|----------------------|-------------------------------|---------------------------------------|--------------------------------------|-----------------------------|
| PEB. 13 MAR. 03 MAY. 14 | 1400 | 3.24 7.45 4.51 | 208 230 270 | 22.5 23.0 26.0 | JUL. AUG. SEP. | 18 1358 15 1128 13 1226 | 7.33 | 260 290 290 | 28.0 25.5 28.0 |

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS. -- Water years 1983 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD. --SUSPENDED-SEDIMENT DISCHARGE: October 1989 to September 1991.

INSTRUMANTATION .-- Autometic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD. --SEDIMENT CONCENTRATION: Maximum daily mean, 1,600 mg/L Oct. 06, 1985; Minimum daily mean,

1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 46,300 tons (42,000 tonnes) May 18, 1985; Minimum daily mean, 0.01 ton (0.01 tonne) several days.

EXTREMES FOR WATER YEARS 1990-91.--

| Water | Suspended-sediment of maximum | oncentration (mg/L) | Suspended-sedimunt discharge | n (tons per day) |
|-------|-------------------------------|---------------------|------------------------------|--------------------|
| Year | | minimum | maximum | minimum |
| 1990 | 290 (Aug. 10) | 3 (several days) | | .02 (several days) |
| 1991 | 555 (Oct. 21) | 2 (several days) | | .03 (several days) |

| DAY | Mran Discharge (CPS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | Sediment Discharge (Tons/Day) | MEAN DISCHARGE (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|--------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | OCTOBER | | 1 | OVEMBER | | I | DECEMBER | |
| 1 | 48 | 42 | 5.6 | 26 | 23 | 1.6 | 13 | 10 | .36 |
| 2 3 | 41 | 35 | 3.9 | 21 | 18 | 1.0 | 13 | 10 | .36 |
| 3 | 36 | 30 | 2.8 | 19 | 16 | . 82 | 12 | 10 | .32 |
| 4 | e4 0 | e 37 | e5.2 | 17 | 14 | . 64 | 12 | 10 | .32 |
| 5 | e 34 | e 34 | e3. 0 | 50 | 43 | 5.8 | 12 | 9 | .30 |
| 6 | 30 | 26 | 2.0 | 27 | 24 | 1.7 | 12 | 9 | .30 |
| 7 | 28 | 24 | 1.8 | 20 | 17 | .92 | 13 | 10 | . 36 |
| 8 | 106 | 92 | 26 | 28 | 25 | 1.9 | 11 | 8 | .24 |
| 9 | 147 | 127 | 50 | 41 | 35 | 3.9 | 11 | 8 | .25 |
| 10 | 36 | 31 | 3.0 | 26 | 23 | 1.6 | 11 | 8 | .24 |
| 11 | 32 | 27 | 2.3 | 20 | 17 | .92 | 10 | 8 | .21 |
| 12 | 29 | 26 | 2.0 | 18 | 15 | .72 | 10 | 8 | .21 |
| 13 | 26 | 23 | 1.6 | 18 | 15 | .72 | 9.8 | 8 | .21 |
| 14 | 27 | 24 | 1.7 | 18 | 15 | .72 | 9.3 | 8 | .20 |
| 15 | 26 | 23 | 1.6 | 17 | 14 | . 64 | 9.0 | 8 | .20 |
| 16 | 24 | 21 | 1.4 | 15 | 13 | .52 | 8.9 | 7 | . 18 |
| 17 | 23 | 20 | 1.2 | 15 | 13 | .52 | 9.1 | 7 | . 16 |
| 18 | 27 | 24 | 1.7 | 17 | 14 | . 64 | 9.3 | 7 | . 18 |
| 19 | 24 | 21 | 1.4 | 17 | 14 | . 64 | 9.6 | 8 | .20 |
| 20 | 24 | 21 | 1.4 | 17 | 14 | . 64 | 9.4 | 8 | .20 |
| 21 | 26 | 23 | 1.6 | 15 | 13 | .52 | 8.8 | 7 | . 17 |
| 22 | 62 | 54 | 9.0 | 14 | 12 | .46 | 8.1 | 6 | . 13 |
| 23 | 42 | 36 | 4.1 | 14 | 12 | .46 | 8.1 | 6 | . 13 |
| 24 | 25 | 22 | 1.5 | 13 | 11 | .38 | 14 | 12 | .56 |
| 25 | 23 | 20 | 1.2 | 13 | 11 | .38 | 19 | 16 | 1.0 |
| 26 | 22 | 19 | 1.1 | 15 | 13 | .52 | 9.7 | 8 | .22 |
| 27 | 20 | 17 | . 92 | 14 | 12 | .46 | 8.6 | 8 | .20 |
| 28 | 20 | 17 | . 92 | 13 | 11 | .38 | 9.6 | 8 | . 23 |
| 29 | 19 | 16 | . 82 | 13 | 12 | .40 | 15 | 14 | . 75 |
| 30 | 27 | 24 | 1.7 | 13 | 11 | .39 | 14 | 12 | . 51 |
| 31 | 22 | 19 | 1.1 | | | | 11 | 11 | . 32 |
| TOTAL | 1116 | | 143.56 | 584 | | 30.91 | 340.3 | | 9.22 |

e Estimated

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued
SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

| DAY | MEAN DISCHARGE (CFS) | MBAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JANUARY | | 1 | FEBRUARY | | | MARCH | |
| 1 | 25 | 21 | 1.6 | 11 | 9 | .29 | 7.4 | 6 | .14 |
| 2 | 34 | 31 | 3.8 | 17 | 14 | .66 | 7.1 | 6 | . 13 |
| 3 | 18 | 14 | . 65 | 11 | 9 | .26 | 6.2 | 5 | . 09 |
| 4 | 11 | 9 | .28 | 10 | 8 | .20 | 6.2 | 5 | .08 |
| 5 | 9.6 | 8 | .21 | 9.5 | 6 | .17 | 5.9 | 5 | .08 |
| 6 | 9.1 | 8 | .20 | 9.2 | 6 | .14 | 6.1 | 5 | .08 |
| 7 | 8.3 | 8 | . 18 | 13 | 10 | .46 | 6.1 | 5 | .08 |
| 8 | 9.8 | 7 | .18 | 24 | 19 | 1.2 | 5.0 | 5 | .06 |
| 9 | 8.6 | 6 | . 15 | 33 | 26 | 3.0 | 6.3 | 5 | . 08 |
| 10 | 11 | 7 | . 22 | 19 | 15 | .80 | 6.3 | 5 | .08 |
| 11 | 11 | 10 | .29 | 15 | 9 | .35 | 6.2 | 5 | .08 |
| 12 | 10 | 9 | .24 | 12 | 8 | .24 | 9.4 | 8 | .20 |
| 13 | 14 | 12 | .56 | 11 | 8 | .24 | 11 | 10 | .30 |
| 14 | 9.9 | 8 | .24 | 13 | 8 | .28 | 49 | 44 | 10 |
| 15 | 8.7 | 7 | . 18 | 10 | 7 | .19 | •14 | e12 | e. 52 |
| 16 | 8.9 | 7 | . 18 | 10 | 7 | .17 | e25 | e22 | e2.7 |
| 17 | 10 | 8 | . 24 | 12 | 9 | .31 | e17 | e14 | e. 82 |
| 18 | 9.7 | 7 | . 19 | 17 | 14 | .73 | e9. 6 | €8 | e. 21 |
| 19 | 10 | 8 | .20 | 11 | 10 | .30 | e8.4 | ●7 | e. 16 |
| 20 | 40 | 34 | 9.1 | 13 | 11 | . 53 | •11 | •8 | e. 22 |
| 21 | 17 | 15 | . 82 | 16 | 17 | .85 | e10 | -8 | €.23 |
| 22 | 11 | 9 | . 27 | 15 | 13 | . 57 | €8.6 | ●7 | e.18 |
| 23 | 10 | 8 | . 22 | 12 | 11 | .39 | 9.6 | 8 | . 25 |
| 24 | 12 | 8 | . 25 | 14 | 9 | .34 | 6.8 | 5 | .10 |
| 25 | 13 | 12 | . 58 | 8.5 | 7 | .17 | 7.4 | 5 | . 09 |
| 26 | 21 | 18 | 1.1 | 8.0 | 7 | .17 | 7.1 | 5 | .10 |
| 27 | 17 | 14 | . 68 | 7.8 | 7 | .16 | 6.9 | 5 | .08 |
| 28 | 16 | 14 | . 62 | 6.9 | 6 | .12 | 8.6 | 7 | . 17 |
| 29 | 13 | 10 | . 32 | | | | 8.4 | 7 | . 17 |
| 30 | 14 | 10 | . 37 | | | | 7.0 | 6 | .11 |
| 31 | 14 | 10 | .41 | | | | 7.8 | 6 | . 14 |
| TOTAL | 434.6 | | 24.53 | 368.9 | | 13.29 | 311.4 | | 17.73 |

e Estimated

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 5.5 | 4 | .07 | e3.2 | e 5 | e.05 | 3.8 | 8 | .09 |
| 2 | 5.7 | 4 | .06 | e3.1 | e 9 | e. 08 | 7.8 | 11 | .22 |
| 3 | 20 | 16 | 1.1 | e3.2 | e10 | e. 08 | 3.7 | 9 | . 10 |
| 4 | 8.9 | 7 | . 17 | e3. 0 | e10 | a. 08 | 3.5 | 7 | . 07 |
| 5 | 6.0 | 5 | . 07 | e2. 6 | e12 | a. 08 | 10 | 10 | . 34 |
| 6 | 4.8 | 4 | .05 | e2.3 | e11 | e. 07 | 16 | 17 | . 85 |
| 7 | 4.7 | 3 | .04 | e2.2 | e 9 | e.05 | 8.5 | 11 | . 25 |
| 8 | 4.2 | 3 | .04 | 2.4 | 7 | .05 | 5.0 | 10 | . 14 |
| 9 | 4.3 | 3 | .04 | 6.7 | 9 | .33 | 3.7 | 10 | .09 |
| 10 | 4.7 | 3 | . 05 | 36 | 35 | 5.0 | 4.3 | 8 | .09 |
| 11 | 5.9 | 4 | . 07 | 9.6 | 20 | .53 | 3.4 | 7 | .07 |
| 12 | 4.7 | 4 | .06 | 6.1 | 18 | .30 | 1.8 | 6 | . 03 |
| 13 | 24 | 21 | 2.4 | 4.8 | 12 | .14 | 2.0 | 5 | .03 |
| 14 | 11 | 9 | . 33 | 10 | 12 | .33 | 98 | 77 | 134 |
| 15 | 5.5 | 4 | . 07 | 7.2 | 12 | .23 | 94 | 83 | 40 |
| 16 | 4.9 | 3 | .04 | e5.1 | e11 | e.15 | 29 | 35 | 3.0 |
| 17 | 4.4 | 3 | .04 | e4 .0 | e 8 | e.09 | 12 | 11 | .36 |
| 18 | 4.1 | 3 | . 03 | e3.5 | e 7 | e. 06 | 8.2 | 6 | . 15 |
| 19 | 4.6 | 3 | .04 | e3.1 | e 7 | e. 06 | 10 | 6 | .16 |
| 20 | e4. 0 | •3 | a. 04 | e2.8 | €7 | a. 06 | 32 | 28 | 3.3 |
| 21 | e3.5 | e 3 | e. 03 | e2.6 | e 7 | e.04 | 12 | 11 | . 45 |
| 22 | e2.9 | e 3 | e. 02 | e2.5 | e 6 | a.04 | 7.9 | 9 | .20 |
| 23 | e2. 6 | e 3 | e. 02 | e2.3 | e 6 | e.04 | 5.4 | 6 | . 09 |
| 24 | e2.5 | e 3 | e. 02 | 2.6 | 6 | .04 | 9.8 | 9 | .28 |
| 25 | e2 0 | e 21 | e 6.0 | 2.2 | 6 | .04 | 27 | 24 | 2.3 |
| 26 | 26 | 23 | 2.5 | 3.2 | 6 | .06 | 17 | 27 | 1.4 |
| 27 | 8.4 | 6 | . 15 | 3.8 | 7 | .07 | 8.2 | 7 | . 18 |
| 28 | 5.7 | 5 | . 07 | 3.2 | 6 | .06 | 6.0 | 5 | .10 |
| 29 | e4 .0 | 5 | e. 05 | 5.0 | 6 | .09 | 5.0 | 5 | . 07 |
| 30 | e 3.8 | 5 | e.05 | 2.4 | 6 | .04 | 4.6 | 4 | . 05 |
| 31 | | | | 5.0 | 7 | .09 | | | |
| TOTAL | 221.3 | | 13.72 | 155.7 | | 8.43 | 459.6 | | 188.46 |

e Estimated

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JULY | | | AUGUST | | Si | ep tember | |
| 1 | 5.4 | 3 | . 05 | 7.6 | 5 | .10 | 9.4 | 10 | .24 |
| 2 | 5.0 | 3 | . 05 | 9.9 | 8 | .23 | 8.5 | 10 | .22 |
| 3 | 3.8 | 3 | . 04 | 10 | 7 | .18 | 9.2 | 10 | .24 |
| 4 | 5.4 | Ā | . 07 | 11 | 9 | .39 | 16 | 10 | .42 |
| 5 | 9.4 | 8 | . 22 | 9.6 | 10 | .24 | 10 | 9 | . 25 |
| 6 | 68 | 61 | 23 | 11 | 14 | .40 | 8.5 | 8 | . 18 |
| 7 | 65 | 58 | 16 | 9.3 | 14 | .34 | 7.7 | 8 | . 16 |
| 8 | 19 | 16 | . 85 | 136 | 104 | 72 | 9.8 | 5 | . 14 |
| 9 | 11 | 11 | .32 | 30 | 26 | 2.2 | 9.7 | 9 | .23 |
| 10 | 12 | 6 | .20 | 393 | 290 | 603 | 24 | 20 | 1.6 |
| 11 | 9.0 | 5 | . 13 | 80 | 65 | 19 | 11 | 9 | .27 |
| 12 | 8.7 | 6 | . 13 | 41 | 35 | 3.9 | 11 | 9 | .27 |
| 13 | 6.5 | 6 | . 11 | 60 | 52 | 10 | 47 | 41 | 8.7 |
| 14 | 6.8 | 6 | . 11 | 44 | 65 | 8.3 | 27 | 26 | 2.5 |
| 15 | 21 | 18 | 1.8 | 27 | 35 | 2.6 | 20 | 24 | 1.6 |
| 16 | 13 | 11 | .44 | 22 | 18 | 1.1 | 17 | 14 | . 68 |
| 17 | 11 | 9 | . 31 | 19 | 7 | .36 | 23 | 22 | 1.6 |
| 18 | 27 | 23 | 2.4 | 18 | 6 | .30 | 24 | 22 | 1.9 |
| 19 | 27 | 24 | 1.7 | 21 | 7 | .40 | 18 | 16 | .77 |
| 20 | 12 | 10 | . 32 | 15 | 8 | .32 | 11 | 11 | .31 |
| 21 | 8.1 | 6 | . 14 | 11 | 8 | .24 | e8.2 | e11 | e. 24 |
| 22 | 6.6 | 5 | . 08 | 11 | 10 | .33 | ●8.0 | e 9 | e.20 |
| 23 | 5.5 | 5 | . 08 | 16 | 13 | .61 | •7.7 | e 8 | e. 16 |
| 24 | 120 | 104 | 34 | 23 | 19 | 1.2 | e8.2 | e 8 | e. 18 |
| 25 | e135 | e117 | e4 3 | 23 | 18 | 1.3 | e8.8 | -8 | e.20 |
| 26 | 28 | 24 | 2.0 | 16 | 12 | .52 | e9.4 | -8 | e.20 |
| 27 | 16 | 14 | .61 | 12 | 10 | .31 | 9.4 | 8 | .20 |
| 28 | 12 | 12 | .44 | 16 | 14 | 1.3 | 8.6 | 8 | . 18 |
| 29 | 9.5 | 9 | .21 | 26 | 23 | 2.3 | 9.5 | 8 | .20 |
| 30 | 8.5 | 8 | . 18 | 12 | 11 | .32 | 8.6 | 8 | . 17 |
| 31 | 8.0 | 5 | .11 | 10 | 10 | .26 | | | |
| TOTAL | 703.2 | | 129.10 | 1150.4 | | 734.05 | 408.2 | | 24.21 |
| YEAR | 6253.6 | | 1337.21 | | | | | | |

e Estimated

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | OCTOBER | | 1 | NOVEMBER | | 1 | DECEMBER | |
| 1 | 6.7 | 11 | .20 | 47 | 36 | 4.8 | 34 | 29 | 3.6 |
| 2 | 39 | 35 | 7.7 | 36 | 34 | 3.4 | 29 | 25 | 2.6 |
| 3 | 8.7 | 9 | .21 | 28 | 29 | 2.1 | 33 | 29 | 2.9 |
| 4 | 7.4 | 9 | .18 | 27 | 27 | 2.5 | 24 | 46 | 3.1 |
| 5 | 7.1 | 9 | . 17 | 56 | 46 | 9.9 | 17 | 23 | 1.1 |
| 6 | 6.2 | 10 | .16 | 37 | 33 | 3.6 | 15 | 12 | .48 |
| 7 | 7.8 | 9 | . 19 | 25 | 18 | 1.3 | 13 | 8 | .29 |
| 8 | 6.7 | 5 | .10 | 22 | 10 | .59 | 13 | 7 | .25 |
| 9 | 6.5 | 5 | .09 | 20 | 11 | .60 | 13 | 8 | .28 |
| 10 | 222 | 160 | 368 | 19 | 11 | .55 | 13 | 9 | .30 |
| 11 | 41 | 43 | 6.3 | 17 | 11 | .48 | 18 | 16 | 1.3 |
| 12 | 13 | 15 | .54 | 17 | 10 | .44 | 15 | 14 | . 64 |
| 13 | 20 | 16 | 1.2 | 17 | 10 | .42 | 12 | 7 | . 23 |
| 14 | 11 | 10 | . 29 | 16 | 10 | .39 | 79 | 49 | 13 |
| 15 | 25 | 22 | 3.4 | 15 | 10 | .38 | 23 | 20 | 1.4 |
| 16 | 122 | 114 | 108 | 15 | 10 | .41 | 17 | 16 | .73 |
| 17 | 34 | 30 | 3.3 | 15 | 10 | .39 | 15 | 14 | .53 |
| 18 | 74 | 66 | 35 | 15 | 10 | .40 | 13 | 12 | . 42 |
| 19 | 129 | 112 | 58 | 27 | 25 | 2.9 | 12 | 12 | . 37 |
| 20 | 207 | 179 | 255 | 15 | 10 | .41 | 12 | 11 | .33 |
| 21 | 774 | 555 | 1960 | - 28 | 18 | 3.2 | 12 | 10 | .32 |
| 22 | 66 | 59 | 12 | 29 | 26 | 2.5 | 12 | 10 | .30 |
| 23 | 57 | 50 | 13 | 14 | 12 | .45 | 12 | 9 | .30 |
| 24 | 388 | 305 | 1440 | 13 | 10 | .34 | 12 | 8 | .29 |
| 25 | 333 | 275 | 389 | 13 | 10 | .33 | 11 | 8 | . 25 |
| 26 | 271 | 225 | 215 | 14 | 12 | .50 | 10 | 8 | .22 |
| 27 | 113 | 100 | 40 | 27 | 26 | 2.5 | 11 | 8 | . 25 |
| 28 | 127 | 112 | 45 | 24 | 32 | 2.3 | 11 | 8 | . 26 |
| 29 | 108 | 81 | 28 | 16 | 15 | .71 | 20 | 15 | 1.3 |
| 30 | 88 | 76 | 21 | 39 | 33 | 4.7 | 23 | 21 | 1.6 |
| 31 | 56 | 46 | 7.0 | | | | 402 | 305 | 770 |
| TOTAL | 3375.1 | | 5018.03 | 703 | | 53.49 | 956 | | 808.94 |

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

| DAY | MRAN DI SCHARGE (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MRAN CONCRN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DI SCHARGE (CFS) | MBAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|-----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|-----------------------------|--------------------------------------|-------------------------------------|
| | | JANUARY | | 1 | FEBRUARY | | | MARCH | |
| 1 | 44 | 39 | 5.2 | 15 | 12 | .55 | 18 | 17 | . 93 |
| 2 | 23 | 14 | . 92 | 12 | 6 | .21 | 13 | 15 | . 52 |
| 3 | 20 | 11 | . 57 | 14 | 6 | .21 | 14 | 15 | .60 |
| 4 | 16 | 10 | .41 | 12 | 6 | .20 | 21 | 16 | 1.0 |
| 5 | 27 | 21 | 3.2 | 12 | 7 | .31 | 16 | 10 | .38 |
| 6 | 29 | 26 | 2.5 | 108 | 89 | 94 | 88 | 79 | 40 |
| 7 | 36 | 31 | 3.7 | 33 | 30 | 3.7 | 19 | 22 | 1.0 |
| 8 | 27 | 23 | 1.8 | 15 | 14 | .58 | e13 | e22 | e.78 |
| 9 | 20 | 20 | 1.2 | 13 | 12 | .41 | e11 | e21 | e. 63 |
| 10 | 20 | 17 | . 84 | 13 | 11 | .39 | e1 0 | e20 | e.54 |
| 11 | 17 | 14 | . 65 | 35 | 30 | 3.7 | e9.4 | e17 | e.42 |
| 12 | 17 | 15 | .80 | 81 | 68 | 37 | 9.8 | 12 | .32 |
| 13 | 17 | 17 | .78 | 46 | 40 | 7.4 | 8.9 | 10 | .24 |
| 14 | 23 | 21 | 1.5 | 18 | 16 | .77 | 9.5 | 10 | .26 |
| 15 | 21 | 19 | 1.2 | 35 | 116 | 16 | 8.8 | 11 | .26 |
| 16 | 18 | 13 | . 62 | 17 | 19 | .83 | 8.0 | 11 | . 24 |
| 17 | 17 | 12 | . 59 | 14 | 12 | .43 | 7.3 | 12 | . 23 |
| 18 | 15 | 12 | . 47 | 12 | 10 | .36 | 7.8 | 10 | . 22 |
| 19 | 14 | 11 | .40 | 25 | 24 | 1.9 | 8.8 | 10 | . 23 |
| 20 | 13 | 9 | . 32 | 16 | 20 | .85 | 7.4 | 7 | . 15 |
| 21 | 13 | 8 | .27 | 14 | 19 | .71 | 7.2 | 6 | . 12 |
| 22 | 12 | 8 | . 25 | 13 | 14 | .47 | 10 | 8 | .24 |
| 23 | 12 | 8 | .26 | 14 | 10 | .34 | 9.1 | 10 | . 23 |
| 24 | 12 | 9 | . 29 | 16 | 10 | .42 | 7.3 | 10 | . 19 |
| 25 | 11 | 8 | . 25 | 14 | 11 | .40 | 6.8 | 9 | . 16 |
| 26 | 11 | 8 | .24 | 13 | 11 | .37 | 6.8 | 6 | .12 |
| 27 | 11 | 8 | .24 | 12 | 11 | .34 | 7.2 | 5 | .09 |
| 28 | 11 | 8 | .24 | 25 | 22 | 2.5 | 6.3 | 5 | .08 |
| 29 | 11 | 8 | .24 | | | | 5.8 | 5 | .08 |
| 30 | 11 | وَ | .26 | | | | 5.9 | 5 | .08 |
| 31 | 14 | 13 | .57 | | | | 5.5 | 5 | .08 |
| TOTAL | 563 | | 30.78 | 667 | | 175.35 | 386.6 | | 50.42 |

e Estimated

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

| DAY | MEAN DISCHARGE (CFS) | MBAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MBAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 5.7 | 4 | . 07 | 3.9 | 10 | .10 | 12 | 11 | .49 |
| 2 | 5.8 | 4 | . 06 | 3.2 | 9 | .08 | 9.7 | 8 | .23 |
| 3 | 6.3 | 4 | . 07 | 3.5 | 6 | .06 | 6.3 | 5 | .10 |
| 4 | 6.3 | 4 | .08 | 3.7 | 5 | .04 | 5.4 | 5 | .08 |
| 5 | 5.3 | 5 | .08 | 3.7 | 5 | .04 | 11 | 7 | .21 |
| 6 | 5.5 | 5 | . 08 | 6.5 | 6 | .11 | 11 | 7 | .21 |
| 7 | 5.2 | 5 | . 08 | 6.0 | 9 | .15 | 9.3 | 6 | . 14 |
| 8 | 6.1 | 5 | . 09 | 4.4 | 10 | .12 | 8.2 | 5 | .10 |
| 9 | 6.6 | 5 | .08 | 9.1 | 10 | .26 | 7.1 | 4 | .08 |
| 10 | 10 | 8 | .26 | 6.2 | 7 | .13 | 6.0 | 4 | .06 |
| 11 | 7.3 | 6 | .14 | 5.2 | 8 | .11 | 6.9 | 7 | .14 |
| 12 | 8.5 | 5 | .12 | 6.2 | 8 | .13 | 11 | 9 | .30 |
| 13 | 6.8 | 5 | .11 | 6.4 | 10 | . 17 | 8.3 | 6 | . 15 |
| 14 | 6.1 | 6 | .10 | 4.5 | 7 | .09 | 6.1 | 5 | . 09 |
| 15 | 6.4 | 6 | . 12 | 6.5 | 5 | .08 | 5.6 | , 23 | . 33 |
| 16 | 9.6 | 7 | .23 | 8.0 | 5 | .11 | 4.6 | 5 | . 07 |
| 17 | 5.4 | 5 | . 08 | 6.2 | 5 | .08 | 4.4 | 5 | . 06 |
| 18 | 6.7 | 5 | . 09 | 18 | 69 | 5.1 | 5.7 | 6 | .10 |
| 19 | 5.2 | 5 | .08 | 9.2 | 10 | .24 | 7.0 | 6 | . 13 |
| 20 | 4.4 | 4 | . 05 | 7.8 | 7 | .16 | 5.2 | 5 | . 07 |
| 21 | 4.5 | 3 | . 04 | 19 | 19 | 1.4 | 9.6 | 5 | .08 |
| 22 | 4.8 | 3 | . 04 | 33 | 38 | 4.0 | 16 | 11 | .45 |
| 23 | 4.5 | 2 | . 03 | 9.0 | 23 | .64 | 6.8 | 12 | .21 |
| 24 | 4.1 | 2 | . 03 | 6.2 | 6 | .10 | 6.3 | 7 | . 13 |
| 25 | 4.5 | 3 | . 04 | 36 | 32 | 5.7 | 6.1 | 4 | . 06 |
| 26 | 6.1 | 12 | .24 | 12 | 15 | .48 | 4.6 | 3 | .04 |
| 27 | 4.6 | 7 | .10 | 7.4 | 14 | .30 | 7.9 | 6 | .18 |
| 28 | 4.1 | 10 | .11 | 6.2 | 12 | .19 | 7.6 | 6 | . 14 |
| 29 | 4.1 | 10 | .11 | 5.2 | 11 | .15 | 5.1 | 4 | . 06 |
| 30 | 4.2 | 10 | .11 | 4.8 | 9 | .12 | 225 | 171 | 382 |
| 31 | | | | 5.1 | 7 | .10 | | | |
| TOTAL | 174.7 | | 2.92 | 272.1 | | 20.54 | 445.8 | | 386.49 |

RIO GRANDE DE LOIZA BASIN 50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|----------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JULY | | | August | | g | PTEMBER | |
| 1 | 594 | 402 | 1460 | 7.6 | 19 | .41 | 13 | 11 | .46 |
| 2 | 45 | 39 | 5. 3 | 6.8 | 7 | .15 | 10 | 8 | .23 |
| 3 | 20 | 18 | 1.0 | 7.9 | 4 | .09 | 8.3 | 5 | .11 |
| 4 | 66 | 57 | 14 | 6.4 | 4 | .06 | 7.3 | 4 | . 08 |
| 5 | 20 | 14 | . 93 | 6.4 | 3 | .06 | 6.3 | 4 | . 07 |
| 6 | 13 | 8 | .27 | 7.6 | 3 | .06 | 6.6 | 4 | . 07 |
| 7 | 9.9 | 7 | . 18 | 7.1 | 3 | .06 | 7.0 | 4 | .08 |
| 8 | 8.8 | 5 | .13 | 5.8 | 3 | . 05 | 7.0 | 4 | .08 |
| 9 10 | 7.8 7.3 | 5 5 | .10 .10 | 4.9 | 3 | .04 .05 | 12 9.9 | 6 | .32 .18 |
| 10 | 7.3 | > | .10 | 4.3 | 4 | .05 | 9.9 | • | . 16 |
| 11 | 7.0 | 5 | . 10 | 4.5 | 5 | .06 | 8.9 | 4 | . 10 |
| 12 | 7.2 | 4 | . 07 | 4.6 | 5 | .06 | 7.8 | 4 | . 09 |
| 13 | 6.6 | 4 | .08 | 4.2 | 5 | .06 | 7.1 | 4 | . 08 |
| 14 | 6.8 | 4 | . 07 | 11 | 10 | .50 | 6.5 | 4 | . 07 |
| 15 | 34 | 27 | 11 | 7.4 | 6 | .13 | 5.8 | 4 | . 06 |
| 16 | 183 | 189 | 123 | 5.5 | 6 | .10 | 5.5 | 4 | .06 |
| 17 | 26 | 29 | 2.6 | 5 5 | 47 | 20 | 58 | 125 | 39 |
| 18 | 12 | 11 | .36 | 45 | 41 | 10 | 14 | 12 | . 63 |
| 19 | 11 | 7 | .20 | 9.2 | 9 | .23 | 8.1 | 6 | .13 |
| 20 | 14 | 11 | .46 | 9.7 | 8 | .23 | 8.2 | 7 | .16 |
| 21 | 9.3 | 4 | .11 | 11 | 9 | .30 | 17 | 15 | .73 |
| 22 | 8.2 | 4 | . 08 | 15 | 13 | . 69 | 116 | 97 | 50 |
| 23 | 8.5 | 4 | . 09 | 13 | 11 | .42 | 71 | 68 30 | 18 3.2 |
| 24 25 | 10 8.9 | 7 5 | .20 | 7.2 | 6 | .12 .08 | 32 17 | 14 | . 64 |
| 45 | 8.9 | • | .14 | 6.1 | 5 | .08 | 1, | 14 | . 04 |
| 26 | 7.2 | 7 | . 14 | 5.9 | 5 | .08 | 12 | 11 | . 36 |
| 27 | 7.2 | 11 | .22 | 253 | 297 | 637 | 16 | 13 | .79 |
| 28 | 7.5 | 11 | .21 | 132 | 103 | 48 | 53 | 47 | 8.9 |
| 29 | 7.7 | 10 | .23 | 23 | 14 | 1.0 | 284 | 222 | 237 |
| 30 31 | 22 | 21 | 2.3 | 13 22 | 6 | .22 | 71 | 61 | 13 |
| 31 | 11 | 31 | . 93 | 22 | 19 | 1.3 | | | |
| TOTAL | 1206.9 | | 1624.60 | 722.1 | | 721.61 | 906.3 | | 374.68 |
| YRAR | 10378.6 | | 9267.85 | | | | | | |

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1991

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|---|
| JUL 1990 | | | | | |
| 07 | 1715 | 39 | 170 | 18 | 99 |
| 25 | 1055 | 103 | 103 | 28 | 94 |
| OCT | | | | | |
| 16 | 1545 | 740 | 679 | 1400 | 98 |
| DEC | | | | | |
| 31 | 0953 | 620 | 453 | 760 | 97 |
| AUG 1991 | | | | | |
| 27 | 1720 | 456 | 1155 | 1420 | 96 |
| 27 | 1810 | 1360 | 1150 | 4220 | 97 |
| 27 | 2050 | 749 | 502 | 1020 | 94 |
| SEP | | | | | |
| 29 | 1220 | 786 | 434 | 920 | 88 |

50056900 QUEBRADA MAMEY NEAR GURABO, PR

LOCATION. -- Lat 18°14'57", long 65°56'44", Hydrologic Unit 21010005, at left downstream side of bridge on Highway 189, 1.9 mi (3.0 km) southeast of Gurabo plaza, and 2.1 mi (3.4 km) northwest of Juncos plaza.

DRAINAGE ARRA. -- 2.30 mi 1 (5.96 km²).

WATER-DISCHARGE RECORDS

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

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 180 ft (55 m), from topographic map.

REMARKS. -- Records fair.

AVERAGE DISCHARGE.--7 years (1985-91), 3.58 ft³/s (0.101 m³/s), 21.14 in/yr (537 mm/yr), 2,594 acre-ft/yr (3.20 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,740 ft³/s (77.6 m²/s), Nov. 26, 1987, gage height, 11.04 ft (3.365 m), from rating curve extended above 400 ft³/s (11.3 m²/s) on basis of indirect measurement of peak flow and step-backwater analysis; minimum discharge, 0.15 ft³/s (0.004 m³/s), June 12, July 5, 6, 1990.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 500 ft³/s (14.2 m³/s) and maximum (*):

| | Discharge | | Gage | Gage height | | | | harge | Gage height | | |
|---------|-----------|------------|---------------------|-------------|-------|---------|------|---------|-------------|------|-------|
| Date | Time | (ft^3/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 7 | 1700 | *670 | 19.0 | *7.28 | 2.219 | Oct. 24 | 1945 | 510 | 14.4 | 6.85 | 2.088 |
| Oct. 16 | 1345 | 510 | 14.4 | 6.85 | 2.088 | Dec. 11 | 1930 | 608 | 17.2 | 7.12 | 2.170 |

Minimum daily discharge, 0.21 ft³/s (0.006 m³/s), Sept. 26.

| | | DI SCHA | RGE, CUBIC | FRET PER | | WATER YE Y MEAN VA | AR OCTOBER LUES | 1990 TO | SEPTEMBE | R 1991 | | |
|--------|--------|---------|------------|----------|-------|-----------------------|--------------------|---------|----------|--------|-------|-------|
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | .69 | 1.9 | 1.8 | 6.0 | 1.1 | . 68 | .54 | .42 | .98 | 24 | .33 | . 32 |
| 2 | . 67 | 1.7 | 3.1 | 2.0 | 1.1 | .74 | .51 | . 43 | 1.2 | 1.3 | .30 | .29 |
| 3 | .98 | 1.6 | 12 | 1.3 | 1.2 | . 82 | . 55 | .42 | .87 | . 54 | .39 | .29 |
| 4 | 1.4 | 1.6 | 2.5 | 1.2 | 1.2 | 1.1 | . 54 | .42 | .79 | . 49 | .51 | . 25 |
| 5 | 1.0 | 1.9 | 1.5 | 1.1 | 1.4 | 1.5 | . 64 | .49 | .95 | .48 | .48 | . 23 |
| 6 7 | .77 | 1.4 | 1.2 | 1.2 | 1.9 | 10 | .57 | .49 | 2.5 | .38 | .29 | . 23 |
| 7 | 51 | 1.3 | 1.2 | 1.1 | 1.2 | 1.2 | .55 | .44 | 1.9 | .38 | .35 | . 33 |
| 8 | 4.2 | 1.3 | 1.1 | 1.1 | 1.1 | .98 | . 84 | .50 | 1.4 | .40 | .30 | . 25 |
| 9 | 1.0 | 1.3 | 1.3 | 1.0 | 1.2 | .91 | .59 | . 45 | 1.1 | .42 | .35 | .28 |
| 10 | 25 | 1.4 | 1.4 | 1.0 | 1.5 | .78 | .49 | . 42 | .72 | .30 | .38 | .36 |
| 11 | 5.2 | 1.2 | 18 | 1.0 | 2.7 | .73 | .53 | 38 | . 67 | .26 | .46 | .37 |
| 12 | 1.5 | 1.2 | 3.8 | 1.2 | 1.3 | . 68 | .53 | 16 | .76 | .28 | .44 | .26 |
| 13 | 1.6 | 1.1 | 1.5 | 1.0 | 1.3 | . 66 | .56 | 1.4 | . 67 | . 32 | .37 | .24 |
| 14 | .79 | 1.1 | 19 | . 98 | .90 | . 66 | .54 | . 94 | . 60 | . 35 | .65 | . 23 |
| 15 | 33 | 1.0 | 29 | . 95 | 1.6 | . 61 | .61 | .79 | .57 | 2.2 | 1.2 | .27 |
| 16 | 49 | 1.1 | 3.7 | . 97 | .90 | . 62 | .68 | .78 | .51 | 12 | .33 | .28 |
| 17 | 12 | 1.1 | 1.8 | . 97 | .75 | .53 | .55 | . 68 | .47 | 1.4 | .23 | 1.5 |
| 18 | 26 | 1.1 | 1.5 | . 93 | 1.2 | .54 | .48 | .72 | .51 | . 55 | .27 | . 99 |
| 19 | 15 | 1.1 | 1.4 | . 87 | 1.6 | . 57 | .44 | .72 | .49 | .43 | .28 | 1.9 |
| 20 | 31 | 5.0 | 1.4 | . 83 | . 94 | .48 | .38 | . 66 | .50 | . 45 | .28 | 1.1 |
| 21 | 83 | 1.6 | 1.4 | . 83 | .81 | .48 | .36 | . 60 | .53 | .41 | .40 | . 59 |
| 22 | 5.1 | 1.1 | 1.4 | . 84 | .73 | 1.1 | .38 | 1.4 | .47 | .38 | 1.6 | 17 |
| 23 | 2.5 | 1.0 | 1.3 | .86 | .72 | .70 | .38 | . 75 | .49 | .36 | .71 | 5.5 |
| 24 | 47 | . 97 | 1.3 | . 83 | . 95 | .48 | .35 | .58 | .43 | 1.8 | .26 | . 84 |
| 25 | 48 | 1.0 | 1.2 | . 87 | .81 | .46 | .36 | 2.0 | .41 | .71 | .27 | .32 |
| 26 | 52 | 1.1 | 1.2 | . 98 | .75 | . 68 | .39 | .90 | .39 | . 34 | .25 | .21 |
| 27 | 7.5 | 1.2 | 1.2 | . 96 | .71 | .73 | .42 | . 64 | .37 | .31 | 10 | .23 |
| 28 | 3.4 | 1.1 | 1.3 | . 93 | .68 | .50 | .42 | . 56 | .38 | . 25 | 3.6 | . 43 |
| 29 | 2.5 | 1.1 | 5.5 | . 93 | | . 46 | .44 | . 57 | .37 | .28 | .48 | 6.1 |
| 30 | 2.4 | 1.3 | 2.5 | . 90 | | . 48 | .42 | . 61 | 2.3 | .28 | .27 | . 96 |
| 31 | 2.8 | | 48 | 1.0 | | .49 | | . 66 | | . 33 | .28 | |
| TOTAL | 518.00 | 41.87 | 174.5 | 36.63 | 32.25 | 31.35 | 15.04 | 74.44 | 24.30 | 52.38 | 26.31 | 42.15 |
| MRAN | 16.7 | 1.40 | 5.63 | 1.18 | 1.15 | 1.01 | .50 | 2.40 | .81 | 1.69 | .85 | 1.40 |
| MAX | 83 | 5.0 | 48 | 6.0 | 2.7 | 10 | . 84 | 38 | 2.5 | 24 | 10 | 17 |
| min | . 67 | . 97 | 1.1 | . 83 | .68 | . 46 | .35 | . 42 | .37 | . 25 | .23 | .21 |
| AC-PT | 1030 | 83 | 346 | 73 | 64 | 62 | 30 | 148 | 48 | 104 | 52 | 84 |
| CPSM | 7.27 | .61 | 2.45 | .51 | .50 | .44 | .22 | 1.04 | . 35 | .73 | .37 | . 61 |
| IN. | 8.38 | . 68 | 2.82 | . 59 | .52 | .51 | .24 | 1.20 | .39 | . 85 | .43 | . 68 |

CAL YR 1990 TOTAL 1018.08 MEAN 2.79 MAX 83 MIN .17 AC-FT 2020 CFSM 1.21 IN. 16.47 WTR YR 1991 TOTAL 1069.22 MEAN 2.93 MAX 83 MIN .21 AC-FT 2120 CFSM 1.27 IN. 17.29

50056900 QUEBRADA MAMEY NEAR GURABO, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS MARCH 1984 TO CURRENT YEAR

| DATE I | en in | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (DEG C) |
|-----------|-------|---------------------------------------|--------------------------------------|-----------------------------|------|---------|---------------------------------------|--------------------------------------|-----------------------------|
| FRB. 02 1 | L237 | .48 | 498 | 24.0 | JUL. | 07 1118 | .27 | 600 | 28.0 |
| MAR. 18 1 | L516 | .53 | 510 | 24.5 | AUG. | 15 1439 | . 64 | 630 | 28.5 |
| JUN. 27 1 | L254 | . 42 | 625 | 29.0 | | | | | |

50057000 RIO GURABO AT GURABO, PR

LOCATION.--Lat 18°15'30", long 65°58'05", Hydrologic Unit 21010005, on left bank, at bridge on Highway 181, 0.3 mi (0.5 km) east of Gurabo, and 4.5 mi (7.6 km) upstream from Río Grande de Loíxa.

DRAINAGE AREA. -- 60.2 mi 2 (155.9 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- 1958 (occasional low-flow measurements only), January to September 1959 (monthly measurements only), October 1959 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 131.58 ft (40.106 m) above mean sea level. Prior to Oct. 1, 1989 datum 5.0 ft (1.5 m) higher.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--32 years (1960-91), 135 ft³/s (3.823 m³/s), 30.45 in/yr (773 mm/yr), 97,810 acre-ft/yr (120 hm²/yr); median of yearly mean discharges, 127 ft³/s (3.60 m³/s), 92,000 acre-ft/yr (110 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 74,600 ft³/s (2,133 m³/s), Sept. 6, 1960, gage height, 27.7 ft (8.443 m), from floodmark, from rating curve extended above 8,000 ft³/s (227 m³/s) on basis of slope-area measurement at gage height 21.6 ft (6.58 m), contracted opening, culvert and flow over road measurement at gage height 23.76 ft (7.242 m), datum then in use, and estimate of peak flow based on slope-area measurements of Río Gurabo and Río Valenciano, 7.0 mi (11.3 km) upstream, adjusted for channel storage and flow from intervening area, minimum discharge, 4.5 ft³/s (0.127 m³/s), Feb. 21, 25, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate elevation to gage datum of the Aug. 4, 1945 flood, as pointed out by local residents, 26.6 ft (8.1 m), datum then is use.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 3,000 ft3/s (85.0 m3/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| Date | Time | Dischar (ft³/s) | :ge (m³/s) | Gage he | ight (m) | Date | Time | Discha (ft³/s) | arge (m³/s) | Gage h (ft) | eight (m) |
|--------------------|--------------|--------------------|---------------|-----------------|----------------|---------|------|-------------------|----------------|----------------|--------------|
| Oct. 21 Oct. 24 | 1130 2300 | *5,010 3,090 | 142 87.5 | *16.88 13.97 | 5.145 4.258 | Dec. 31 | 0745 | 3,380 | 95.7 | 14.47 | 4.410 |

Minimum discharge, 6.9 ft3/s (0.195 m3/s), Aug. 13, 14.

| | | | , | | DAIL | MRAN VA | LUES | | | | | |
|-------|-------|--------------|------|------|------|---------|------|--------|------|------|--------|------|
| DAY | OCT | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 44 | e130 | 108 | 346 | 35 | 46 | 20 | 10 | 14 | 845 | 14 | 47 |
| 2 | 61 | e1 00 | 88 | 126 | 28 | 29 | 19 | 10 | 26 | 175 | 11 | 38 |
| 3 | 40 | e 90 | 240 | 74 | 29 | 27 | 18 | 9.6 | 23 | 64 | 11 | 24 |
| ă | 67 | e150 | 153 | 57 | 34 | 49 | 18 | 9.5 | 16 | 79 | 11 | 19 |
| 5 | 50 | e110 | 75 | 53 | 40 | 35 | 19 | 11 | 14 | 51 | 9.7 | 16 |
| 6 | 44 | 101 | 57 | 92 | 98 | 213 | 19 | 15 | 27 | 33 | 9.5 | 14 |
| 7 | 176 | 77 | 52 | 109 | 118 | 76 | 17 | 16 | 26 | 27 | 11 | 15 |
| 8 | 165 | 93 | 49 | 74 | 43 | 60 | 17 | 16 | 23 | 22 | 10 | 24 |
| 9 | 74 | 64 | 47 | 72 | 33 | 65 | 19 | 32 | 21 | 20 | 9.4 | 86 |
| 10 | 415 | 62 | 47 | 66 | 27 | 39 | 21 | 27 | 19 | 18 | 8.6 | 64 |
| 11 | 317 | 56 | 80 | 78 | 69 | 32 | 26 | 132 | 14 | 16 | 8.2 | 35 |
| 12 | 100 | 56 | 89 | 53 | 110 | 30 | 23 | 103 | 20 | 16 | 8.1 | 26 |
| 13 | 69 | 52 | 56 | 49 | 173 | 27 | 32 | 39 | 29 | 14 | 7.5 | 19 |
| 14 | 57 | 49 | 183 | 54 | 49 | 27 | 30 | 24 | 19 | 13 | 13 | 16 |
| 15 | 228 | 47 | 163 | 53 | 55 | 26 | 24 | 31 | 16 | 17 | 33 | 13 |
| 16 | 446 | 46 | 79 | 51 | 42 | 24 | 29 | 35 | 13 | 324 | 12 | 12 |
| 17 | 303 | 47 | 54 | 50 | 35 | 23 | 20 | 25 | 11 | 91 | 94 | 49 |
| 18 | 224 | 46 | 48 | 46 | 33 | 25 | 16 | 27 | 10 | 39 | 218 | 65 |
| 19 | 465 | 54 | 45 | 43 | 165 | 30 | 16 | 61 | 13 | 26 | 45 | 50 |
| 20 | 385 | 69 | 43 | 41 | 110 | 29 | 14 | 39 | 11 | 24 | 53 | 37 |
| 21 | 2310 | 57 | 43 | 38 | 93 | 26 | 14 | 43 | 12 | 19 | 98 | 32 |
| 22 | 335 | 86 | 42 | 36 | 48 | 37 | 14 | 54 | 66 | 16 | 79 | 173 |
| 23 | 194 | 51 | 42 | 33 | 41 | 54 | 14 | 51 | 32 | 14 | 89 | 234 |
| 24 | 606 | 43 | 44 | 32 | 45 | 31 | 13 | 25 | 27 | 19 | 36 | 77 |
| 25 | 945 | 40 | 40 | 30 | 45 | 26 | 12 | 39 | 19 | 21 | 21 | 47 |
| 26 | 870 | 48 | 37 | 31 | 48 | 42 | 18 | 42 | 14 | 14 | 16 | 37 |
| 27 | 417 | 69 | 37 | 31 | 38 | 29 | 18 | 24 | 10 | 13 | 273 | 131 |
| 28 | 402 | 100 | 45 | 29 | 32 | 25 | 14 | 18 | 15 | 13 | 525 | 171 |
| 29 | 411 | 55 | 160 | 27 | | 22 | 12 | 15 | 12 | 13 | 111 | 599 |
| 30 | 419 | 69 | 173 | 28 | | 21 | 11 | 13 | 238 | 15 | 52 | 261 |
| 31 | 226 | | 1040 | 26 | | 20 | | 11 | | 29 | 50 | |
| TOTAL | 10865 | 2117 | 3459 | 1928 | 1716 | 1245 | 557 | 1007.1 | 810 | 2100 | 1947.0 | 2431 |
| MRAN | 350 | 70.6 | 112 | 62.2 | 61.3 | 40.2 | 18.6 | 32.5 | 27.0 | 67.7 | 62.8 | 81.0 |
| MAX | 2310 | 150 | 1040 | 346 | 173 | 213 | 32 | 132 | 238 | 845 | 525 | 599 |
| MIN | 40 | 40 | 37 | 26 | 27 | 20 | 11 | 9.5 | 10 | 13 | 7.5 | 12 |
| AC-FT | 21550 | 4200 | 6860 | 3820 | 3400 | 2470 | 1100 | 2000 | 1610 | 4170 | 3860 | 4820 |
| CFSM | 5.82 | 1.17 | 1.85 | 1.03 | 1.02 | . 67 | .31 | . 54 | .45 | 1.13 | 1.04 | 1.35 |
| IN. | 6.71 | 1.31 | 2.14 | 1.19 | 1.06 | .77 | .34 | . 62 | .50 | 1.30 | 1.20 | 1.50 |

CAL YR 1990 TOTAL 28341.7 MEAN 77.6 MAX 2310 MIN 9.7 AC-FT 56220 CFM 1.29 IN. 17.51 WTR YR 1991 TOTAL 30182.1 MEAN 82.7 MAX 2310 MIN 7.5 AC-FT 59870 CFM 1.37 IN. 18.65

e Estimated

50057000 RIO GURABO AT GURAGO, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD .-- WATER YEARS AUGUST 1981 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) |
|---------|------|---------------------------------------|--------------------------------------|-----------------------------|------|--------|---------------------------------------|--------------------------------------|-----------------------------|
| FEB. 16 | 1122 | 11.2 | 304 | 24.5 | JUL. | 11 131 | 16.4 | 365 | 29.5 |
| MAR. 18 | 1303 | 4.19 | 310 | 27.0 | AUG. | 15 132 | 26.1 | 320 | 29.5 |
| JUN. 24 | 1129 | 14.0 | 300 | 28.0 | | | | | |

50057000 RIO GURABO AT GURABO--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD. --SUSPENDED-SEDIMENT DISCHARGE: October 1983 to September 1991.

INSTRUMENTATION. -- USD-49 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD .--

SEDIMENT CONCENTRATION: Maximum daily mean, 9,220 mg/L Nov 27, 1987; Minimum daily mean, 5 mg/L April 17 and 24, 1990.

SEDIMENT LOADS: Maximum daily mean, 686,000 tons (622,340 tonnes) Nov 27, 1987; Minimum daily mean, 0.16 ton (0.13 tonne) April 24, 1990.

EXTREMES FOR CURRENT YEAR.-SEDIMENT CONCENTRATION:
SEDIMENT CONCENTRATION:
Maximum daily mean, 1,080 mg/L October 21, 1990; minimum daily mean,
SEDIMENT LOADS: Maximum daily mean, 9,200 tons (8,350 tonnes) October 21, 1990; minimum daily
0.14 ton (0.13 tonne) August 13, 1991.

| | Mean | | | | MRAN | | MEAN | | | |
|-------|------------|---------|------------|-------------|----------|------------|------------|----------|------------|--|
| | MRAN | CONCEN- | SEDIMENT | MEAN | CONCEN- | SEDIMENT | MRYN | CONCEN- | SEDIMENT | |
| | DI SCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE | DI SCHARGE | TRATION | Discharge | |
| DAY | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | |
| | | OCTOBER | | 1 | NOVEMBER | | 1 | DECEMBER | | |
| 1 | 44 | 29 | 3.6 | e130 | 159 | 99 | 108 | 72 | 22 | |
| 2 | 61 | 42 | 7.9 | e100 | 180 | 139 | 88 | 55 | 14 | |
| 3 | 40 | 28 | 3.2 | ■90 | 178 | 135 | 240 | 135 | 139 | |
| 4 | 67 | 68 | 15 | e150 | 120 | 55 | 153 | 103 | 51 | |
| 5 | 50 | 35 | 4.8 | e110 | 56 | 16 | 75 | 52 | 11 | |
| 6 | 44 | 31 | 3.8 | 101 | 68 | 19 | 57 | 33 | 5.2 | |
| 7 | 176 | 112 | 150 | 77 | 177 | 39 | 52 | 36 | 5.1 | |
| 8 | 165 | 108 | 54 | 93 | 61 | 16 | 49 | 33 | 4.4 | |
| 9 | 74 | 52 | 12 | 64 | 44 | 7.7 | 47 | 32 | 4.0 | |
| 10 | 415 | 300 | 592 | 62 | 37 | 6.0 | 47 | 25 | 3.1 | |
| 11 | 317 | 199 | 189 | 56 | 30 | 4.5 | 80 | 44 | 18 | |
| 12 | 100 | 70 | 22 | 56 | 24 | 3.5 | 89 | 60 | 17 | |
| 13 | 69 | 47 | 8.7 | 52 | 18 | 2.5 | 56 | 41 | 6.6 | |
| 14 | 57 | 40 | 6.4 | 49 | 15 | 2.1 | 183 | 119 | 76 | |
| 15 | 228 | 141 | 196 | 47 | 15 | 1.9 | 163 | 107 | 63 | |
| 16 | 446 | 351 | 733 | 46 | 14 | 1.8 | 79 | 55 | 13 | |
| 17 | 303 | 196 | 183 | 47 | 13 | 1.6 | 54 | 35 | 5.0 | |
| 18 | 224 | 145 | 104 | 46 | 12 | 1.4 | 48 | 32 | 4.2 | |
| 19 | 465 | 250 | 410 | 54 | 27 | 4.6 | 45 | 28 | 3.4 | |
| 20 | 385 | 282 | 557 | 69 | 47 | 9.8 | 43 | 25 | 3.0 | |
| 21 | 2310 | 1080 | 9200 | 57 | 62 | 9.9 | 43 | 24 | 2.8 | |
| 22 | 335 | 211 | 211 | 86 | 61 | 15 | 42 | 24 | 2.8 | |
| 23 | 194 | 127 | 70 | 51 | 36 | 5.3 | 42 | 24 | 2.7 | |
| 24 | 606 | 375 | 1580 | 43 | 30 | 3.5 | 44 | 23 | 2.6 | |
| 25 | 945 | 525 | 1900 | 40 | 30 | 3.3 | 40 | 20 | 2.2 | |
| 26 | 870 | 451 | 1110 | 48 | 32 | 4.1 | 37 | 17 | 1.7 | |
| 27 | 417 | 258 | 323 | 69 | 46 | 10 | 37 | 22 | 2.3 | |
| 28 | 402 | 247 | 286 | 100 | 67 | 20 | 45 | 30 | 3.6 | |
| 29 | 611 | 251 | 300 | 55 | 39 | 6.1 | 160 | 99 | 106 | |
| 30 | 419 | 257 | 308 | 69 | 48 | 9.4 | 173 | 114 | 66 | |
| 31 | 226 | 145 | 91 | | | | 1040 | 578 | 2690 | |
| TOTAL | 10865 | | 18634.4 | 2117 | | 652.0 | 3459 | | 3350.7 | |

e Estimated

RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

| | | MRAN | | | MEAN | | | MRAN | | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|--|
| DAY | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | mean Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | |
| | (CFS) | • • • • • • | (ICMS/DRI) | · - | | (IONS/DAI) | (CFS) | | (ICMB/DAI) | |
| | | JANUARY | | - 1 | FEBRUARY | | | MARCH | | |
| 1 | 346 | 214 | 221 | 35 | 26 | 2.4 | 46 | 32 | 4.4 | |
| 2 | 126 | 94 | 35 | 28 | 22 | 1.7 | 29 | 21 | 1.7 | |
| 3 | 74 | 75 | 15 | 29 | 19 | 1.5 | 27 | 21 | 1.6 | |
| 4 | 57 | 40 | 6.3 | 34 | 17 | 1.5 | 49 | 32 | 4.7 | |
| 5 | 53 | 37 | 5.5 | 40 | 29 | 3.4 | 35 | 24 | 2.3 | |
| 6 | 92 | 62 | 17 | 98 | 65 | 44 | 213 | 126 | 108 | |
| 7 | 109 | 64 | 20 | 118 | 79 | 36 | 76 | 84 | 20 | |
| 8 | 74 | 53 | 12 | 43 | 34 | 4.1 | 60 | 42 | 8.4 | |
| 9 | 72 | 56 | 12 | 33 | 32 | 2.9 | 65 | 47 | 9.5 | |
| 10 | 66 | 37 | 7.1 | 27 | 32 | 2.4 | 39 | 28 | 3.0 | |
| 11 | 78 | 52 | 11 | 69 | 38 | 7.0 | 32 | 18 | 1.6 | |
| 12 | 53 | 35 | 5.2 | 110 | 79 | 38 | 30 | 11 | . 85 | |
| 13 | 49 | 24 | 3.1 | 173 | 165 | 103 | 27 | 10 | .76 | |
| 14 | 54 | 25 | 4.1 | 49 | 50 | 7.0 | 27 | 10 | .72 | |
| 15 | 53 | 39 | 5.7 | 55 | 45 | 7.3 | 26 | 10 | .71 | |
| 16 | 51 | 29 | 4.1 | 42 | 31 | 3.6 | 24 | 10 | . 65 | |
| 17 | 50 | 16 | 2.2 | 35 | 25 | 2.4 | 23 | 9 | . 55 | |
| 18 | 46 | 14 | 1.8 | 33 | 321 | 27 | 25 | 14 | 1.0 | |
| 19 | 43 | -8 | . 93 | 165 | 123 | 68 | 30 | 20 | 1.6 | |
| 20 | 41 | 8 | . 88 | 110 | 73 | 23 | 29 | 14 | 1.1 | |
| 21 | 38 | 8 | . 83 | 93 | 62 | 18 | 26 | 9 | . 63 | |
| 22 | 36 | 10 | .98 | 48 | 34 | 4.6 | 37 | 24 | 2.9 | |
| 23 | 33 | 10 | .92 | 41 | 29 | 3.3 | 54 | 37 | 5.9 | |
| 24 | 32 | 13 | 1.1 | 45 | 30 | 3.5 | 31 | 22 | 1.9 | |
| 25 | 30 | 13 | 1.1 | 45 | 25 | 3.0 | 26 | 17 | 1.2 | |
| | | | | | | | | | | |
| 26 | 31 | 17 | 1.4 | 48 | 19 | 2.5 | 42 | 27 | 5.6 | |
| 27 | 31 | 20 | 1.6 | 38 | 19 | 1.9 | 29 | 19 | 1.5 | |
| 28 | 29 | 21 | 1.6 | 32 | 17 | 1.5 | 25 | 14 | . 96 | |
| 29 | 27 | 19 | 1.4 | | | | 22 | 11 | .61 | |
| 30 | 28 | 15 | 1.2 | | | | 21 | 10 | . 52 | |
| 31 | 26 | 21 | 1.5 | | | | 20 | 8 | .46 | |
| TOTAL | 1928 | | 403.54 | 1716 | | 424.5 | 1245 | | 195.32 | |
| | | | | | | | | | | |

50057000 RIO GURABO AT GURABO--Continued

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CPS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 20 | 8 | .42 | 10 | 20 | .55 | 14 | 13 | .48 |
| 2 | 19 | 8 | .42 | 10 | 21 | .56 | 26 | 15 | 1.0 |
| 3 | 18 | 10 | .49 | 9.6 | 21 | .54 | 23 | 11 | . 67 |
| 4 | 18 | 12 | .57 | 9.5 | 21 | .54 | 16 | 11 | .46 |
| 5 | 19 | 12 | . 63 | 11 | 21 | . 62 | 14 | 10 | .42 |
| 6 | 19 | 12 | . 59 | 15 | 21 | .83 | 27 | 10 | . 67 |
| 7 | 17 | 11 | .50 | 16 | 19 | .83 | 26 | 8 | . 58 |
| 8 | 17 | 11 | .51 | 16 | 17 | .87 | 23 | 10 | .58 |
| 9 | 19 | 12 | . 59 | 32 | 19 | 1.5 | 21 | 9 | .53 |
| 10 | 21 | 12 | .71 | 27 | 17 | 1.2 | 19 | 9 | .46 |
| 11 | 26 | 13 | . 83 | 132 | 170 | 184 | 14 | 10 | .36 |
| 12 | 23 | 14 | . 88 | 103 | 57 | 19 | 20 | 10 | . 54 |
| 13 | 32 | 21 | 1.9 | 39 | 37 | 4.1 | 29 | 10 | .77 |
| 14 | 30 | 21 | 1.6 | 24 | 34 | 2.2 | 19 | 8 | .38 |
| 15 | 24 | 20 | 1.4 | 31 | 34 | 2.7 | 16 | 13 | . 55 |
| 16 | 29 | 20 | 1.5 | 35 | 33 | 3.0 | 13 | 17 | .56 |
| 17 | 20 | 22 | 1.2 | 25 | 159 | 9.2 | 11 | 18 | . 53 |
| 18 | 16 | 21 | . 90 | 27 | 27 | 2.0 | 10 | 17 | .47 |
| 19 | 16 | 20 | . 85 | 61 | 49 | 9.2 | 13 | 15 | . 52 |
| 20 | 14 | 17 | . 64 | 39 | 27 | 2.8 | 11 | 17 | . 50 |
| 21 | 14 | 13 | .48 | 43 | 23 | 2.7 | 12 | 21 | .71 |
| 22 | 14 | 11 | .40 | 54 | 43 | 6.7 | 66 | 48 | 11 |
| 23 | 14 | 11 | . 39 | 51 | 42 | 6.5 | 32 | 27 | 2.4 |
| 24 | 13 | 10 | . 35 | 25 | 19 | 1.4 | 27 | 19 | 1.4 |
| 25 | 12 | 8 | . 29 | 39 | 35 | 4.7 | 19 | 15 | . 82 |
| 26 | 18 | 8 | .44 | 42 | 39 | 4.6 | 14 | 11 | .42 |
| 27 | 18 | 9 | .47 | 24 | 33 | 2.3 | 10 | 10 | .27 |
| 28 | 14 | 10 | . 34 | 18 | 28 | 1.3 | 15 | 10 | .38 |
| 29 | 12 | 12 | . 37 | 15 | 23 | .91 | 12 | 10 | .31 |
| 30 | 11 | 16 | .47 | 13 | 18 | .61 | 238 | 331 | 773 |
| 31 | | | | 11 | 15 | .46 | | | |
| TOTAL | 557 | | 21.13 | 1007.1 | | 278.42 | 810 | | 801.74 |

RIO GRANDE DE LOIZA BASIN
50057000 RIO GURABO AT GURABO--Continued

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mran Discharge (CFS) | MRAN CONCEN- TRATION (MG/L) | Sediment Discharge (Tons/Day) | MRAN DI SCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|-----------------------------|--------------------------------------|-------------------------------------|
| | | JULY | 7 | | AUGUST | | | September | |
| 1 | 845 | 547 | 2050 | 14 | 12 | .49 | 47 | 33 | 5.1 |
| 2 | 175 | 117 | 69 | 11 | 12 | .35 | 38 | 34 | 3.6 |
| 3 | 64 | 45 | * 8.4 | 11 | 11 | .34 | 24 | 38 | 2.5 |
| 4 | 79 | 51 | 12 | 11 | 11 | .33 | 19 | 31 | 1.6 |
| 5 | 51 | 36 | 5.2 | 9.7 | 11 | .29 | 16 | 20 | . 85 |
| 6 | 33 | 24 | 2.2 | 9.5 | 12 | .30 | 14 | 13 | .48 |
| 7 | 27 | 21 | 1.5 | 11 | 13 | .40 | 15 | 11 | . 46 |
| 8 | 22 | 13 | .79 | 10 | 17 | .45 | 24 | 17 | 1.1 |
| 9 | 20 | 11 | . 57 | 9.4 | 16 | .39 | 86 | 58 | 16 |
| 10 | 18 | 10 | .46 | 8.6 | 12 | .28 | 64 | 47 | 8.2 |
| 11 | 16 | 9 | .40 | 8.2 | 11 | .23 | 35 | 37 | 3.7 |
| 12 | 16 | 9 | . 38 | 8.1 | 8 | .18 | 26 | 26 | 1.9 |
| 13 | 14 | 9 | . 34 | 7.5 | 7 | .14 | 19 | 16 | . 83 |
| 14 | 13 | 9 | .31 | 13 | 11 | .74 | 16 | 11 | . 49 |
| 15 | 17 | 12 | .77 | 33 | 37 | 3.5 | 13 | 9 | .31 |
| 16 | 324 | 140 | 145 | 12 | 20 | . 69 | 12 | 7 | .22 |
| 17 | 91 | 60 | 17 | 94 | 111 | 206 | 49 | 30 | 6.9 |
| 18 | 39 | 46 | 4.9 | 218 | 139 | 123 | 65 | 53 | 11 |
| 19 | 26 | 38 | 2.7 | 45 | 39 | 5.1 | 50 | 36 | 7.2 |
| 20 | 24 | 32 | 2.1 | 53 | 41 | 16 | 37 | 31 | 3.7 |
| 21 | 19 | 26 | 1.4 | 98 | 88 | 27 | 32 | 20 | 1.8 |
| 22 | 16 | 19 | . 82 | 79 | 61 | 18 | 173 | 315 | 137 |
| 23 | 14 | 14 | . 50 | 89 | 82 | 22 | 234 | 179 | 125 |
| 24 | 19 | 8 | .41 | 36 | 55 | 5.6 | 77 | 114 | 24 |
| 25 | 21 | 5 | . 32 | 21 | 39 | 2.3 | 47 | 80 | 11 |
| 26 | 14 | 7 | .27 | 16 | 21 | .91 | 37 | 47 | 4.8 |
| 27 | 13 | 10 | . 33 | 273 | 434 | 446 | 131 | 86 | 97 |
| 28 | 13 | 11 | .38 | 525 | 243 | 407 | 171 | 114 | 65 |
| 29 | 13 | 12 | . 42 | 111 | 58 | 21 | 599 | 598 | 1260 |
| 30 | 15 | 15 | .74 | 52 | 37 | 5.6 | 261 | 124 | 106 |
| 31 | 29 | 23 | 2.0 | 50 | 33 | 4.3 | | | |
| TOTAL | 2100 | | 2331.61 | 1947.0 | | 1318.91 | 2431 | | 1907.74 |
| YEAR | 30182.1 | | 30320.01 | | | | | | |

50057000 RIO GURABO AT GURABO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SEDI - MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|-----------|---|---|--|--|--|--|--|
| OCT 1990 | | | | | | | |
| 11 | 1852 | 1240 | 1370 | 4590 | 28 | 44 | 55 |
| 21 | 1653 | 1210 | 1340 | 4380 | 17 | 16 | 21 |
| 24 | 2032 | 937 | 1100 | 2780 | 30 | 50 | 64 |
| 26 | 2015 | 913 | 586 | 1440 | 27 | 47 | 61 |
| DEC | | | | | | | |
| 31 | 0645 | 2870 | 3067 | 23800 | 19 | 30 | 41 |
| 31 | 0731 | 3360 | 2380 | 21600 | 24 | 33 | 39 |
| JUN 1991 | 1050 | 4000 | 1610 | | 33 | 49 | 56 |
| 30 Aug | 1752 | 1230 | 1640 | 5450 | 33 | 49 | 56 |
| 17 | 2212 | 807 | 1010 | 2200 | 47 | 52 | 61 |
| 27 | 2132 | 1650 | 751 | 3350 | 39 | 48 | 63 |
| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FAIL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 | | | | | | | |
| 11 | 72 | 71 | 90 | 97 | 99 | 100 | 100 |
| 21 | 22 | 26 | 44 | 45 | 45 | 46 | 53 |
| 24 | 76 | 86 | 95 | 99 | 100 | 100 | 100 |
| 26 | 70 | 74 | 95 | 98 | 100 | 100 | 100 |
| DEC 31 | 54 | 67 | 79 | 91 | 99 | 100 | 100 |
| 31 | 47 | 60 | 75 75 | 86 | 95 95 | 99 | 100 |
| JUN 1991 | | 90 | 13 | 90 | 73 | ,, | 100 |
| 30 | 67 | 73 | 95 | 98 | 99 | 100 | 100 |
| AUG | | | | | | | |
| 17 | 67 | 71 | 98 | 99 | 100 | 100 | 100 |
| 27 | 70 | 75 | 96 | 99 | 100 | 100 | 100 |

50057000 RIO GURABO AT GURABO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI - MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|--------------|---|---|--|--|
| OCT 1990 | | | | | |
| 09 | 1318 | 61 | 1230 | 202 | 100 |
| 21 | 1627 | 1450 | 489 | 1920 | 92 |
| 24 | 2132 | 2320 | 2220 | 13900 | 87 |
| 24 | 2245 | 3080 | 1200 | 9980 | 94 |
| 26 | 1207 | 453 | 206 | 252 | 93 |
| 26 | 1715 | 1570 | 398 | 1690 | 94 |
| 26 | 2000 | 913 | 651 | 1600 | 95 |
| DEC | | | | | |
| 31 | 0630 | 2450 | 1650 | 10900 | 71 |
| 31 | 0939 | 2550 | 1660 | 11400 | 96 |
| 31 | 1000 | 2330 | 485 | 3050 | 90 |
| 31 | 1150 | 1440 | 664 | 2580 | 89 |
| FRB 1991 | | | | | |
| 07 | 0737 | 124 | 304 | 102 | 97 |
| MAR | | | | | |
| 06 | 1417 | 523 | 265 | 374 | 93 |
| 06 | 1602 | 454 | 240 | 294 | 97 |
| APR | | | | | |
| 16 | 1715 | 21 | 160 | 9 | 95 |
| MAY | | | | | |
| 11 | 1752 | 462 | 1310 | 1630 | 99 |
| 11 | 1922 | 467 | 1920 | 2420 | 98 |
| JUN | _ | | | | |
| 30 | 1722 | 877 | 1490 | 3530 | 93 |
| 30 | 2307 | 480 | 581 | 753 | 99 |
| JOL | | | | | |
| 01 | 0733 | 2440 | 3930 | 25900 | 42 |
| 01 | 2310 | 400 | 162 | 175 | 98 |
| 16 | 1010 | 632 | 278 | 474 | 86 |
| 16 | 1240 | 523 | 192 | 271 | 87 |
| AUG | 0.00 | | | | |
| 17 | 2127 | 622 | 463 | 777 | 88 |
| 18 27 | 0312 | 422 | 221 | 252 | 100 |
| 27 | 1947 0132 | 521 907 | 255 332 | 359 813 | 90 97 |
| 45 | 0132 | 907 | 334 | 813 | 7/ |

50057025 RIO GURABO NEAR GURABO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'56", long 65°59'04", at bridge on Highway 941, 1.2 mi (1.9 km) west-northwest from gaging station 50057000, and 1.0 mi (1.6 km) northwest of Gurabo plasa.

DRAINAGE AREA. -- 62.8 mi² (162.7 km²).

PERIOD OF RECORD. -- Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | ******* | K-AOVITLE | Della, Wa | TER IBAR | OC I OB | BR 1330 1 | J GAL I BAL | A 1771 | | | |
|-----------------------|---|---|--|--|--|--|--|--|--|---|--|---|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPE- CIFIC COM- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUI BII IT | D- DI | en, (pe s- ce ved sat | S- DEM VED CH R- IC NT (H UR- LEV | AND, FORM- FINAL OIGH UIEL) (C | OLI- ORM, SCAL, .45 M-MF OLS./ O ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 24 | 1250 | 25 | 255 | 7.4 | 26.0 | 65 | 6 | . 3 | 77 | 33 | 11000 | K17000 |
| 10 | 0750 | 42 | 392 | 7.2 | 23.5 | 12 | 3 | .1 | 36 | 21 | 2100 | 2800 |
| FEB 1991 28 APR | 0825 | | 382 | 7.3 | 26.0 | 14 | 4 | .1 | 50 | 16 | K820 | 370 |
| 23 JUN | 1350 | | 360 | 7.0 | 31.5 | 5 | .0 3 | . 2 | 42 | 21 | K770 | K150 |
| 12 AUG | 0955 | | 428 | 7.2 | 29.5 | 18 | 1 | . 2 | 16 | 22 | 4000 | 450 |
| 20 | 0900 | | 300 | 7.3 | 28.0 | 17 | 1 | . 3 | 17 | 29 | 4100 | K850 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SOD: AI SOR! TIC RAT: | D- SI P- DI ON SOL | UM, WAT S- TOT VED FIE /L MG/L | TY WH FRT SUL LD TO AS (M | FIDE DITAL SO | LFATE IS- DLVED 4G/L SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 24 | 74 | | 18 | 7.1 | 18 | | 0.9 4 | . 9 | 80 | <0.5 | L4 | 21 |
| 10 | | | | | | | | - | 130 | | | |
| FEB 1991 28 APR | | | | | | | | - | 130 | | | |
| 23 JUN | 130 | | 30 | 13 | 33 | : | L 4 | .4 | 136 | <0.5 | L9 | 36 |
| 12 AUG | | | | | | | | - | 140 | | | |
| 20 | 80 | 1 | 19 | 7.9 | 23 | : | 1 7 | .7 | 80 | ; | 22 | 26 |
| DA OCT 19 | RI E SC ATE (N | DE, DI DIS- SC DLVED (M G/L A | ICA, SUM S- COM DLVED TUE IG/L D AS SO | STI- D NTS, SC IS- (T LVED F | IDS, TO: IS- AT LVED DEC CONS ST ER PE | BIDUE TAL 105 G. C, US- NDED MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | GI A ORGI TO (M | FRO- EN, ANIC FAL G/L N) |
| 24 DEC | | 0.10 2 | 5 | 156 1 | 0.7 | 56 | 0.770 | 0.130 | 0.900 | 0.24 | • | D.96 |
| 10 FEB 19 | | | | | | 3 | 1.21 | 0.090 | 1.30 | 0.64 | D | 0.76 |
| 28 APR | • | | | | , - | 7 | 1.12 | 0.080 | 1.20 | 0.38 | 0 | 0.82 |
| 23 Jun | | 0.10 3 | 4 | 251 | | 13 | 1.19 | 0.110 | 1.30 | 0.37 | | 1.0 |
| AUG | | | | | | 5 | 0.730 | 0.110 | 0.840 | 0.73 | | 1.1 |
| 20 T = 70 | on-ideal c | | :0 | 174 | | 9 | 0.930 | 0.170 | 1.10 | 0.66 |) | 2.4 |

K = non-ideal count

50057025 RIO GURABO NEAR GURABO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| Date | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|------------------|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 24 DEC | 1.2 | 2.1 | 9.3 | 0.300 | <1 | 200 | 30 | <1 | 5 | 20 |
| 10 FEB 1991 | 1.4 | 2.7 | 12 | 0.520 | | | | | | |
| 28 | 1.2 | 2.4 | 11 | 0.410 | | | | | | |
| APR 23 JUN | 1.4 | 2.7 | 12 | 0.620 | 1 | <100 | 50 | <1 | 1 | <10 |
| 12 AUG | 1.8 | 2.6 | 12 | 0.710 | | | | | | |
| 20 | 3.1 | 4.2 | 19 | 0.680 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | | _ | | | _ | _ | | | _ | |
| 24 DRC | 4400 | 2 | 280 | <0.10 | <1 | <1 | 20 | <0.010 | 8 | 0.03 |
| 10 FRB 1991 | | | | | | | | | | |
| 28 | | | | | | | | | | |
| APR 23 JUN | 570 | 2 | 610 | <0.10 | <1 | <1 | <10 | <0.010 | <1 | 0.06 |
| 12 AUG | | | | | | | | | | |
| 20 | | | | | | | | | | |

50058350 RIO CAÑAS AT RIO CAÑAS, PR

LOCATION.--Lat 18°17'41", long 66°02'44", Hydrologic Unit 21010005, at right bank, off road 798, upstream side of bridge on Highway 52, .5 mi (.8 km) northeast Escuela Segunda Unidad de Francisco Valdés and .8 mi (1.3 km) north of La Barra.

DRAINAGE AREA. -- 7.53 mi 1 (19.50 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- March 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD MARCH TO SEPTEMBER 1990 AND WATER YEAR 1991.--Peak discharges greater than base discharge of 800 ft³/s (22.6 m³/s) and maximum (*):

| | Discharge Gage height | | | it | | Disch | arge | Gage height | | |
|-------------|-----------------------|---------|---------------------|------------|---------|--------------|------------|-------------|-------|-------|
| Date | Tima | (ft³/s) | (m ³ /s) | (ft) (m) | Dat | e Tima | (ft^3/s) | (m³/s) | (ft) | (m) |
| Sept. 3,199 | 0 1745 | +404 | 11.4 | *12.41 3.7 | 82 Oct. | 18,1990 1330 | 1,610 | 45.6 | 16.27 | 4.959 |
| Oct. 7,199 | 0 1715 | 850 | 24.1 | 14.11 4.3 | 01 Feb. | 5,1991 1605 | 1,400 | 39.6 | 15.74 | 4.798 |
| Oct. 17 | 1530 | *3,830 | 108 | *20.55 6.2 | 64 | • | | | | |

Minimum discharge, 2.7 ft³/s (0.076 m³/s), July 11, 1990; 2.9 ft³/s (0.082 m³/s), May 3-5, 1991.

| | | DISCHAR | GE, CUBIC | FRET PER | | WATER YE. | | R 1989 TO | SEPTEMBE | R 1990 | | |
|--------|-----|---------|-----------|----------|-----|-----------|-------|-----------|----------|--------|-------|-------|
| DAY | OCT | MOA | DRC | Jan | PRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | | | | | | | 3.7 | 3.6 | 3.8 | 4.1 | 2.8 | 3.4 |
| 2 | | | • | | | | 3.5 | 3.6 | 4.0 | 3.6 | 3.8 | 3.4 |
| 2 3 | | | | | | | 3.5 | 3.3 | 3.9 | 3.3 | 3.4 | 43 |
| ā | | | | | | | 3.4 | 3.1 | 3.8 | 3.8 | 2.9 | 6.9 |
| 5 | | | | | | | 3.4 | 3.0 | 3.6 | 4.0 | 3.0 | 4.4 |
| 6 7 | | | | | | | 3.3 | 3.0 | 3.5 | 3.7 | 3.1 | 3.9 |
| 7 | | | | | | e4.4 | 3.3 | 3.0 | 3.3 | 3.5 | 5.2 | 20 |
| 8 | | | | | | 4.2 | 3.3 | 3.0 | 3.3 | 3.3 | 4.4 | 6.1 |
| 9 | | | | | | 10 | 3.2 | 6.5 | 3.3 | 3.2 | 16 | 4.4 |
| 10 | | | | | | 5.3 | 3.2 | 4.1 | 3.7 | 3.2 | 6.1 | 4.2 |
| 11 | | | | | | 9.1 | 3.4 | 3.3 | 3.4 | 2.9 | 5.1 | 4.1 |
| 12 | | | | | | 10 | 3.3 | 3.8 | 3.3 | 2.9 | 6.3 | 4.0 |
| 13 | | | | | | 46 | 3.4 | 4.0 | 3.3 | 3.0 | 5.7 | 4.3 |
| 14 | | | | | | 34 | 3.6 | 4.3 | 7.2 | 3.2 | 5.1 | 5.3 |
| 15 | | | | | | 6.9 | 3.5 | 3.6 | 8.6 | 3.3 | 4.0 | 5.3 |
| 16 | | | | | | 20 | 3.4 | 3.2 | 4.7 | 3.4 | 3.7 | 4.4 |
| 17 | | | | | | 7.6 | 3.3 | 3.2 | 4.0 | 4.2 | 3.6 | 4.2 |
| 18 | | | | | | 5.2 | 5.8 | 3.2 | 3.9 | 4.0 | 3.5 | 4.4 |
| 19 | | | | | | 4.6 | 4.1 | 3.1 | 3.8 | 3.2 | 3.5 | 4.9 |
| 20 | | | | | | 4.3 | 4.2 | 3.0 | 3.8 | 3.0 | 3.5 | 6.8 |
| 21 | | | | | | 4.2 | 3.5 | 3.0 | 3.8 | 2.9 | 3.5 | 4.7 |
| 22 | | | | | | 4.0 | 3.4 | 3.0 | 4.1 | 2.8 | 3.5 | 4.6 |
| 23 | | | | | | 3.9 | 3.3 | 3.0 | 4.3 | 3,6 | 3.7 | 3.9 |
| 24 | | | | | | 3.7 | 3.2 | 2.9 | 4.3 | 4.4 | 3.6 | 4.0 |
| 25 | | | | | | 3.7 | 4.7 | 2.8 | 4.3 | 3.9 | 4.9 | 3.9 |
| 26 | | | | | | 4.1 | 3.6 | 2.8 | 4.1 | 3.9 | 4.1 | 3.9 |
| 27 | | | | | | 4.5 | 3.1 | 2.9 | 3.8 | 3.4 | 3.6 | 4.6 |
| 28 | | | | | | 4.2 | 3.1 | 2.9 | 3.7 | 3.1 | 3.4 | 4.2 |
| 29 | | | | | | 3.9 | 3.1 | 2.9 | 3.7 | 2.9 | 3.4 | 3.9 |
| 30 | | | | | | 3.7 | 3.2 | 2.9 | 3.5 | 2.9 | 3.4 | 6.1 |
| 31 | | | | | | 3.7 | | 2.9 | | 2.8 | 3.4 | |
| TOTAL | | | | | | | 106.0 | 102.9 | 121.8 | 105.4 | 135.2 | 191.2 |
| mban | | | | | | | 3.53 | 3.32 | 4.06 | 3.40 | 4.36 | 6.37 |
| MAX | | | | | | | 5.8 | 6.5 | 8.6 | 4.4 | 16 | 43 |
| MIN | | | | | | | 3.1 | 2.8 | 3.3 | 2.8 | 2.8 | 3.4 |
| AC-PT | | | | | | | 210 | 204 | 242 | 209 | 268 | 379 |
| CFSM | | | | | | | .47 | . 44 | .54 | . 45 | .58 | . 85 |
| IN. | | | | | | | .52 | .51 | .60 | . 52 | . 67 | . 94 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, MATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES

| | | | | | DAII | Y MRAN V | TORS | | | | | |
|--------|--------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|-------|
| DAY | OCT | MOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
| 1 | 4.8 | 8.3 | 12 | 19 | 5.8 | 6.9 | 4.1 | 3.8 | 4.9 | 118 | 7.5 | 4.4 |
| 2 | 4.0 | 7.8 | 17 | 10 | 5.4 | 6.2 | 4.0 | 3.2 | 4.7 | 5.5 | 6.2 | 4.2 |
| 3 | 7.1 | 7.6 | 42 | 8.1 | 5.3 | 6.0 | 4.0 | 3.2 | 4.4 | 8.2 | 5.9 | 4.1 |
| 3 4 | 12 | 7.3 | 13 | 7.3 | 5.3 | 6.2 | 3.8 | 2.9 | 4.2 | 5.6 | 18 | 4.2 |
| 5 | 6.7 | 7.3 | 9.4 | 7.1 | 140 | 6.8 | 3.8 | 3.0 | 4.9 | 4.9 | 7.1 | 4.2 |
| 6 7 | 5.0 | 7.3 | 8.1 | 8.5 | 29 | 12 | 3.8 | 3.7 | 4.5 | 4.6 | 6.2 | 4.2 |
| 7 | 73 | 6.9 | 7.5 | 7.3 | 11 | 6.2 | 3.7 | 3.8 | 4.4 | 12 | 5.7 | 6.0 |
| 8 | 9.4 | 6.9 | 7.3 | 7.9 | 8.5 | 5.7 | 7.1 | 16 | 4.3 | 6.0 | 5.7 | 4.4 |
| 9 | 6.8 | 6.8 | 7.3 | 7.2 | 7.5 | 5.7 | 4.3 | 7.1 | 4.1 | 5.0 | 5.6 | 4.0 |
| 10 | 58 | 6.6 | 7.2 | 7.4 | 6.7 | 5.2 | 3.8 | 67 | 4.1 | 4.5 | 5.2 | 3.9 |
| 11 | 14 | 6.8 | 6.9 | 6.7 | 8.8 | 5.2 | 3.8 | 7.4 | 4.0 | 4.4 | 5.2 | 3.9 |
| 12 | 7.5 | 6.7 | 6.9 | 6.5 | 7.9 | 5.2 | 4.4 | 5.0 | 4.7 | 4.3 | 5.0 | 4.0 |
| 13 | 6.8 | 6.3 | 6.9 | 6.3 | 8.0 | 5.2 | 4.6 | 4.9 | 3.9 | 4.2 | 5.0 | 3.9 |
| 14 | 6.0 | 6.1 | 15 | 6.0 | 6.5 | 5.2 | 5.1 | 4.4 | 3.8 | 4.1 | 5.0 | 3.8 |
| 15 | 34 | 6.1 | 7.1 | 5.8 | 6.4 | 5.0 | 19 | 4.1 | 3.5 | 22 | 5.0 | 3.7 |
| 16 | 10 | 6.5 | 6.9 | 6.1 | 6.2 | 4.7 | 5.5 | 4.2 | 3.4 | 83 | 5.0 | 3.8 |
| 17 | 292 | 6.6 | 6.5 | 5.9 | 5.7 | 4.7 | 4.4 | 4.1 | 3.5 | 8.7 | e4.8 | 20 |
| 18 | 180 | 6.1 | 6.7 | 5.7 | 11 | 5.2 | 4.2 | 37 | 6.5 | 54 | e4.8 | 4.8 |
| 19 | 57 | 6.1 | 6.4 | 5.7 | 10 | 4.9 | 3.8 | 8.5 | 3.9 | 13 | e4.7 | 4.2 |
| 20 | 54 | 8.8 | 6.1 | 5.7 | 9.1 | 4.6 | 3.8 | 6.6 | 7.9 | 7.5 | e4.7 | 4.2 |
| 21 | 139 | 6.8 | 6.2 | 5.6 | 7.1 | 4.5 | 3.7 | 5.6 | 4.1 | 6.2 | 5.8 | 6.8 |
| 22 | 26 | 7.7 | 7.2 | 5.3 | 6.8 | 16 | 3.5 | 6.3 | 3.8 | 20 | 7.6 | 13 |
| 23 | 14 | 6.3 | 6.8 | 5.3 | 6.3 | 5.9 | 3.5 | 5.1 | 5.9 | 8.7 | 5.4 | 4.8 |
| 24 | 24 | 6.0 | 7.2 | 5.3 | 5.8 | 4.9 | 3.3 | 4.8 | 4.0 | 6.8 | 4.8 | 6.6 |
| 25 | 63 | 6.1 | 6.4 | 5.3 | 5.5 | 4.6 | 3.2 | 8.6 | 3.6 | 5.9 | 14 | 4.5 |
| 26 | 47 | 6.1 | 6.3 | 5.3 | 5.4 | 5.9 | 3.2 | 40 | 3.6 | 5.5 | 5.0 | 4.1 |
| 27 | 19 | 6.3 | 6.1 | 5.1 | 5.3 | 5.2 | 3.2 | 6.6 | 3.5 | 5.6 | 32 | 4.4 |
| 28 | 13 | 6.1 | 8.2 | 5.2 | 22 | 4.4 | 3.2 | 5.4 | 6.8 | 33 | 7.9 | 4.5 |
| 29 | 11 | 7.0 | 41 | 5.2 | | 4.0 | 3.3 | 5.0 | 14 | 7.2 | 5.8 | 9.1 |
| 30 | 9.7 | 18 | 27 | 5.1 | | 3.9 | 6.1 | 4.7 | 112 | 11 | 4.7 | 11 |
| 31 | 9.0 | | 43 | 6.8 | | 3.8 | | 4.5 | | 13 | 4.5 | |
| TOTAL | 1222.8 | 215.3 | 371.6 | 209.7 | 368.3 | 179.9 | 137.2 | 296.5 | 250.9 | 502.4 | 219.8 | 168.7 |
| MEAN | 39.4 | 7.18 | 12.0 | 6.76 | 13.2 | 5.80 | 4.57 | 9.56 | 8.36 | 16.2 | 7.09 | 5.62 |
| MAX | 292 | 18 | 43 | 19 | 140 | 16 | 19 | 67 | 112 | 118 | 32 | 20 |
| MIN | 4.0 | 6.0 | 6.1 | 5.1 | 5.3 | 3.8 | 3.2 | 2.9 | 3.4 | 4.1 | 4.5 | 3.7 |
| AC-FT | 2430 | 427 | 737 | 416 | 731 | 357 | 272 | 588 | 498 | 997 | 436 | 335 |
| CFSM | 5.24 | .95 | 1.59 | .90 | 1.75 | .77 | .61 | 1.27 | 1.11 | 2.15 | .94 | .75 |
| IN. | 6.04 | 1.06 | 1.84 | 1.04 | 1.82 | . 89 | .68 | 1.46 | 1.24 | 2.48 | 1.09 | . 83 |
| | | | | 01 | | . 0 5 | | | | | | |

WTR YR 1991 TOTAL 4143.1 MRAN 11.4 MAX 292 MIN 2.9 AC-FT 8220 CFSM 1.51 IN. 20.47

e Estimated

WATER QUALITY RECORDS

PERIOD OF RECORD. -- OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | STRRAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|--------|--------|---------------------------------------|--------------------------------------|-----------------------------|--------|--------|---------------------------------------|--------------------------------------|-----------------------------|
| FEB. 0 | 2 1333 | 4.04 | 332 | 25.0 | JUL. 1 | 0 1507 | 4.44 | 335 | 28.5 |
| JUN. 0 | 6 1203 | 3.82 | 350 | 24.5 | AUG. 1 | 3 1308 | 4.98 | 330 | 26.5 |

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS .-- Water years 1990-91.

PERIOD OF DAILY RECORD. --SUSPENDED-SEDIMENT DISCHARGE: March 1990 to September 1991.

EXTREMES FOR PERIOD OF DAILY RECORD.-SEDIMENT CONCENTRATION: Maximum daily mean, 1,430 mg/L Oct. 21, 1990; Minimum daily mean,
1 mg/L September 11,1991

SEDIMENT LOADS: Maximum daily mean, 4,920 tons (4,460 tonnes) October 17, 1990; Minimum daily mean, 0.02 ton (0.02 tonne) several days.

EXTREMES FOR WATER YEARS 1990-91.--

| Water Year | Suspended-sediment o | concentration (mg/L) minimum | Suspended-sediment dis maximum | charge (tons per day) minimum |
|---------------|----------------------|------------------------------|-----------------------------------|----------------------------------|
| 1990 | 1,220 (Sep. 03) | 2 (few days) | 589 (Sep. 03) | 0.02 (several days) |
| 1991 | 1,430 (Oct. 21) | 1 (Sep. 11) | 4,920 (Oct. 17) | 0.02 (several days) |

| | Mean | | | | MRAN | | MBAN | | |
|-------|-----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MEAN DI SCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | JANUARY | | 1 | FEBRUARY | | | MARCH | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | -4.4 | | |
| 8 | | | | | | | 4.2 | 8 | .10 |
| 9 | | | | | | | 10 | 39 | 2.1 |
| 10 | | | | | | | 5.3 | 13 | .20 |
| 11 | | | | | | | 9.1 | 27 | . 99 |
| 12 | | | | | | | 10 | 27 | .78 |
| 13 | | | | | | | 46 | 301 | 48 |
| 14 | | | | | | | 34 | 223 | 42 |
| 15 | | | | | | | 6.9 | 19 | .41 |
| 16 | | | | ` | | | 20 | 152 | 50 |
| 17 | | | | | | | 7.6 | 18 | . 47 |
| 18 | | | | | | | 5.2 | 12 | . 17 |
| 19 | | | | | | | 4.6 | 9 | . 11 |
| 20 | | | | | | | 4.3 | 8 | .10 |
| 21 | | | | | | | 4.2 | 8 | . 09 |
| 22 | | | | | | | 4.0 | 8 | .08 |
| 23 | | | | | | | 3.9 | 8 | .08 |
| 24 | | | | | | | 3.7 | 7 | . 07 |
| 25 | | | | | | | 3.7 | 7 | . 07 |
| 26 | | | | | | | 4.1 | 7 | .08 |
| 27 | | | | | | | 4.5 | 7 | .08 |
| 28 | | | | | | | 4.2 | 7 | . 09 |
| 29 | | | | | | | 3.9 | 7 | .08 |
| 30 | | | | | | | 3.7 | 7 | .08 |
| 31 | | | | | | | 3.7 | 7 | . 07 |
| TOTAL | · | | | | | | | | |

e Estimated

RIO GRANDE DE LOIZA BASIN
50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | mean Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|----------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 3.7 | 7 | .06 | 3.6 | 3 | .03 | 3.8 | 6 | .08 |
| 2 | 3.5 | 6 | . 06 | 3.6 | 3 | .03 | 4.0 | 5 | .06 |
| 3 | 3.5 | 6 | . 06 | 3.3 | 3 | .02 | 3.9 | 7 | .11 |
| 4 5 | 3.4 3.4 | 6 | . 06 | 3.1 | 3 | .02 | 3.8 | 6 | . 07 |
| 9 | 3.4 | 6 | . 06 | 3.0 | 3 | .02 | 3.6 | 5 | . 05 |
| 6 | 3.3 | 6 | .06 | 3.0 | 3 | .02 | 3.5 | 7 | . 07 |
| 7 | 3.3 | 6 | .06 | 3.0 | 3 | .02 | 3.3 | 7 | .06 |
| 8 | 3.3 | 6 | .06 | 3.0 | 2 | .02 | 3.3 | 5 | .04 |
| 9 | 3.2 | 5 | . 05 | 6.5 | 18 | . 69 | 3.3 | 5 | .04 |
| 10 | 3.2 | 5 | . 04 | 4.1 | 10 | .11 | 3.7 | 5 | .05 |
| 11 | 3.4 | 4 | .04 | 3.3 | 5 | .04 | 3.4 | 6 | .06 |
| 12 | 3.3 | 4 | . 04 | 3.8 | 7 | .09 | 3.3 | 5 | . 05 |
| 13 | 3.4 | 3 | . 02 | 4.0 | 14 | .14 | 3.3 | 5 | . 04 |
| 14 | 3.6 | 3 | .02 | 4.3 | 12 | .16 | 7.2 | 23 | . 98 |
| 15 | 3.5 | 3 | .02 | 3.6 | 6 | .06 | 8.6 | 24 | .59 |
| 16 | 3.4 | 2 | . 02 | 3.2 | 5 | .04 | 4.7 | 14 | .17 |
| 17 | 3.3 | 2 | . 02 | 3.2 | 5 | .04 | 4.0 | 13 | .14 |
| 18 | 5.8 | 16 | . 66 | 3.2 | 5 | .04 | 3.9 | 12 | .13 |
| 19 | 4.1 | 33 | .39 | 3.1 | 5 | .04 | 3.8 | 11 | .11 |
| 20 | 4.2 | 20 | . 24 | 3.0 | 5 | .04 | 3.8 | 10 | .10 |
| 21 | 3.5 | 8 | .08 | 3.0 | 5 | .04 | 3.8 | 10 | .10 |
| 22 | 3.4 | 6 | .06 | 3.0 | 5 | .04 | 4.1 | 10 | .11 |
| 23 | 3.3 | 6 | .06 | 3.0 | 5 | .04 | 4.3 | 9 | .11 |
| 24 | 3.2 | 6 | .06 | 2.9 | 4 | .04 | 4.3 | 7 | .09 |
| 25 | 4.7 | 10 | . 17 | 2.8 | • | .04 | 4.3 | 7 | .08 |
| 26 | 3.6 | 6 | . 07 | 2.8 | 4 | .04 | 4.1 | 6 | . 07 |
| 27 | 3.1 | 4 | . 03 | 2.9 | 4 | .04 | 3.8 | 5 | .06 |
| 28 | 3.1 | 3 | . 02 | 2.9 | 4 | .04 | 3.7 | 5 | . 05 |
| 29 | 3.1 | 3 | . 02 | 2.9 | 4 | .04 | 3.7 | 5 | . 04 |
| 30 31 | 3.2 | 3 | .02 | 2.9 | 4 | .04 | 3.5 | 5 | . 04 |
| 31 | | | | 2.9 | 4 | .04 | | | |
| TOTAL | 106.0 | | 2.63 | 102.9 | | 2.11 | 121.8 | | 3.75 |

RIO GRANDE DE LOIZA BASIN
50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

| DAY | MRAN Discharge (CFS) | MBAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JULY | | | AUGUST | | s | eptember | |
| 1 | 4.1 | 6 | . 07 | 2.8 | 10 | .08 | 3.4 | 6 | .06 |
| 2 | 3.6 | 5 | . 05 | 3.8 | 16 | .18 | 3.4 | 7 | .07 |
| 3 | 3.3 | 5 | . 04 | 3.4 | 22 | .21 | 43 | 1220 | 587 |
| 4 | 3.8 | 5 | . 05 | 2.9 | 20 | .16 | 6.9 | 210 | 5.0 |
| 5 | 4.0 | 6 | . 07 | 3.0 | 20 | .17 | 4.4 | 60 | .75 |
| 6 | 3.7 | 6 | .06 | 3.1 | 20 | .17 | 3.9 | 45 | .48 |
| 7 | 3.5 | 5 | . 05 | 5.2 | 21 | .33 | 20 | 197 | 45 |
| 8 | 3.3 | 5 | . 05 | 4.4 | 9 | .11 | 6.1 | 119 | 2.5 |
| 9 | 3.2 | 5 | . 04 | 16 | 92 | 16 | 4.4 | 20 | .24 |
| 10 | 3.2 | 5 | . 04 | 6.1 | 19 | .31 | 4.2 | 20 | . 22 |
| 11 | 2.9 | 4 | . 04 | 5.1 | 13 | .18 | 4.1 | 20 | . 22 |
| 12 | 2.9 | 4 | .04 | 6.3 | 22 | .45 | 4.0 | 20 | .21 |
| 13 | 3.0 | 4 | .04 | 5.7 | 34 | .49 | 4.3 | 70 | .91 |
| 14 | 3.2 | 5 | .04 | 5.1 | 27 | .38 | 5.3 | 29 | . 49 |
| 15 | 3.3 | 5 | . 05 | 4.0 | 26 | .28 | 5.3 | 109 | 1.4 |
| 16 | 3.4 | 5 | . 05 | 3.7 | 24 | .24 | 4.4 | 59 | .70 |
| 17 | 4.2 | 8 | .10 | 3.6 | 21 | .20 | 4.2 | 58 | . 66 |
| 18 | 4.0 | 10 | . 11 | 3.5 | 18 | .17 | 4.4 | 59 | . 68 |
| 19 | 3.2 | 10 | . 09 | 3.5 | 15 | .14 | 4.9 | 62 | . 80 |
| 20 | 3.0 | 10 | .08 | 3.5 | 14 | .13 | 6.8 | 60 | 1.0 |
| 21 | 2.9 | 10 | .08 | 3.5 | 14 | .13 | 4.7 | 50 | . 68 |
| 22 | 2.8 | 10 | . 08 | 3.5 | 14 | . 13 | 4.6 | 33 | . 39 |
| 23 | 3.6 | 10 | . 10 | 3.7 | 14 | .14 | 3.9 | 22 | . 23 |
| 24 | 4.4 | 21 | . 27 | 3.6 | 14 | .13 | 4.0 | 16 | .16 |
| 25 | 3.9 | 24 | . 26 | 4.9 | 16 | .28 | 3.9 | 16 | . 16 |
| 26 | 3.9 | 21 | .22 | 4.1 | 22 | .24 | 3.9 | 16 | .16 |
| 27 | 3.4 | 16 | . 15 | 3.6 | 26 | .25 | 4.6 | 16 | . 18 |
| 28 | 3.1 | 12 | .10 | 3.4 | 15 | .13 | 4.2 | 15 | . 18 |
| 29 | 2.9 | 10 | .08 | 3.4 | 12 | .11 | 3.9 | 15 | . 15 |
| 30 | 2.9 | 10 | . 08 | 3.4 | 8 | .08 | 6.1 | 20 | .46 |
| 31 | 2.8 | 10 | .08 | 3.4 | 6 | .06 | | | |
| TOTAL | 105.4 | | 2.66 | 135.2 | | 22.06 | 191.2 | | 651.14 |

RIO GRANDE DE LOIZA BASIN
50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|----------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | OCTOBER | | 1 | OVEMBER | | 1 | DECEMBER | |
| 1 | 4.8 | 14 | . 19 | 8.3 | 9 | .19 | 12 | 42 | 1.8 |
| 3 | 4.0 | 8 | . 09 | 7.8 | 8 | .17 | 17 | 41 | 2.0 |
| 3 | 7.1 | 20 | .54 | 7.6 | 8 | .16 | 42 | 863 | 213 |
| 4 | 12 | 113 | 9.6 | 7.3 | 8 | .16 | 13 | 44 | 1.7 |
| 5 | 6.7 | 224 | 4.6 | 7.3 | 8 | .16 | 9.4 | 19 | .48 |
| 6 | 5.0 | 25 | . 37 | 7.3 | 7 | .15 | 8.1 | 11 | .25 |
| 7 | 73 | 895 | 1150 | 6.9 | 6 | .13 | 7.5 | 10 | .21 |
| 8 | 9.4 | 55 | 1.7 | 6.9 | 5 | .11 | 7.3 | 10 | .20 |
| 9 10 | 6.8 | 33 | . 62 | 6.8 | 5 | .09 | 7.3 | 10 | . 19 |
| 10 | 58 | 957 | 558 | 6.6 | 5 | .08 | 7.2 | 9 | . 17 |
| 11 | 14 | 575 | 24 | 6.8 | 5 | .09 | 6.9 | 9 | . 16 |
| 12 | 7.5 | 58 | 1.2 | 6.7 | 5 | .09 | 6.9 | 9 | . 16 |
| 13 | 6.8 | 25 | .43 | 6.3 | 4 | . 07 | 6.9 | 9 | . 16 |
| 14 | 6.0 | 20 | . 32 | 6.1 | 4 | .06 | 15 | 77 | 12 |
| 15 | 34 | 718 | 220 | 6.1 | 4 | .06 | 7.1 | 10 | .20 |
| 16 | 10 | 218 | 7.8 | 6.5 | 3 | .06 | 6.9 | 10 | .18 |
| 17 | 292 | 1150 | 4920 | 6.6 | 3 | .06 | 6.5 | 8 | . 15 |
| 18 | 180 | 1080 | 1520 | 6.1 | 3 | .06 | 6.7 | 8 | . 14 |
| 19 | 57 | 175 | 35 | 6.1 | 4 | .06 | 6.4 | 10 | . 17 |
| 20 | 54 | 409 | 188 | 8.8 | 22 | 1.1 | 6.1 | 16 | .26 |
| 21 | 139 | 1430 | 929 | 6.8 | 20 | .38 | 6.2 | 20 | . 35 |
| 22 | 26 | 157 | 13 _ | 7.7 | 19 | .40 | 7.2 | 20 | . 37 |
| 23 | 14 | 94 | 3.7 | 6.3 | 14 | .25 | 6.8 | 19 | . 32 |
| 24 | 24 | 198 | 40 | 6.0 | 10 | .16 | 7.2 | 16 | .31 |
| 25 | 63 | 748 | 327 | 6.1 | 9 | . 14 | 6.4 | 16 | . 27 |
| 26 | 47 | 513 | 124 | 6.1 | 9 | .14 | 6.3 | 14 | .24 |
| 27 | 19 | . 19 | 1.0 | 6.3 | 6 | .10 | 6.1 | 12 | . 19 |
| 28 29 | 13 | 16 | . 57 | 6.1 | . 5 | .08 | 8.2 | 28 | .75 |
| 30 | 11 9.7 | 13 11 | .37 .29 | 7.0 | 15 | .37 | 41 27 | 380 206 | 239 51 |
| 31 | 9.7 | 10 | .23 | 18 | 99 | 15 | 43 | 206 351 | 150 |
| | | 10 | | | | | | 221 | |
| TOTAL | 1222.8 | | 10081.62 | 215.3 | | 20.13 | 371.6 | | 676.38 |

RIO GRANDE DE LOIZA BASIN
50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

| | Mean | | | | MEAN | | Mran | | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CPS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | JANUARY | | 1 | FEBRUARY | | | MARCH | |
| 1 | 19 | 85 | 6.2 | 5.8 | 2 | .03 | 6.9 | 14 | .28 |
| - Ž | 10 | 21 | .59 | 5.4 | 2 | .02 | 6.2 | 6 | .10 |
| 3 | 8.1 | 14 | .31 | 5.3 | 2 | .02 | 6.0 | 6 | . 10 |
| 4 | 7.3 | 13 | .25 | 5.3 | 2 | .03 | 6.2 | 6 | .10 |
| 5 | 7.1 | 13 | .24 | 140 | 1200 | 2790 | 6.8 | 6 | .11 |
| 6 | 8.5 | 12 | .27 | 29 | 230 | 50 | 12 | 42 | 2.4 |
| 7 | 7.3 | 11 | .23 | 11 | 33 | 1.1 | 6.2 | 13 | .21 |
| 8 | 7.9 | 13 | . 27 | 8.5 | 23 | .53 | 5.7 | 10 | . 16 |
| 9 | 7.2 | 14 | .29 | 7.5 | 19 | .38 | 5.7 | 10 | . 15 |
| 10 | 7.4 | 10 | .21 | 6.7 | 17 | .31 | 5.2 | 10 | .14 |
| 11 | 6.7 | 7 | . 13 | 8.8 | 24 | .70 | 5.2 | 18 | . 25 |
| 12 | 6.5 | 7 | . 13 | 7.9 | 20 | .48 | 5.2 | 12 | . 16 |
| 13 | 6.3 | 6 | . 11 | 8.0 | 18 | .44 | 5.2 | 10 | . 14 |
| 14 | 6.0 | 35 | . 53 | 6.5 | 6 | .11 | 5.2 | 10 | . 14 |
| 15 | 5.8 | 6 | .10 | 6.4 | 6 | .10 | 5.0 | 10 | . 13 |
| 16 | 6.1 | 5 | . 09 | 6.2 | 6 | .10 | 4.7 | 10 | . 12 |
| 17 | 5.9 | 4 | . 07 | 5.7 | 6 | .10 | 4.7 | 10 | . 12 |
| 18 | 5.7 | 4 | . 06 | 11 | 30 | 1.7 | 5.2 | 10 | .13 |
| 19 | 5.7 | 4 | . 06 | 10 | 31 | 1.0 | 4.9 | 10 | . 13 |
| 20 | 5.7 | 3 | . 05 | 9.1 | 16 | .38 | 4.6 | 10 | . 12 |
| 21 | 5.6 | 3 | .04 | 7.1 | 14 | .26 | 4.5 | 10 | . 12 |
| 22 | 5.3 | 3 | . 04 | 6.8 | 12 | .22 | 16 | 68 | 5.2 |
| 23 | 5.3 | 2 | . 03 | 6.3 | 8 | .15 | 5.9 | 14 | .23 |
| 24 | 5.3 | 2 | . 02 | 5.8 | 4 | .07 | 4.9 | 7 | . 09 |
| 25 | 5.3 | 2 | . 02 | 5.5 | 3 | .04 | 4.6 | 6 | .08 |
| 26 | 5.3 | 4 | . 05 | 5.4 | 3 | .04 | 5.9 | 12 | .25 |
| 27 | 5.1 | 5 | . 07 | 5.3 | 2 | .03 | 5.2 | 15 | .21 |
| 28 | 5.2 | 5 | . 08 | 22 | 688 | 300 | 4.4 | 11 | . 13 |
| 29 | 5.2 | 4 | . 07 | | | | 4.0 | 11 | .12 |
| 30 | 5.1 | 3 | . 05 | | | | 3.9 | 10 | .11 |
| 31 | 6.8 | 2 | . 04 | | | | 3.8 | 7 | .08 |
| TOTAL | 209.7 | | 10.70 | 368.3 | | 3148.34 | 179.9 | | 11.81 |

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 4.1 | 6 | .06 | 3.8 | 9 | .10 | 4.9 | 10 | .11 |
| 2 | 4.0 | 5 | . 06 | 3.2 | 7 | .06 | 4.7 | 10 | .11 |
| 3 | 4.0 | 4 | . 05 | 3.2 | 6 | .05 | 4.4 | 7 | . 08 |
| 4 | 3.8 | 4 | . 04 | 2.9 | 6 | .04 | 4.2 | 5 | . 06 |
| 5 | 3.8 | 4 | . 04 | 3.0 | 6 | .05 | 4.9 | 6 | .08 |
| 6 | 3.8 | 4 | .04 | 3.7 | 6 | .07 | 4.5 | 10 | . 11 |
| 7 | 3.7 | 5 | . 04 | 3.8 | 6 | . 07 | 4.4 | 9 | . 11 |
| 8 | 7.1 | 29 | .76 | 16 | 119 | 12 | 4.3 | 7 | .08 |
| 9 | 4.3 | 27 | . 35 | 7.1 | 78 | 1.7 | 4.1 | 5 | .06 |
| 10 | 3.8 | 12 | .12 | 67 | 602 | 612 | 4.1 | 4 | . 05 |
| 11 | 3.8 | 4 | .05 | 7.4 | 29 | . 69 | 4.0 | 3 | . 04 |
| 12 | 4.4 | 6 | . 09 | 5.0 | 14 | .19 | 4.7 | 3 | .04 |
| 13 | 4.6 | 8 | . 11 | 4.9 | 8 | .10 | 3.9 | 2 | .03 |
| 14 | 5.1 | 11 | . 14 | 4.4 | 6 | .07 | 3.8 | 2 | .02 |
| 15 | 19 | 90 | 12 | 4.1 | 6 | .06 | 3.5 | 2 | .02 |
| 16 | 5.5 | 13 | .23 | 4.2 | 7 | .08 | 3.4 | 2 | . 02 |
| 17 | 4.4 | 8 | .10 | 4.1 | 6 | .06 | 3.5 | 3 | . 03 |
| 18 | 4.2 | 9 | . 10 | 37 | 350 | 150 | 6.5 | 18 | 1.4 |
| 19 | 3.8 | 7 | . 08 | 8.5 | 27 | 1.1 | 3.9 | 8 | .09 |
| 20 | 3.8 | 5 | . 05 | 6.6 | 20 | .46 | 7.9 | 32 | 3.1 |
| 21 | 3.7 | 4 | . 04 | 5.6 | 14 | .23 | 4.1 | 8 | . 09 |
| 22 | 3.5 | 4 | . 04 | 6.3 | 14 | .24 | 3.8 | 6 | . 07 |
| 23 | 3.5 | 4 | . 04 | 5.1 | 11 | .14 | 5.9 | 26 | . 52 |
| 24 | 3.3 | 5 | . 04 | 4.8 | 10 | .11 | 4.0 | 31 | .34 |
| 25 | 3.2 | 5 | .04 | 8.6 | 12 | .29 | 3.6 | 23 | .22 |
| 26 | 3.2 | 6 | .05 | 40 | 443 | 378 | 3.6 | 18 | . 17 |
| 27 | 3.2 | 8 | . 07 | 6.6 | 17 | .33 | 3.5 | 16 | . 15 |
| 28 | 3.2 | 10 | . 08 | 5.4 | 11 | .15 | 6.8 | 27 | 1.1 |
| 29 | 3.3 | 10 | .08 | 5.0 | 11 | .13 | 14 | 433 | 43 |
| 30 | 6.1 | 22 | . 85 | 4.7 | 10 | .11 | 112 | 572 | 411 |
| 31 | | | | 4.5 | 9 | .10 | * | | |
| TOTAL | 137.2 | | 15.84 | 296.5 | | 1158.78 | 250.9 | | 462.30 |

RIO GRANDE DE LOIZA BASIN 50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

| | | MRAN | | | MRAN | | Mran | | | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|--|
| DAY | MRAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN Discharge (CPS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | |
| | | JULY | | | AUGUST | | SI | EPTEMBER | | |
| 1 | 118 | 124 | 49 / | 7.5 | 19 | .43 | 4.4 | 3 | .04 | |
| 2 | 5.5 | 29 | .46 | 6.2 | 1210 | 21 | 4.2 | 2 | .03 | |
| 3 | 8.2 | 24 | .76 | 5.9 | 15 | .26 | 4.1 | 2 | . 02 | |
| 4 | 5.6 | 14 | .23 | 18 | 142 | 50 | 4.2 | 2 | . 02 | |
| 5 | 4.9 | 10 | . 13 | 7.1 | 26 | .54 | 4.2 | 2 | . 02 | |
| 6 | 4.6 | 8 | .11 | 6.2 | 16 | .26 | 4.2 | 2 | .62 | |
| 7 | 12 | 87 | 12 | 5.7 | 10 | .14 | 6.0 | 12 | .32 | |
| 8 | 6.0 | 36 | . 66 | 5.7 | 6 | .09 | 4.4 | 9 | .10 | |
| 9 | 5.0 | 11 | . 14 | 5.6 | 5 | .08 | 4.0 | 6 | .06 | |
| 10 | 4.5 | 5 | . 06 | 5.2 | 5 | .08 | 3.9 | 2 | . 03 | |
| 11 | 4.4 | 5 | . 06 | 5.2 | 5 | .08 | 3.9 | 1 | . 02 | |
| 12 | 4.3 | 5 | .06 | 5.0 | 5 | 9.0 | 4.0 | 2 | . 02 | |
| 13 | 4.2 | 5 | . 06 | 5.0 | 5 | .06 | 3.9 | 2 | . 02 | |
| 14 | 4.1 | 5 | . 06 | 5.0 | 5 | .06 | 3.8 | 2 | .02 | |
| 15 | 22 | 667 | 32 | 5.0 | 5 | .06 | 3.7 | 2 | . 02 | |
| 16 | 83 | 650 | 446 | 5.0 | 5 | .06 | 3.8 | 4 | .04 | |
| 17 | 8.7 | 24 | . 65 | e4.8 | e 5 | ●.06 | 20 | 140 | 34 | |
| 18 | 54 | 559 | 368 | e4.8 | e 5 | ●.06 | 4.8 | 11 | . 14 | |
| 19 | 13 | 45 | 2.0 | e4.7 | e 5 | ●.06 | 4.2 | 6 | . 97 | |
| 20 | 7.5 | 21 | . 45 | e4. 7 | •5 | ●.06 | 4.2 | 5 | .06 | |
| 21 | 6.2 | 15 | .25 | 5.8 | 5 | .08 | 6.8 | 21 | . 79 | |
| 22 | 20 | 137 | 27 | 7.6 | 24 | .73 | 13 | 72 | 11 | |
| 23 | 8.7 | 27 | .73 | 5.4 | 17 | .25 | 4.8 | 10 | . 14 | |
| 24 | 6.8 | 16 | .27 | 4.8 | 15 | .21 | 6.6 | 18 | .70 | |
| 25 | 5.9 | 13 | .20 | 14 | 91 | 20 | 4.5 | 9 | .11 | |
| 26 | 5.5 | 7 | . 11 | 5.0 | 15 | .20 | 4.1 | 5 | .06 | |
| 27 | 5.6 | 5 | .08 | 32 | 222 | 46 | 4.4 | 3 | . 03 | |
| 28 | 33 | 289 | 137 | 7.9 | 30 | .78 | 4.5 | 2 | . 02 | |
| 29 | 7.2 | 17 | .37 | 5.8 | 7 | .11 | 9.1 | 28 | 1.1 | |
| 30 | 11 | 42 | 3.5 | 4.7 | 3 | .04 | 11 | 48 | 4.2 | |
| 31 | 13 | 52 | 4.1 | 4.5 | 3 | .04 | | | | |
| TOTAL | 502.4 | | 1086.50 | 219.8 | | 150.88 | 168.7 | | 53.22 | |
| YEAR | 4143.1 | | 16876.50 | | | | | | | |

e Estimated

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FERT PER SECOND | SEDI - MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FAIL DIAM. PERCENT FINER THAN .008 MM |
|---|---|--|---|--|---|--|---|
| OCT 1990 | | | | | | | |
| 07 | 1625 | 345 | 4 05 0 | 377 | 21 | 39 | 55 |
| 10 | 0900 | 8 | 840 | 19 | 55 | 68 | 84 |
| 17 | 1455 | 2590 | 9040 | 63200 | 8 | 19 | 29 |
| 25 | 2255 | 311 | 3770 | 3160 | 15 | 27 | 43 |
| FEB 1991 | | | | | | | |
| 05 | 1600 | 1390 | 10530 | 39500 | 27 | 38 | 51 |
| MAY | | | | | | | |
| 26 | 1345 | 526 | 5130 | 7300 | 26 | 35 | 51 |
| JUN | | | | | | | |
| 30 | 1240 | 537 | 8120 | 11800 | 26 | 3 5 | 52 |
| 30 | 1250 | 547 | 6620 | 9800 | 30 | 41 | 5 3 |
| JUL | | | | | | | |
| 16 | 1000 | 485 | 3970 | 5200 | 16 | 25 | 41 |
| | SED. SUSP. FALL DIAM. PERCENT | SED. SUSP. FALL DIAM. PERCENT | SED. SUSP. SIEVE DIAM. | SED. SUSP. SIEVE DIAM. | SED. SUSP. SIEVE DIAM. | SED. SUSP. SIEVE DIAM. | SED. SUSP. SIEVE DIAM. |
| DATE | FINER THAN .016 MM | FINER THAN .031 MM | PERCENT FINER THAN .062 MM | PERCENT FINER THAN .125 MM | PERCENT FINER THAN .250 MM | PERCENT FINER THAN .500 MM | PERCENT FINER THAN 1.00 MM |
| OCT 1990 | THAN .016 MM | Finer Than | FINER THAN | Finer Than | FINER THAN | Finer Than | Finer Than |
| OCT 1990 07 | THAN .016 MM | Finer Than | FINER THAN | Finer Than | FINER THAN | Finer Than | Finer Than |
| OCT 1990 07 10 | THAN .016 MM 80 86 | FINER THAN .031 MM | FINER THAN .062 MM | FINER THAN .125 MM | FINER THAN .250 MM | FINER THAN .500 MM | FINER THAN 1.00 MM |
| OCT 1990 07 10 17 | THAN .016 MM 80 86 46 | FINER THAN .031 MM | FINER THAN .062 MM | FINER THAN .125 MM | FINER THAN .250 MM | FINER THAN .500 MM | FINER THAN 1.00 MM |
| OCT 1990 07 10 17 25 | THAN .016 MM 80 86 | FINER THAN .031 MM 84 92 | FINER THAN .062 MM 98 100 | FINER THAN .125 MM 99 100 | FINER THAN .250 MM | FINER THAN .500 MM | FINER THAN 1.00 MM |
| OCT 1990 07 10 17 25 | THAN .016 MM 80 86 46 62 | FINER THAN .031 MM 84 92 68 74 | FINER THAN .062 MM 98 100 84 92 | FINER THAN .125 MM 99 100 91 97 | FINER THAN .250 MM 100 100 96 99 | FINER THAN .500 MM 100 98 100 | FINER THAN 1.00 MM 100 99 100 |
| OCT 1990 07 10 17 25 FEB 1991 05 | THAN .016 MM 80 86 46 62 64 | FINER THAN .031 MM .03 | FINER THAN .062 MM 98 100 84 92 87 | FINER THAN .125 MM 99 100 91 97 | FINER THAN .250 MM 100 100 96 99 | FINER THAN .500 MM 100 98 100 | FINER THAN 1.00 MM 1.00 MM |
| OCT 1990 07 10 17 25 FEB 1991 05 26 | THAN .016 MM 80 86 46 62 | FINER THAN .031 MM 84 92 68 74 | FINER THAN .062 MM 98 100 84 92 | FINER THAN .125 MM 99 100 91 97 | FINER THAN .250 MM 100 100 96 99 | FINER THAN .500 MM 100 98 100 | FINER THAN 1.00 MM 100 99 100 |
| OCT 1990 07 10 17 25 FEB 1991 05 26 JUN | THAN .016 MM 80 86 46 62 64 62 | FINER THAN .031 MM 84 92 68 74 76 74 | FINER THAN .062 MM 98 100 84 92 87 89 | FINER THAN .125 MM 99 100 91 97 94 96 | FINER THAN .250 MM 100 100 96 99 98 | FINER THAN .500 MM | FINER THAN 1.00 MM 1.00 MM 100 99 100 100 |
| OCT 1990 07 10 17 25 FRB 1991 05 26 JUN 30 | THAN .016 MM 80 86 46 62 64 62 | FINER THAN .031 MM 84 92 68 74 76 74 76 | FINER THAN .062 MM 98 100 84 92 87 89 | FINER THAN .125 MM .99 100 91 97 94 96 95 | FINER THAN . 250 MM | FINER THAN .500 MM | FINER THAN 1.00 MM 100 99 100 100 100 |
| OCT 1990 07 10 25 FEB 1991 05 26 JUN 30 | THAN .016 MM 80 86 46 62 64 62 | FINER THAN .031 MM 84 92 68 74 76 74 | FINER THAN .062 MM 98 100 84 92 87 89 | FINER THAN .125 MM 99 100 91 97 94 96 | FINER THAN .250 MM 100 100 96 99 98 | FINER THAN .500 MM | FINER THAN 1.00 MM 1.00 MM 100 99 100 100 |
| OCT 1990 07 10 17 25 FRB 1991 05 26 JUN 30 | THAN .016 MM 80 86 46 62 64 62 | FINER THAN .031 MM 84 92 68 74 76 74 76 | FINER THAN .062 MM 98 100 84 92 87 89 | FINER THAN .125 MM .99 100 91 97 94 96 95 | FINER THAN . 250 MM | FINER THAN .500 MM | FINER THAN 1.00 MM 100 99 100 100 100 |

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|-------------------|------|---|--|--|---|
| JUL 1990 | | | | | |
| 17 A UG | 1305 | 5.2 | 925 | 13 | 99 |
| 11 | 1335 | 4.2 | 2640 | 30 | 99 |
| SRP | | | | | |
| 03 | 1725 | 337 | 7150 | 6500 | 96 |
| 03 | 1835 | 228 | 6110 | 3760 | 99 |
| 04 | 0910 | 6.3 | 246 | 4 | 61 |

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SRDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|---|
| OCT 1990 | | | | | |
| 07 | 1905 | 184 | 2800 | 1400 | 99 |
| 11 | 1048 | 16 | 475 | 20 | 99 |
| 25 | 2350 | 184 | 2600 | 1300 | 97 |
| 26 | 0025 | 146 | 5400 | 2130 | 96 |
| DEC | | | | | |
| 03 | 1017 | 116 | 2200 | 700 | 96 |
| FRB 1991 | | | | | |
| 05 | 1630 | 1180 | 8220 | 26200 | 91 |
| 05 | 1750 | 446 | 3240 | 3900 | 89 |
| 28 | 1415 | 198 | 6920 | 3700 | 91 |
| MAY | | | | | |
| 26 | 1435 | 209 | 4760 | 2700 | 94 |
| JUN | | | | | |
| 30 | 1220 | 359 | 8020 | 7800 | 92 |
| 30 | 1410 | 200 | 2160 | 1200 | 89 |
| JUL | | | | | |
| 16 | 1040 | 494 | 3170 | 4200 | 90 |
| | | | | | |

50059000 LAGO LOIZA AT DAMSITE, PR

LOCATION. -- Lat 18°19'49", Long 66°01'00", Hydrologic Unit 21010005, at pumpsite at damsite, and 1.9 mi (3.1 km) south of Trujillo Alto plaza.

DRANAIGE AREA. -- 208 mi2 (539 km2).

Elevation, in feet

111.5

ELEVATION RECORDS

PERIOD OF RECORD. -- December 1987 to current year.

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

REMARKS.--Lake is formed by Loira Dam, a concrete structure completed in 1954. Useable capacity of impoundment is 30,000 acre-ft (37.0 hm²). Out flow from lake is controlled by five slide gates in powerplant and pump intake structure, four sluice gates, and concrete spillway with eight radial gates. Lake is used for municipal water supply and intermittent power generation. Gage-height satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD. -- Maximum elevation 147.42 ft (44.93 m), Sept. 18, 1989; minimum elevation, 125.86 ft (38.36 m), June 12, 1988.

EXTREMES OBSERVED FOR CURRENT YEAR. -- Maximum elevation 135.17 ft (41.20 m), Dec. 31, Mar. 6; minimum elevation, 127.93 ft

Elevation, in feet

128.6

137.8 147.6

Contents in acre-feet

26 35

Capacity Table (based on data from Puerto Rico Electric Power Authority)

Contents in acre-feet

5 8.9 13

| | ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY OBSERVATION AT 24:00 VALUES | | | | | | | | | | | |
|--------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| DAY | OCT | NOV | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 133.90 | 134.42 | 134.47 | 134.25 | 134.64 | 134.68 | 134.36 | 131.21 | 132.16 | 134.01 | 133.29 | 134.56 |
| 2 | 133.96 | 134.48 | 134.93 | 134.97 | 134.66 | 134.67 | 134.24 | 130.98 | 132.09 | 134.60 | 133.19 | 134.58 |
| 3 | 134.06 | 134.28 | 134.71 | 134.56 | 134.66 | 134.69 | 134.12 | 130.77 | 131.93 | 133.94 | 133.03 | 134.46 |
| 4 | 134.20 | 134.03 | 134.77 | 134.80 | 134.68 | 134.81 | 134.00 | 130.57 | 131.75 | 134.06 | 132.93 | 134.34 |
| 5 | 132.44 | 133.98 | 134.72 | 134.46 | 134.86 | 134.91 | 133.87 | 130.39 | A | 134.04 | 132.80 | 134.16 |
| 6 7 | 132.46 | 134.70 | 134.84 | 134.72 | 134.04 | 134.39 | 133.71 | 130.22 | λ | 133.98 | 132.60 | 134.02 |
| | 132.23 | 134.56 | 134.92 | 134.78 | 134.56 | 134.52 | 133.56 | 130.12 | A | 133.98 | 132.44 | 133.99 |
| 8 | 132.64 | 134.69 | 135.00 | 134.54 | 134.64 | 134.74 | 133.67 | 130.16 | A | 133.94 | 132.26 | 133.89 |
| 9 | 132.98 | 134.57 | 134.58 | 135.00 | 134.68 | 134.90 | 133.63 | 130.13 | A | 133.82 | 132.05 | 133.95 |
| 10 | 132.73 | 134.39 | 134.66 | 134.60 | 134.68 | 134.95 | 133.57 | 130.59 | A | 133.68 | 131.85 | 134.05 |
| 11 | 133.36 | 134.63 | 134.84 | 134.94 | 134.44 | 134.46 | 133.52 | 131.00 | A | 133.50 | 131.65 | 134.01 |
| 12 | 133.64 | 134.83 | 134.76 | 134.42 | 135.08 | 134.45 | 133.56 | 131.54 | A | 133.32 | A | 133.91 |
| 13 | 134.04 | 134.47 | 134.82 | 134.60 | 134.96 | 134.44 | 133.54 | 131.55 | A | 133.14 | λ | 133.75 |
| 14 | 133.78 | 134.63 | 134.98 | 134.77 | 134.58 | 134.42 | 133.48 | 131.43 | A | 133.01 | λ | 133.59 |
| 15 | 132.92 | 134.53 | 134.46 | 134.97 | 134.78 | 134.38 | 133.54 | 131.34 | A | 133.49 | A | 133.41 |
| 16 | 132.74 | 134.51 | 134.76 | 134.45 | 134.86 | 134.32 | 133.53 | 131.28 | λ | 134.52 | 130.72 | 133.25 |
| 17 | 133.08 | 134.25 | 134.90 | 134.55 | 134.91 | 134.25 | 133.43 | 131.14 | A | 134.43 | 130.74 | 134.15 |
| 18 | 132.46 | 134.37 | 135.00 | 134.65 | 134.14 | 134.23 | 133.31 | 131.37 | 129.94 | 134.20 | 131.28 | 133.65 |
| 19 | 133.86 | 134.49 | 134.68 | 134.71 | 134.84 | 134.23 | 133.21 | 131.73 | 129.73 | 133.26 | 131.26 | 134.00 |
| 20 | 133.38 | 134.49 | 134.72 | 134.75 | 134.50 | 134.19 | 133.05 | 131.84 | 129.57 | 133.34 | 131.13 | 134.08 |
| 21 | 132.73 | 134.81 | 134.78 | 134.76 | 134.82 | 134.11 | 132.92 | 131.79 | 129.36 | 133.32 | 131.33 | 134.28 |
| 22 | 133.90 | 134.49 | 134.80 | 134.75 | 134.60 | 134.62 | A | 131.90 | 129.28 | 133.56 | 132.05 | 134.26 |
| 23 | 133.16 | 134.63 | 134.86 | 134.75 | 134.69 | 134.76 | λ | 131.88 | 129.18 | 133.52 | 132.53 | 134.08 |
| 24 | 133.94 | 134.73 | 134.91 | 134.74 | 134.75 | 134.73 | 132.45 | 131.74 | 129.02 | 133.54 | 132.53 | 134.50 |
| 25 | 134.04 | 134.77 | 134.93 | 134.72 | 134.81 | 134.64 | 132.31 | 132.71 | 128.84 | 133.52 | 132.51 | 133.48 |
| 26 | 134.06 | 134.57 | 134.91 | 134.72 | 134.89 | 134.88 | 132.16 | 132.99 | 128.63 | 133.42 | 132.37 | 133.50 |
| 27 | 134.33 | 134.83 | 134.91 | 134.70 | 134.92 | 134.85 | 131.99 | 132.92 | 128.39 | 133.32 | 134.75 | 133.74 |
| 28 | 133.74 | 134.58 | 135.01 | 134.66 | 134.60 | 134.79 | 131.79 | 132.78 | 128.19 | 133.50 | 134.17 | 134.28 |
| 29 | 133.28 | 134.75 | 134.53 | 134.62 | | 134.69 | 131.63 | 132.62 | 128.00 | 133.40 | 134.44 | 133.86 |
| 30 | 133.44 | 134.89 | 134.69 | 134.56 | | 134.59 | 131.42 | 132.45 | 131.58 | 133.34 | 134.50 | 133.56 |
| 31 | 134.42 | | 133.95 | 134.58 | | 134.47 | | 132.29 | | 133.38 | 134.50 | |
| MEAN | 133.42 | 134.54 | 134.77 | 134.68 | 134.69 | 134.57 | | 131.47 | | 133.68 | | 133.98 |
| MAX | 134.42 | 134.89 | 135.01 | 135.00 | 135.08 | 134.95 | | 132.99 | | 134.60 | | 134.58 |
| MIN | 132.23 | 133.98 | 133.95 | 134.25 | 134.04 | 134.11 | | 130.12 | | 133.01 | | 133.25 |

A No gage-height record.

50059000 LAGO LOIZA AT DAMSITE, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°19'49", long 66°01'00", at pumphouse at damsite, and 1.9 mi (3.1 km) south of Trujillo Alto plaza.

DRAINAGE AREA. -- 208 mi2 (539 km2).

PERIOD OF RECORD. -- Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) | ALKA- LINITY WAT WH TOT FET FIRLD MG/L AS CACO3 |
|----------------------|------------------------------------|---|--|--|--|--|---|---|---|---|
| OCT 1990 26 | 1120 | 168 | 7.0 | 27.0 | 3.6 | 45 | 35 | K720 | 210 | 51 |
| DEC | | | | | | | • | | | |
| 04 FRB 1991 | 1210 | 310 | 7.1 | 26.5 | 2.6 | 32 | 10 | K22 | 75 | 98 |
| 07 APR | 1215 | 30 | 6.9 | 25.5 | 4.6 | 56 | 22 | K740 | 840 | 97 |
| 11 | 1215 | 320 | 7.1 | 26.5 | 2.8 | 35 | 16 | 46 | K8 | 110 |
| JUN 13 | 0930 | 340 | 7.1 | 29.0 | 2.0 | 26 | 14 | K14 | 39 | 110 |
| AUG 14 | 1020 | 270 | 7.1 | 30.0 | 2.0 | 27 | 37 | 1000 | 84 | 84 |
| DATE | SULFIDE TOTAL (MG/L AS S) | RESIDUE TOTAL AT 105 DRG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) |
| OCT 1990 26 | <0.5 | 98 | 0.450 | 0.150 | 0.600 | 0.260 | 0.74 | 1.0 | 1.6 | 7.1 |
| DEC 04 | | <1 | 0.530 | 0.070 | 0.600 | 0.420 | 0.28 | 0.70 | 1.3 | 5.8 |
| FEB 1991 07 | | 13 | 0.450 | 0.050 | 0.500 | 0.190 | 0.51 | 0.70 | 1.2 | 5.3 |
| APR | | | | | | | | | | |
| 11 Jun | <0.5 | 22 | 0.190 | 0.020 | 0.210 | 0.050 | 0.75 | 0.80 | 1.0 | 4.5 |
| 13 AUG | | 10 | | 0.010 | <0.050 | 0.320 | 0.78 | 1.1 | | |
| 14 | | 15 | | <0.010 | <0.050 | 0.240 | 1.7 | 1.9 | | |
| DAT | PHO PHOR TOT (MG AS | US REC AL ERA /L (UG | AL TOT OV- REC BLE ERA /L (UG | AL TOT OV- REC BLE ERA /L (UG | AL TOT OV- REC BLE BRA /L (UG | E, ZIN AL TOT OV- REC BLE ERA | AL OV- CYAN BLE TOT /L (MG | AL PHENC /L TOT! | BI ACT OLS SU AL STA | HY- NE UE IVE B- NCE |
| OCT 199 26 DRC | - | 270 | 40 | 30 6 | 200 | 250 | 70 <0. | 010 | 1 <0 | .01 |
| 04 | | 190 - | | | | | | | | - |
| FEB 199 | | 220 - | | | | | - | | | - |
| APR 11 JUN | 0. | 150 | 50 | 10 | 730 | 160 | 80 <0. | 010 | 2 0 | .02 |
| 13 | 0. | 420 - | | | | | | | | - |
| AUG 14 | 1. | 20 - | | | | | - | | | · - |

K= non-ideal count

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR

LOCATION.--Lat 18°20'33", long 66°00'20", Hydrologic Unit 21010005, on left bank of Highway 175, 1.1 mi (1.8 km) downstream of Lago Loisa Dam.

DRAINAGE AREA. -- 209 mi* (541 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- December 1986 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 32 ft (10 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Lago Loisa Dam.

Gage-height and precipitation satellite telemetry at stetion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 124,300 ft³/s (3,520 m²/s), Nov. 27, 1987, gage height, 39.57 ft (12.061 m), from floodmarks and rating curve extended above 100 ft³/s (2.83 m²/s) on basis of step-back water analysis; minimum daily discharge, 2.1 ft³/s (0.059 m²/s), Sept. 22, 23, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,600 ft³/s (697 m³/s), Oct. 15, gage height, 21.34 ft (6.504 m), from rating curve extended above 100 ft³/s (2.83 m³/s) on basis of step-back water analysis; minimum daily discharge, 3.3 ft³/s (0.093 m³/s), Oct. 2.

| | | DISCHA | ARGE, CUBI | C FEET PE | | WATER YE LY MEAN VA | AR OCTOBER LUES | 1990 TO | SEPTEMBER | 1991 | | |
|-------|-------------|--------|------------|-----------|--------|------------------------|--------------------|-------------|-----------|--------|-------|--------------|
| DAY | OCT | NOA | DEC | Jan | FRB | MAR | APR | MAY | JUN | JOL | λŪG | SEP |
| 1 | 4.8 | 162 | 310 | 540 | 7.9 | 9.3 | 12 | 11 | 8.1 | 664 | 5.7 | 8.7 |
| 2 | 3.3 | 216 | 6.1 | 9.2 | 8.3 | 8.7 | 12 | 11 | 7.7 | 53 | 6.2 | 8.4 |
| 3 | 12 | 175 | 454 | 170 | 8.0 | 8.9 | 12 | 10 | 7.8 | 201 | 5.9 | 8.3 |
| 4 | 5.3 | 272 | 169 | 5.3 | 7.9 | 9.5 | 11 | 14 | 7.8 | 12 | 5.9 | 8.2 |
| 5 | 982 | 440 | 64 | 113 | 396 | 9.7 | 11 | 10 | 8.3 | 12 | 5.6 | 8.0 |
| 6 | 5.2 | 9.8 | 14 | 12 | 430 | 259 | 11 | 10 | 8.3 | 11 | 5.6 | 7.4 |
| 7 | 525 | 142 | 12 | 153 | 11 | 137 | 11 | 11 | 8.3 | 11 | 5.6 | 15 |
| 8 | 7.1 | 74 | 13 | 128 | 11 | 16 | 14 | 10 | 8.3 | 13 | 5.6 | 9.9 |
| 9 | 4.4 | 123 | 100 | 9.8 | 12 | 15 | 12 | 9.6 | 8.3 | 11 | 5.4 | 8.1 |
| 10 | 1180 | 116 | 13 | 171 | 13 | 16 | 12 | 9.3 | 8.3 | 11 | 5.5 | 7.8 |
| 11 | 72 | 14 | 12 | 8.1 | 145 | 105 | 12 | 8.9 | 8.2 | 11 | 5.4 | 7.8 |
| 12 | 10 | 9.9 | 58 | 164 | 10 | 19 | 12 | 8.9 | 7.8 | 11 | 5.0 | 7.8 |
| 13 | 9.5 | 157 | 11 | 6.5 | 318 | 15 | 12 | 8.6 | 7.8 | 11 | 4.8 | 7.4 |
| 14 | 140 | 9.5 | 346 | 6.4 | 193 | 14 | 12 | 8.9 | 7.8 | 11 | 4.8 | 7.1 |
| 15 | 1590 | 57 | 338 | 7.1 | 7.3 | 14 | 12 | 8.9 | 7.8 | 17 | 4.8 | 6.9 |
| 16 | 1500 | 56 | 17 | 174 | 7.8 | 15 | 12 | 8.9 | | 1770 | 4.8 | 6.9 |
| 17 | 674 | 78 | 12 | 8.9 | 7.8 | 14 | 12 | 8.9 | 7.5 | 309 | 5.0 | e1220 |
| 18 | 1730 | 32 | 12 | 8.9 | 195 | 14 | 12 | 11 | 7.3 | 305 | 5.2 | e811 |
| 19 | 778 | 6.7 | 68 | 8.9 | 15 | 14 | 12 | 11 | 7.3 | 442 | 5.2 | e7.1 |
| 20 | 894 | 47 | 7.8 | 8.8 | 163 | 14 | 12 | e2 5 | 12 | 5.9 | 6.1 | 7.1 |
| 21 | 6650 | 14 | 7.8 | 8.6 | 10 | 15 | 12 | e11 | 7.7 | 5.6 | 5.9 | 7.5 |
| 22 | 310 | 179 | 8.0 | 8.9 | 72 | 20 | 12 | 11 | 6.7 | 5.6 | 5.7 | e 738 |
| 23 | 311 | 7.1 | 8.5 | 8.8 | 8.9 | 15 | 12 | 10 | 6.4 | 5.6 | 5.3 | e195 |
| 24 | 1190 | 7.0 | 9.9 | 8.4 | 8.9 | 14 | 11 | 9.5 | 6.4 | 5.9 | 5.0 | e3.4 |
| 25 | 2670 | 7.8 | 9.6 | 8.2 | 8.6 | 14 | 11 | 9.5 | 6.0 | 5.6 | 4.8 | e688 |
| 26 | 2380 | 78 | 9.5 | 8.5 | 8.3 | 14 | 11 | 9.4 | 5.8 | 5.4 | 4.8 | e 3.7 |
| 27 | 665 | 8.6 | 9.8 | 8.7 | 8.4 | 15 | 11 | 8.9 | 6.5 | 5.6 | 5.6 | e3.4 |
| 28 | 76 4 | 137 | 14 | 8.4 | 83 | 15 | 11 | 8.6 | 7.0 | 14 | 681 | e3.4 |
| 29 | 649 | 8.7 | 216 | 7.8 | | 13 | 11 | 8.9 | 7.8 | 5.8 | 8.4 | e4 64 |
| 30 | 377 | 62 | 343 | 7.6 | | 13 | 11 | 8.5 | 8.7 | 5.5 | 6.0 | e581 |
| 31 | 16 | | 2440 | 8.4 | | 12 | | 8.3 | | 5.5 | 7.9 | |
| | 26108.6 | 2706.1 | 5113.0 | 1805.2 | 2175.1 | 887.1 | 351 | 318.5 | 231.5 | 3962.0 | 848.5 | 4866.3 |
| mran | 842 | 90.2 | 165 | 58.2 | 77.7 | 28.6 | 11.7 | 10.3 | 7.72 | 128 | 27.4 | 162 |
| MAX | 6650 | 440 | 2440 | 540 | 430 | 259 | 14 | 25 | 12 | 1770 | 681 | 1220 |
| MIN | 3.3 | 6.7 | 6.1 | 5.3 | 7.3 | 8.7 | 11 | 8.3 | 5.8 | 5.4 | 4.8 | 3.4 |
| AC-FT | 51790 | 5370 | 10140 | 3580 | 4310 | 1760 | 696 | 632 | 459 | 7860 | 1680 | 9650 |
| CFSM | 4.03 | .43 | .79 | . 28 | .37 | . 14 | .06 | . 05 | .04 | .61 | . 13 | .78 |
| IN. | 4.65 | .48 | .91 | .32 | .39 | . 16 | .06 | .06 | .04 | .71 | .15 | . 87 |

CAL YR 1990 TOTAL 40081.4 MEAN 110 MAX 6650 MIN 2.1 AC-FT 79500 CFSM .53 IN. 7.13 WTR YR 1991 TOTAL 49372.9 MEAN 135 MAX 6650 MIN 3.3 AC-FT 97930 CFSM .65 IN. 8.79

e Estimated

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD .-- Water years 1987 to current year.

INSTRUMENTATION. --- Automatic sediment sampler.

PERIOD OF DAILY RECORD. --SUSPENDED-SEDIMENT DISCHARGE: December 1986 to September 1991.

EXTREMES FOR PERIOD OF DAILY RECORD. --

SEDIMENT CONCENTRATION: Maximum daily mean, 628 mg/L September 18, 1989; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 79,900 tons (72,710 tonnes) December 8, 1987; Minimum daily mean, 0.03 ton (0.02 tonnes) several days.

EXTREMES FOR CURRENT YEAR.-SEDIMENT CONCENTRATION: Maximum daily mean, 274 mg/l October 21, 1990; minimum daily mean,
1 mg/l several days.

SEDIMENTS LOADS: Maximum daily mean, 4,920 tons (4,480 tonnes) October 21, 1990: minimum daily mean, 0.03 tons (0.02 tonnes) several days.

| | | mban | | | mran | | MEAN | | | |
|--------|-------------|-----------------|------------|-----------|----------|------------|-----------|------------|------------|--|
| | MRAN | CONCEN- | SEDIMENT | MRAN | CONCEN- | SEDIMENT | MRAN | CONCEN- | SEDIMENT | |
| | DISCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE | |
| DAY | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | |
| | (/ | (, -, | (1 , 1 , | (/ | | (, | (/ | . , | | |
| | | OCTOBE R | | 1 | NOVEMBER | | 1 | DECEMBER | | |
| 1 | 4.8 | 14 | .18 | 162 | 62 | 27 | 310 | 73 | 61 | |
| 2 | 3.3 | 11 | . 10 | 216 | 67 | 39 | 6.1 | 16 | . 27 | |
| 2 3 | 12 | 23 | .75 | 175 | 63 | 30 | 454 | 85 | 104 | |
| 4 | 5.3 | 15 | .21 | 272 | 71 | 52 | 169 | 64 | 29 | |
| 5 | 982 | 58 | 154 | 440 | 83 | 99 | 64 | 41 | 7.1 | |
| 6 | 5.2 | 15 | .21 | 9.8 | 21 | .52 | 14 | 5 | .98 | |
| 7 | 525 | 91 | 129 | 142 | 57 | 22 | 12 | 23 | .75 | |
| 8 | 7.1 | 17 | .33 | 74 | 43 | 8.6 | 13 | 24 | . 86 | |
| 8 9 | 4.4 | 7 | .08 - | | 54 | 18 | 100 | 48 | . 13 | |
| 10 | 1180 | 67 | 214 | 116 | 54 | 17 | 13 | 24 | . 86 | |
| 11 | 72 | 43 | 8.3 | 14 | 26 | .98 | 12 | 23 | .75 | |
| 12 | 10 | 20 | .53 | - 9.9 | 20 | .53 | 58 | 40 | 6.2 | |
| 13 | 9.5 | 19 | .48 | 157 | 61 | 26 | 11 | 22 | . 64 | |
| 14 | 140 | 58 | 22 | 9.5 | 19 | .50 | 346 | 75 | 70 | |
| 15 | 1590 | 71 | 306 | 57 | 39 | 6 | 338 | 74 | 68 | |
| 16 | 1500 | 133 | 538 | 56 | 20 | 5.9 | 17 | 28 | 1.3 | |
| 17 | 674 | 99 | 181 | 78 | 44 | 9.2 | 12 | 8 | .75 | |
| 18 | 1730 | 184 | 859 | 32 | 35 | 3 | 12 | 4 | . 13 | |
| 19 | 7 78 | 104 | 219 | 6.7 | 15 | .28 | 68 | 42 | 7.7 | |
| 20 | 894 | 108 | 261 | 47 | 37 | 4.7 | 7.8 | 18 | .37 | |
| 21 | 6650 | 274 | 4920 | 14 | 26 | . 98 | 7.8 | 18 | .37 | |
| 22 | 310 | 73 | 61 | 179 | 64 | 31 | 8.0 | 18 | . 40 | |
| 23 | 311 | 73 | 61 | 7.1 | 18 | .34 | 8.5 | 18 | .42 | |
| 24 | 1190 | 234 | 1040 | 7.0 | 17 | .33 | 9.9 | 19 | . 52 | |
| 25 | 2670 | 164 | 1180 | 7.8 | 17 | .36 | 9.6 | 18 | .48 | |
| 26 | 2380 | 157 | 1010 | 78 | 44 | 9.2 | 9.5 | 19 | . 48 | |
| 27 | 665 | 99 | 178 | 8.6 | 19 | .43 | 9.8 | 1 | . 03 | |
| 28 | 764 | 104 | 214 | 137 | 57 | 21 | 14 | 26 | 30.98 | |
| 29 | 649 | 98 | 172 | 8.7 | 21 | .49 | 216 | 67 | 39 | |
| 30 | 377 | 78 | 79 | 62 | 41 | 6.8 | 343 | 76 | 70 | |
| 31 | 16 | 28 | 1.2 | | | | 2440 | 158 | 1040 | |
| TOTAL | 26108.6 | | 11810.37 | 2706.1 | | 441.14 | 5113.0 | | 1543.47 | |

RIO GRANDE DE LOIZA BASIN
50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR--Continu**ed**

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JANUARY | | I | BBRUARY | | | MARCH | |
| 1 | 540 | 92 | 134 | 7.9 | 6 | .13 | 9.3 | 1 | . 03 |
| 2 | 9.2 | 19 | . 47 | 8.3 | 36 | .42 | 8.7 | 18 | .44 |
| 3 | 170 | 63 | 29 | 8.0 | 19 | .40 | 8.9 | 19 | . 45 |
| 4 | 5.3 | 35 | .50 | 7.9 | 18 | .38 | 9.5 | 19 | .50 |
| 5 | 113 | 52 | 16 | 396 | 79 | 84 | 9.7 | 19 | .51 |
| 6 | 12 | 23 | .75 | 430 | 83 | 96 | 259 | 70 | 49 |
| 7 | 153 | 60 | 25 | 11 | 21 | . 62 | 137 | 57 | 21 |
| 8 | 128 | 55 | 19 | 11 | 21 | . 62 | 16 | 28 | 1.20 |
| 9 | 9.8 | 21 | . 56 | 12 | 23 | .75 | 15 | 27 | 1.10 |
| 10 | 171 | 63 | 29 | 13 | 25 | .86 | 16 | 28 | 1.2 |
| 11 | 8.1 | 18 | .40 | 145 | 59 | 23 | 105 | 49 | 14 |
| 12 | 164 | 61 | 27 | 10 | 60 | 1.60 | 19 | 29 | 1.50 |
| 13 | 6.5 | 17 | .30 | 318 | 73 | 63 | 15 | 27 | 1.10 |
| 14 | 6.4 | 17 | .30 | 193 | 65 | 34 | 14 | 22 | . 83 |
| 15 | 7.1 | 17 | . 33 | 7.3 | 18 | .35 | 14 | 26 | .98 |
| 16 | 174 | 64 | .30 | 7.8 | 18 | .37 | 15 | 27 | 1.10 |
| 17 | 8.9 | 8 | . 19 | 7.8 | 18 | .37 | 14 | 26 | . 98 |
| 18 | 8.9 | 19 | . 45 | 195 | 65 | 34 | 14 | 26 | . 98 |
| 19 | 8.9 | 19 | . 45 | 15 | 27 | 1.10 | 14 | 26 | . 98 |
| 20 | 8.6 | 18 | .44 | 163 | 61 | 27 | 14 | 27 | 1.10 |
| 21 | 8.6 | 19 | .45 | 10 | 12 | .32 | 15 | 30 | 1.60 |
| 22 | 8.9 | 9 | . 22 | 72 | 43 | 8.30 | 20 | 12 | 1.10 |
| 23 | 8.8 | 18 | . 44 | 8.9 | 18 | .45 | 15 | 26 | . 98 |
| 24 | 8.4 | 18 | .40 | 8.9 | 18 | .45 | 14 | 26 | . 98 |
| 25 | 8.2 | 18 | .40 | 8.6 | 19 | .44 | 14 | 26 | .98 |
| 26 | 8.5 | 19 | . 43 | 8.3 | 18 | .42 | 14 | 26 | .98 |
| 27 | 8.7 | 20 | . 46 | 8.4 | 19 | .42 | 15 | 12 | 1.1 |
| 28 | 8.4 | 18 | . 40 | 83 | 45 | 10 | 15 | 12 | 1.10 |
| 29 | 7.8 | 0 | .38 | | | | 13 | 25 | . 86 |
| 30 | 7.6 | 18 | . 36 | | | | 13 | 25 | . 86 |
| 31 | 8.4 | 18 | .40 | | | | 12 | 22 | .72 |
| TOTAL | 1805.2 | | 288.78 | 2175.1 | | 389.77 | 887.1 | | 110.24 |

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR--Continued

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 12 | 26 | .75 | 11 | 22 | . 64 | 8.1 | 18 | .40 |
| 2 | 12 | 26 | .75 | 11 | 22 | . 64 | 7.7 | 17 | .36 |
| 3 | 12 | 26 | .75 | 10 | 19 | .53 | 7.8 | 17 | .36 |
| 4 | 11 | 22 | . 64 | 14 | 26 | .98 | 7.8 | 17 | .38 |
| 5 | 11 | 22 | . 64 | 10 | 20 | .53 | 8.3 | 19 | .42 |
| 6 | 11 | 22 | . 64 | 10 | 20 | .53 | 8.3 | 8 | .18 |
| 7 | 11 | 22 | . 64 | 11 | 22 | . 64 | 8.3 | 19 | . 42 |
| 8 | 14 | 26 | . 98 | 10 | 20 | .53 | 8.3 | 19 | .42 |
| 9 | 12 | 23 | .75 | 9.6 | 39 | .82 | 8.3 | 19 | .42 |
| 10 | 12 | 23 | .75 | 9.3 | 18 | .47 | 8.3 | 19 | .42 |
| 11 | 12 | 7 | .23 | 8.9 | 19 | .45 | 8.2 | 19 | .41 |
| 12 | 12 | 23 | . 75 | 8.9 | 19 | .45 | 7.8 | 18 | .38 |
| 13 | 12 | 23 | .75 | 8.6 | 18 | .42 | 7.8 | 18 | .38 |
| 14 | 12 | 23 | .75 | 8.9 | 19 | .45 | 7.8 | 18 | .38 |
| 15 | 12 | 23 | .75 | 8.9 | 19 | .45 | 7.8 | 18 | .38 |
| 16 | 12 | 23 | . 75 | 8.9 | 19 | .45 | 7.8 | 18 | .38 |
| 17 | 12 | 23 | .75 | 8.9 | 23 | .55 | 7.5 | 18 | .36 |
| 18 | 12 | 23 | . 75 | 11 | 22 | . 64 | 7.3 | 17 | . 34 |
| 19 | 12 | 43 | 1.40 | 11 | 22 | . 64 | 7.3 | 17 | .34 |
| 20 | 12 | 23 | .75 | e25 | e32 | e2.2 | 12 | 125 | 4.00 |
| 21 | 12 | 23 | .75 | •11 | e22 | •.64 | 7.7 | 18 | .37 |
| 22 | 12 | 23 | . 75 | 11 | 14 | .42 | 6.7 | 17 | .30 |
| 23 | 12 | 23 | .75 | 10 | 20 | .53 | 6.4 | 16 | .28 |
| 24 | 11 | 22 | . 64 | 9.5 | 19 | .50 | 6.4 | 16 | .28 |
| 25 | 11 | 22 | . 64 | 9.5 | 19 | .50 | 6.0 | 17 | .27 |
| 26 | 11 | 22 | . 64 | 9.4 | 19 | .48 | 5.8 | 16 | .25 |
| 27 | 11 | 22 | . 64 | 8.9 | 19 | .45 | 6.5 | 16 | .29 |
| 28 | 11 | 22 | . 64 | 8.6 | 18 | .43 | 7.0 | 17 | .33 |
| 29 | 11 | 22 | . 64 | 8.9 | 19 | .45 | 7.8 | 18 | . 37 |
| 30 | 11 | 22 | . 64 | 8.5 | 20 | .45 | 8.7 | 19 | . 45 |
| 31 | | | | 8.3 | 45 | 1.00 | | | |
| TOTAL | 351 | | 21.65 | 318.5 | | 18.86 | 231.5 | | 14.32 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MBAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | MBAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JULY | | | AUGUST | | SI | eptember | |
| 1 | 664 | 99 | 177 | 5.7 | 24 | .37 | 8.7 | 19 | .44 |
| 2 | 53 | 38 | 5.5 | 6.2 | 16 | .27 | 8.4 | 18 | .42 |
| 3 | 201 | 66 | 36 | 5.9 | 16 | .25 | 8.3 | 19 | .42 |
| 4 | 12 | 23 | .75 | 5.9 | 16 | .25 | 8.2 | 19 | .42 |
| 5 | 12 | 23 | .75 | 5.6 | 15 | .23 | 8.0 | 18 | .40 |
| 6 | 11 | 22 | . 64 | 5.6 | 19 | .29 | 7.4 | 17 | .24 |
| 7 | 11 | 22 | . 64 | 5.6 | 15 | .23 | 15 | 27 | 1.10 |
| 8 | 13 | 25 | .86 | 5.6 | 15 | .23 | 9.9 | 19 | . 52 |
| 9 | 11 | 22 | . 64 | 5.4 | 15 | .22 | 8.1 | 18 | .40 |
| 10 | 11 | 22 | . 64 | 5.5 | 15 | .23 | 7.8 | 18 | .37 |
| 11 | 11 | 17 | . 50 | 5.4 | 15 | .22 | 7.8 | 18 | . 37 |
| 12 | 11 | 22 | . 64 | 5.0 | 30 | .40 | 7.8 | 18 | . 37 |
| 13 | 11 | 22 | . 64 | 4.8 | 14 | .18 | 7.4 | 18 | .35 |
| 14 | 11 | 22 | . 64 | 4.8 | 13 | .17 | 7.1 | 18 | .34 |
| 15 | 17 | 28 | 1.30 | 4.8 | 14 | .18 | 6.9 | 17 | .32 |
| 16 | 1770 | 153 | 732 | 4.8 | 14 | .18 | 6.9 | 17 | . 32 |
| 17 | 309 | 72 | 60 | 5.0 | 15 | .20 | e1220 | e119 | e393 |
| 18 | 305 | 72 | 59 | 5.2 | 15 | .21 | e811 | e105 | e231 |
| 19 | 442 | 148 | 176 | 5.2 | 15 | .21 | e7.1 | -4 | e.08 |
| 20 | 5.9 | 16 | . 25 | 6.1 | 16 | .27 | 7.1 | 17 | .33 |
| 21 | 5.6 | 15 | .23 | 5.9 | 14 | .22 | 7.5 | 18 | .36 |
| 22 | 5.6 | 16 | .24 | 5.7 | 16 | .24 | ● 738 | e 136 | e271 |
| 23 | 5.6 | 16 | .24 | 5.3 | 15 | .21 | e195 | e64 | e34 |
| 24 | 5.9 | 16 | . 25 | 5.0 | 15 | .20 | e3.4 | e 3 | e. 03 |
| 25 | 5.6 | 16 | .24 | 4.8 | 14 | .18 | e688 | e84 | e152 |
| 26 | 5.4 | 15 | .22 | 4.8 | 14 | .18 | e3.7 | e13 | e. 13 |
| 27 | 5.6 | 16 | . 24 | 5.6 | 15 | .23 | e3.4 | e13 | e. 12 |
| 28 | 14 | 24 | .98 | 681 | 100 | 183 | e3.4 | e13 | e. 12 |
| 29 | 5.8 | 15 | .24 | 8.4 | 18 | .42 | e464 | e85 | e107 |
| 30 | 5.5 | 6 | .23 | 6.0 | 17 | .27 | e581 | e17 | e132 |
| 31 | 5.5 | 6 | .23 | 7.9 | 18 | .38 | | | |
| TOTAL | 3962.0 | | 1257.73 | 848.5 | | 190.32 | 4866.3 | | 1327.97 |
| YEAR | 49372.9 | | 17414.62 | | | | | | |

e Estimated

50059100 RIO GRANDE DE LOIZA BELOW TRUJILLO ALTO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°21'35°, long 66°00'15°, 100 ft (30 m) downstream of Highway 181 bridge, 0.4 mi (0.6 km) northwest of Trujillo Alto plaza, and 2.2 mi (3.5 km) northeast of Lago Loiza Reservoir.

DRAINAGE AREA. -- 213 mi2 (552 km2).

PERIOD OF RECORD. -- Water years 1981 to current year.

REMARKS: Flow controlled by Lago Loiza reservoir.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TI | CHI CI CI | DIS- ARGE, NST. UBIC FEBT PER ECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPE ATUR WATE (DEG | e bi R it | D- D Y 80 | GEN, IS- LVED G/L) | DXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | |
|--|--------------------------------|---|---|---|--|----------------------------------|--|---|-----------------------------|--|---|---|--|
| OCT 1990 30 | 08 | 40 : | 27 | 211 | 7.4 | 26. | 0 8 | 5 | 6.3 | 77 | 30 | 2900 | 960 |
| DEC 21 | 10 | | 14 | 382 | 8.3 | 26. | | - | 9.4 | 115 | 10 | 470 | |
| FEB 1991 | | | | | | | = | 2.1 | - | | | | |
| 28 APR | 10 | 55 | 16 | 422 | 8.5 | 23. | 5 | 3.4 | 8.4 | 98 | 12 | 200 | K18 |
| 25 Jun | 10 | 30 | 10 | 383 | 8.1 | 31. | 5 | 5.5 | 9.3 | 120 | 13 | K10 | 220 |
| 13 | 12 | 50 : | 12 | 373 | 8.4 | 34. | 0 | 4.9 | 9.9 | 139 | 18 | K140 | K40 |
| 26 | 12 | 55 | 9.6 | 383 | 8.1 | 32. | 0 1 | 2 | 9.0 | 116 | 25 | 2700 | K50 |
| DATE | HAR MES TOT (MG AS | D- NI S NOI AL WH /L TO: MG | ARD- BSS NCARB WAT T FLD /L AS ACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUI DIS- SOLVE (MG/: | SOR D TI L RAT | D- 8 P- D ON 80 IO (M | IUM, V IS- T | ALKA- LINITY VAT WH FOT FET FIELD EG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | DIS- |
| OCT 1990 30 | | 72 | 0 | 18 | 6.6 | 15 | | 0.8 | 4.1 | 150 | <0.5 | 12 | 16 |
| DEC | | | • | | | | | | | | | | |
| 21 FEB 1991 | - | - | | | | | - | - | | 134 | | | |
| 28 APR | - | | | | | | - | - | | 150 | | | |
| 25 Jun | | 130 | | 32 | 13 | 31 | | 1 | 2.3 | 140 | <0.5 | 17 | 33 |
| 13 | - | - | | | | | - | - | | 140 | | | |
| 26 | | 140 | 0 | 34 | 13 | 30 | | 1 | 3.9 | 120 | | 16 | 31 |
| 3 DBC 2 FBB 2 APR 2 JUN 1 AUG | 1 1991 8 5 | FLUO-RIDE, DIS-SOLVE(MG/L AS F) <0.1 | DI SO SO SI | ICA, SUI S- COI LVED TUI IG/L I S SC | NSTI- I ENTS, SC DIS- (1 DLVED I | LIDS, DIS- DLVED TONS | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) 60 <1 4 10 | NITRO- GEN, NITRATE TOTAL (MG/L AS N) 0.690 0.590 0.320 0.260 0.190 | TOTA (MG/AS P | 7, G TTE NO22 L TO /L (M TO /L (M TO) 10 0 10 0 10 0 10 0 0 0 0 0 0 0 0 0 0 | EN, (14,103 AM) TALL TO (17,104 AM) AM (17,104 AM) | SEN, SONIA OR STAL T SG/L (| IITRO- GEN, GANIC OTAL MG/L 8 N) 0.64 0.55 0.77 0.45 0.57 |
| K = | non-ide | al coun | t | | | | | | | | | | |

RIO GRANDE DE LOIZA BASIN

50059100 RIO GRANDE DE LOIZA BELOW TRUJILLO ALTO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | MITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|---|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 30 Dec | 0.80 | 1.6 | 7.1 | 0.210 | <1 | <100 | 10 | <1 | 4 | 20 |
| 21 FRB 1991 | 0.60 | 1.2 | 5.3 | 0.190 | | | | | | |
| 28 | 0.80 | 1.1 | 5.0 | 0.140 | | | | | | |
| λPR 25 | 0.50 | 0.77 | 3.4 | 0.170 | 1 | <100 | <10 | <1 | <1 | 10 |
| JUN 13 | 0.60 | 0.81 | 3.6 | 0.250 | | | | | | |
| AUG 26 | 0.70 | 1.3 | 5.7 | 0.380 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | MRTHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 30 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 30 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 30 DEC 21 FEB 1991 28 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 30 DEC 21 FEB 1991 28 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) 10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 30 DEC 21 FEB 1991 28 | TOTAL RECOV- ERABLE (UG/L AS FR) 3400 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- RRABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS EN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) 3 | LENE BLUE ACTIVE SUB- STANCE (MG/L) |

50061800 RIO CANOVANAS NEAR CAMPO RICO, PR

LOCATION.--Lat 18°19'08", long 65°53'21", Hydrologic Unit 21010005, at center pier on downstream side of bridge, on paved secondary road, 0.4 mi (0.6 km) northeast of junction of Highways 185 and 186, 1.5 mi (2.4 km) south of Campo Rico, and 4.4 mi (7.1 km) south of Loisa.

DRAINAGE AREA. -- 9.84 mi* (25.48 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- March 1967 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 225 ft (68 m), from topographic map.

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

AVERAGE DISCHARGE.--24 years (1967-91), 28.0 ft³/s (0.793 m³/s), 38.64 in/yr (981 mm/yr), 20,290 acre-ft/yr (25.0 hm²/yr); median of yearly mean discharges, 25 ft³/s (0.71 m²/s), 18,100 acre-ft/yr (22 hm³/yr).

EXTREMES FOR PERIOD OF RECORD. --Maximum discharge, 15,000 ft³/s (425 m³/s), Sept. 13, 1982, gage height, 13.1 ft (3.993 m), from floodmarks, from rating curve extended above 350 ft³/s (9.91 m²/s) on basis of slope-area measurements and step-backwater analysis, minimum daily discharge, 0.80 ft³/s (0.023 m²/s), July 24, 1977.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 2,500 ft³/s (70.8 m³/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | Disch | | Gage height | | | | Discl | | Gage height | |
|---------|---------|---------|--------|-------------|--------------|---------|------|---------|--------|-------------|-------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (=) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 16 | unknown | 2,837 | 80.3 | 8.70 | 2.652 | Dec. 29 | 1715 | *3,159 | 89.5 | *9.00 | 2.743 |

Minimum discharge, 2.5 ft³/s (0.071 m³/s), July 19.

| DAILY MEAN VALUES | | | | | | | | | | | | |
|-------------------|--------------|-------------|------|------|------------|--------------|-------|-------|-------|-------|-------|--------------|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 26 | e24 | 46 | 169 | 15 | 10 | 8.5 | 7.6 | 4.9 | 15 | 3.2 | 4.4 |
| 2 | 12 | e21 | 57 | 57 | 13 | 10 | 7.7 | 8.2 | 6.0 | 11 | 3.3 | 4.3 |
| 2 3 | 23 | e19 | 132 | 42 | 14 | 12 | 6.9 | 7.5 | 6.0 | 5.6 | 3.3 | 4.1 |
| 4 | 37 | e18 | 31 | 34 | 13 | 21 | 8.8 | 7.1 | 4.7 | 4.2 | 3.3 | 3.9 |
| 5 | 43 | e21 | 31 | 40 | 12 | 17 | 7.6 | 7.5 | 4.9 | 3.8 | 3.4 | 3.7 |
| 6 | 21 | e1 9 | 23 | 49 | 12 | 22 | 7.4 | 7.6 | 5.0 | 3.5 | 3.6 | 4.0 |
| 7 | 278 | e 30 | 20 | 33 | 12 | 13 | 7.8 | 7.5 | 4.9 | 3.6 | 3.8 | 12 |
| 8 | ●90 | e2 0 | 19 | 29 | 11 | 11 | 22 | 15 | 5.0 | 11 | 3.9 | 12 |
| 9 | e 36 | 16 | 24 | 33 | 11 | 11 | 13 | 12 | 5.0 | 4.1 | 3.8 | 26 |
| 10 | e54 | 15 | 21 | 38 | 10 | 9.5 | 9.3 | 8.3 | 4.4 | 3.4 | 3.7 | 17 |
| 11 | e94 | 15 | 25 | 40 | 25 | 9.4 | 8.8 | 8.7 | 4.2 | 3.2 | 3.7 | 7.4 |
| 12 | e25 | 15 | 42 | 27 | 15 | 9.0 | 11 | 26 | 8.3 | 3.1 | 3.8 | 5.8 |
| 13 | e17 | 14 | 25 | 24 | 13 | 8.7 | 24 | 16 | 7.5 | 3.1 | 3.9 | 4.7 |
| 14 | e16 | 13 | 20 | 22 | 12 | 8.9 | 13 | 19 | 4.6 | 3.0 | 4.0 | 4.5 |
| 15 | e18 | 13 | 23 | 22 | 10 | e8.1 | 11 | 18 | 4.2 | 3.6 | 4.1 | 4.2 |
| 16 | e 330 | 17 | 19 | 22 | 9.5 | e8. 0 | 11 | 11 | 3.8 | 8.5 | 4.2 | 4.3 |
| 17 | ●60 | 14 | 18 | 20 | 9.2 | e7.8 | 9.7 | 9.0 | 3.6 | 5.7 | 4.8 | 14 |
| 18 | e4 6 | 12 | 15 | 19 | 23 | e18 | 9.1 | 9.0 | 3.5 | 3.4 | 9.2 | 10 |
| 19 | e 52 | 12 | 14 | 18 | 58 | e15 | 8.8 | 16 | 3.4 | 2.8 | 9.6 | 4.8 |
| 20 | e 33 | 17 | 14 | 17 | 59 | e9. 0 | 8.1 | 10 | 3.5 | 2.8 | 5.7 | 4.2 |
| 21 | e110 | 14 | 14 | 16 | 22 | ●8.0 | 7.7 | 8.1 | 6.4 | 2.7 | 5.7 | 3.7 |
| 22 | -40 | 35 | 16 | 16 | 16 | ●90 | 7.8 | 9.6 | 11 | 2 8 | 8.5 | 42 |
| 23 | e2 5 | 16 | 20 | 16 | 15 | e 25 | 7.7 | 9.6 | 5.2 | 2.8 | 11 | 15 |
| 24 | -4 0 | 13 | 17 | 15 | 13 | •11 | 7.4 | 6.6 | 5.0 | 2.7 | 6.6 | ●7 . 4 |
| 25 | e100 | 13 | 14 | 15 | 12 | e9. 0 | 7.6 | 7.4 | 4.3 | 2.7 | 4.8 | e6. 0 |
| 26 | e120 | 18 | 13 | 14 | 14 | e8.8 | 9.5 | 7.3 | 3.6 | 2.8 | 4.4 | •7.4 |
| 27 | e 60 | 79 | 24 | 14 | 11 | 8.6 | 7.7 | 5.5 | 3.4 | 3.2 | 8.0 | e1 9 |
| 28 | ●7 0 | 21 | 38 | 14 | e10 | 7.6 | 7.0 | 4.9 | 3.7 | 2.9 | 21 | e 50 |
| 29 | e 50 | 24 | 304 | 13 | | 7.3 | 6.8 | 4.9 | 3.8 | 3.1 | 8.1 | e2 0 |
| 30 | e68 | 28 | 117 | 13 | | 7.5 | 7.3 | 5.2 | 4.8 | 3.1 | 5.4 | -4 0 |
| 31 | e 30 | | 294 | 13 | | 7.4 | | 5.3 | | 3.2 | 4.6 | |
| TOTAL | 2024 | 606 | 1490 | 914 | 469.7 | 428.6 | 290.0 | 305.4 | 148.6 | 136.4 | 176.4 | 365.8 |
| MRAN | 65.3 | 20.2 | 48.1 | 29.5 | 16.8 | 13.8 | 9.67 | 9.85 | 4.95 | 4.40 | 5.69 | 12.2 |
| MAX | 330 | 79 | 304 | 169 | 59 | 90 | 24 | 26 | 11 | 15 | 21 | 50 |
| MIN | 12 | 12 | 13 | 13 | 9.2 | 7.3 | 6.8 | 4.9 | 3.4 | 2.7 | 3.2 | 3.7 |
| AC-PT | 4010 | 1200 | 2960 | 1810 | 932 | 850 | 575 | 606 | 295 | 271 | 350 | 726 |
| CFSM | 6.64 | 2.05 | 4.88 | 3.00 | 1.70 | 1.41 | .98 | 1.00 | .50 | .45 | .58 | 1.24 |
| IN. | 7.65 | 2.29 | 5.63 | 3.46 | 1.78 | 1.62 | 1.10 | 1.15 | .56 | . 52 | . 67 | 1.38 |

CAL YR 1990 TOTAL 8797.4 MEAN 24.1 MAX 330 MIN 5.6 AC-FT 17450 CFSM 2.45 IN. 33.26 WTR YR 1991 TOTAL 7354.9 MEAN 20.2 MAX 330 MIN 2.7 AC-FT 14590 CFSM 2.05 IN. 27.81

e Estimated

50061800 RIO CANOVANAS NEAR CAMPO RICO, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS AUGUST 1981 TO CURRENT YEAR

| DATE | TIME | STRRAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) |
|--------|--------|---------------------------------------|--------------------------------------|-----------------------------|---------|------|---------------------------------------|--------------------------------------|-----------------------------|
| OCT. 0 | 4 1512 | 28.6 | 150 | 27.0 | APR. 17 | 1348 | 9.84 | 200 | 28.5 |
| NOV. 0 | 8 1202 | 19 | 206 | 26.0 | MAY 23 | 1053 | 9.94 | 200 | 27.0 |
| DEC. 1 | 4 1430 | 19.1 | 208 | 25.5 | JUN. 13 | 1443 | 6.78 | 235 | 30.5 |
| JAN. 2 | 3 1146 | 16.4 | 203 | 22.5 | JUL. 17 | 1158 | 5.24 | 250 | 28.0 |
| FRB. 2 | 8 1037 | 10.4 | 254 | 22.0 | AUG. 16 | 0924 | 4.32 | 290 | 27.5 |
| MAR. 2 | 6 1415 | 42.9 | 205 | 25.0 | SEP. 20 | 0959 | 8.72 | 280 | 26.5 |

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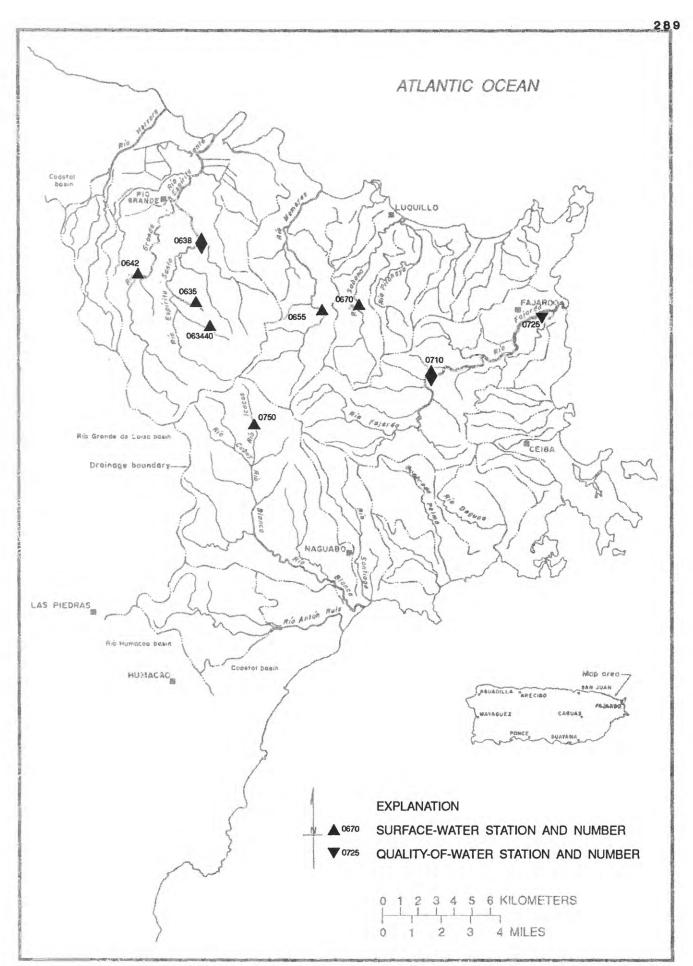


Figure 20.--Northeastern river basins the Río Herrera to Río Antón Ruíz basins.

50063440 QUEBRADA SONADORA NEAR EL VERDE, PR

LOCATION.--Lat 18°19'24", long 65°49'03", Hydrologic Unit 21010005, in Caribbean National Forest, at El Yunque, 0.6 mi (1.0 km) upstream from Río Espíritu Santo, 0.2 mi (0.3 km) upstream from Highway 186, and about 1.2 mi (1.9 km) south of El Verde.

DRAINAGE AREA .-- 1.01 mis (2.62 kms).

WATER-DISCHARGE RECORDS

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

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 1,230 ft (375 m), from topographic map.

REMARKS .-- Records poor.

AVERAGE DISCHARGE.-8 years (1984-91), 7.12 ft³/s (0.202 m³/s), 95.73 in/yr (2,432 mm/yr), 5,160 acre-ft/yr (6.36 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,230 ft³/s (63.2 m²/s), Dec. 7, 1987, gage height, 9.42 ft (2.871 m) from rating curve extended above 20 ft³/s (0.57 m³/s) on basis of step-backwater analysis; minimum discharge, 0.10 ft³/s (0.001 m³/s), Aug. 8-10, 15.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 500 ft2/s (14.2 m2/s) and maximum (*):

| | | Disc | harge | Gage | height | | | Disc | harge | Gage | height |
|--------|------|---------|--------|-------|--------|------|------|------------|--------|------|--------|
| Date | Time | (ft3/s) | (m)/s) | (ft) | (m) | Date | Time | (ft^3/s) | (m)/s) | (ft) | (m) |
| Oct. 7 | 1715 | *440 | 12.5 | *6.91 | 2.106 | | | | | | |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum daily discharge, 0.10 ft3/s (0.001 m3/s), Aug. 8-10, 15.

| | | | | | DAI | LY MEAN V | ALUES | | | | | |
|-------|--------|-------|--------|--------|--------|-----------|--------|--------|-------|-------|--------|--------|
| DAY | OCT | NOV | DEC | JAN | · FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 1.7 | 1.1 | 10 | 19 | 2.6 | 1.8 | 4.4 | 1.1 | .32 | 13 | .31 | . 84 |
| 2 | .41 | . 87 | 11 | 9.1 | .80 | 8.5 | 1.8 | . 96 | .26 | 1.8 | .51 | .73 |
| 3 | 2.4 | .70 | 31 | 5.1 | 3.2 | 10 | 7.1 | . 87 | e.25 | 1.1 | 2.3 | . 62 |
| 4 | 3.6 | . 65 | 7.2 | 3.7 | 3.9 | 4.5 | 2.6 | 7.6 | 0.24 | 1.3 | .27 | .54 |
| 5 | 6.0 | 3.3 | 3.4 | 8.0 | .52 | 5.6 | .95 | . 87 | 3.8 | .49 | .14 | .48 |
| 6 | 1.7 | . 99 | 1.1 | 14 | 14 | 4.5 | .79 | 7.7 | 1.8 | .33 | .13 | .49 |
| 7 | 28 | 1.7 | .73 | 3.4 | .91 | 1.9 | 1.6 | 2.0 | 2.5 | 1.0 | .11 | 1.1 |
| 8 | 4.8 | .80 | .55 | 5.1 | .41 | 2.1 | 27 | 22 | 2.9 | .59 | e.10 | . 60 |
| 9 | 1.9 | .41 | 1.3 | 6.5 | .39 | 1.4 | 3.6 | 5.8 | 3.8 | . 25 | e.10 | 2.4 |
| 10 | 9.8 | .74 | .64 | 14 | .37 | 1.0 | 4.8 | 2.2 | .49 | .18 | e.10 | 1.6 |
| 11 | 20 | -46 | .42 | 8.8 | 1.1 | 2.3 | 7.9 | 1.7 | 11 | e.16 | 0.11 | 3.4 |
| 12 | 1.5 | .39 | 1.1 | 3.4 | .38 | 1.5 | 14 | 20 | 7.2 | e.15 | e.12 | . 83 |
| 13 | .90 | .34 | 6.4 | 2.0 | .39 | 1.3 | 18 | 4.3 | 1.0 | 0.14 | .23 | .48 |
| 14 | .64 | .33 | 3.1 | 3.0 | .41 | 3.3 | 17 | 3.3 | .53 | 0.14 | e.11 | .38 |
| 15 | .50 | .32 | 1.9 | 4.2 | .52 | 1.0 | 17 | 2.1 | .41 | 15 | e.10 | .31 |
| 16 | 22 | 6.2 | 8.2 | 2.4 | .41 | .72 | 7.8 | . 99 | .30 | 24 | e.13 | .42 |
| 17 | 2.5 | 1.8 | 1.5 | 1.1 | .41 | .59 | 3.7 | .66 | .23 | 1.4 | 7.0 | 2.6 |
| 18 | 10 | . 52 | .56 | .74 | 30 | 19 | 5.2 | .45 | .21 | .56 | 5.2 | 1.9 |
| 19 | 4.5 | .35 | .66 | .56 | 22 | 9.4 | 2.7 | 2.1 | .25 | .37 | .84 | . 92 |
| 20 | 2.2 | .33 | .43 | .50 | 27 | 1.5 | 2.0 | 4.8 | .30 | . 35 | 1.5 | .41 |
| 21 | 33 | 6.0 | .41 | .46 | 7.7 | 1.0 | 1.7 | 1.8 | 3.0 | .24 | 8.3 | 1.5 |
| 22 | 1.9 | 5.7 | 1.8 | .45 | 5.1 | 46 | 1.6 | 3.8 | .86 | .20 | 32 | 19 |
| 23 | 1.0 | 2.4 | 4.4 | .43 | 5.8 | 5.7 | 1.4 | . 63 | 2.9 | e. 19 | 4.4 | 3.2 |
| 24 | 10 | .49 | 1.2 | .43 | 10 | 2.8 | 1.2 | .34 | .75 | 3.0 | 1.5 | 1.6 |
| 25 | 21 | .37 | .50 | .42 | 7.3 | 2.0 | 2.3 | 21 | .27 | .58 | 1.1 | 2.9 |
| 26 | 30 | 2.9 | .38 | .41 | 3.7 | 1.6 | 4.4 | 1.9 | 0.24 | .19 | .90 | 2.6 |
| 27 | 4.7 | 7.3 | 12 | .40 | 1.8 | 1.4 | 1.6 | 1.5 | 1.6 | .76 | 28 | 22 |
| 28 | 8.4 | 1.8 | 9.5 | .39 | 1.8 | 1.1 | 1.1 | .79 | .55 | . 68 | 5.1 | 3.5 |
| 29 | 5.4 | 5.9 | 41 | .38 | | . 89 | .94 | .58 | .87 | . 87 | 1.6 | 13 |
| 30 | 7.3 | 19 | 24 | .37 | | .79 | .83 | .44 | 16 | 2.3 | 1.1 | 10 |
| 31 | 1.7 | | 54 | 11 | | .71 | | .38 | | 1.8 | .95 | |
| TOTAL | 249.45 | 74.16 | 240.38 | 129.74 | 152.92 | 145.90 | 167.01 | 124.66 | 64.83 | 73.12 | 104.36 | 100.35 |
| MBAN | 8.05 | 2.47 | 7.75 | 4.19 | 5.46 | 4.71 | 5.57 | 4.02 | 2.16 | 2.36 | 3.37 | 3.34 |
| MAX | 33 | 19 | 54 | 19 | 30 | 46 | 27 | 22 | 16 | 24 | 32 | 22 |
| MIM | .41 | .32 | .38 | .37 | .37 | .59 | .79 | .34 | .21 | . 14 | .10 | .31 |
| AC-FT | 495 | 147 | 477 | 257 | 303 | 289 | 331 | 247 | 129 | 145 | 207 | 199 |
| CFSM | 7.97 | 2.45 | 7.68 | 4.14 | 5.41 | 4.66 | 5.51 | 3.98 | 2.14 | 2.34 | 3.33 | 3.31 |
| IN. | 9.19 | 2.73 | 8.85 | 4.78 | 5.63 | 5.37 | 6.15 | 4.59 | 2.39 | 2.69 | 3.84 | 3.70 |

CAL YR 1990 TOTAL 2713.63 MRAN 7.43 MAX 91 MIN .32 AC-FT 5380 CFSM 7.36 IN. 99.95 WTR YR 1991 TOTAL 1626.88 MRAN 4.46 MAX 54 MIN .10 AC-FT 3230 CFSM 4.41 IN. 59.92

e Estimated

50063440 QUEBRADA SONADORA NEAR EL VERDE, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD .-- WATER YEARS APRIL 1983 TO CURRENT YEAR

| DATE | | TIME | Streamflow, Instantaneous (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) | DATE | | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|--------|----|------|---------------------------------------|--------------------------------------|-----------------------------|------|----|------|---------------------------------------|--------------------------------------|-----------------------------|
| OCT. | 03 | 1135 | 5.50 | 56 | 24.0 | ABR. | 30 | 1233 | .83 | 62 | 24.0 |
| NOV. | 07 | 1401 | . 67 | 57 | 24.0 | MAY | 22 | 1234 | 10.2 | 50 | 23.5 |
| DEC. | 13 | 1232 | 1.29 | 78 | 21.0 | JUN. | 14 | 1211 | .52 | 60 | 24.5 |
| JAN. : | 16 | 1325 | 1.85 | 52 | 20.5 | JUL. | 18 | 1057 | .59 | 55 | 24.5 |
| FEB. 2 | 21 | 1448 | 7.10 | 52 | 22.5 | AUG. | 14 | 1329 | 1.39 | 64 | 25.5 |
| MAR. | 28 | 1307 | 1.06 | 60 | 22.5 | SRP. | 15 | 1205 | 2.04 | 70 | 23.5 |

50063500 QUEBRADA TORONJA AT EL VERDE, PR

LOCATION.--Lat 18°19'43", long 65°49'14", Hydrologic Unit 21010005, in Caribbean National Forest, at downstream side of culvert on Highway 186, 0.2 mi (0.3 km) upstream from Río Espíritu Santo, and about 0.9 mi (1.4 km) south of El Verde.

DRAINAGE ARRA. -- 0.064 mi2 (0.166 km2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and concrete broad-V-notch crested weir. Elevation of gage is 876 ft (267 m), from topographic map.

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

AVERAGE DISCHARGE.--8 years (1984-91), 0.31 ft³/s (0.009 m³/s), 65.78 in/yr (1,671 mm/yr), 224 acre-ft/yr (0.276 hm²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 101 ft²/s (2.86 m²/s), Aug. 13, 1990, gage height, 2.61 ft (0.796 m), from rating curve extended above 1.0 ft³/s (0.03 m²/s) on basis of step-backwater analysis; minimum discharge, no flow for part of each day Apr. 10, 17, 1983.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 13 ft³/s (0.37 m³/s) and maximum (*):

DISCHARGE, CURIC PERT DER SECOND, WATER VEAR OCTORER 1990 TO SEPTEMBER 1991

| | | Discharge | | Gage | height | | _ | | charge | Gage | height |
|--------|------|-----------|---------------------|-------|--------------|------|------|---------|---------------------|------|------------|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m ³ /s) | (ft) | (=) |
| Feb. 6 | 1530 | +12.0 | 0.34 | *1.61 | 0.491 | | | | | | |

Minimum daily discharge, 0.01 ft³/s (0.0003 m³/s), Aug. 5-11.

| DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES | | | | | | | | | | | | |
|--|-------|------|-------|------|------|------|-----------|------|------|-------|------|------|
| | | | | | | | VIII0 110 | | | | | |
| DAY | OCT | MOA | DEC | Jan | FEB | MAR | APR | MAY | JUN | JOL | AUG | SRP |
| 1 | .14 | . 18 | .42 | 1.1 | .11 | . 09 | | . 05 | .05 | .08 | e.02 | .03 |
| 2 3 4 | .10 | . 17 | .55 | . 64 | .09 | . 13 | | .05 | .05 | . 05 | e.02 | . 03 |
| 3 | .37 | . 15 | 1.1 | .45 | .12 | . 18 | | .05 | .05 | .06 | e.04 | . 02 |
| | .35 | . 16 | .33 | . 44 | .13 | . 17 | | . 13 | .05 | .05 | e.02 | . 02 |
| 5 | .26 | .21 | .20 | .45 | .10 | . 17 | .06 | . 05 | .08 | . 05 | e.01 | . 02 |
| 6 7 | .14 | . 14 | .15 | .43 | . 63 | . 13 | | .09 | .06 | .04 | e.01 | . 02 |
| 7 | .83 | . 15 | .13 | .34 | .15 | . 12 | . 07 | . 07 | .06 | . 04 | e.01 | . 07 |
| 8 | .28 | . 14 | .12 | .36 | .11 | . 13 | .75 | .38 | .06 | . 04 | e.01 | . 03 |
| 9 | .23 | . 13 | .14 | .30 | .10 | . 12 | .10 | . 08 | . 05 | .04 | e.01 | .04 |
| 10 | .48 | . 14 | .12 | .40 | .10 | . 12 | .09 | . 05 | . 05 | .03 | e.01 | .03 |
| 11 | .88 | . 12 | .11 | .33 | .32 | . 10 | .21 | . 05 | .11 | .03 | e.01 | . 04 |
| 12 | .25 | . 12 | .31 | .27 | .13 | . 09 | | .20 | .11 | . 03 | e.02 | . 03 |
| 13 | .18 | . 12 | .37 | . 22 | .12 | . 09 | | . 14 | .05 | . 03 | e.05 | .02 |
| 14 | . 15 | . 12 | .15 | .26 | .09 | . 09 | | . 08 | .05 | . 03 | e.03 | . 02 |
| 15 | .15 | . 11 | .16 | .21 | .09 | . 07 | | . 07 | .05 | .16 | .03 | .02 |
| 16 | 1.2 | .13 | . 65 | . 19 | .09 | . 08 | .17 | .06 | .05 | . 22 | .03 | . 03 |
| 17 | .37 | . 12 | .16 | . 17 | .08 | . 07 | | . 06 | . 05 | . 04 | .09 | . 05 |
| 18 | .42 | .10 | .14 | . 15 | .47 | . 15 | | . 05 | .05 | e. 04 | .06 | . 03 |
| 19 | .34 | . 09 | . 13 | . 15 | .37 | . 15 | | . 11 | .05 | e. 02 | .02 | .03 |
| 20 | .26 | . 09 | .12 | . 14 | . 65 | .08 | | .11 | .05 | e. 02 | .03 | . 03 |
| 21 | 1.2 | . 12 | .12 | . 13 | .18 | . 07 | .07 | . 07 | .07 | e. 02 | .13 | .04 |
| 22 | .31 | . 12 | .14 | . 12 | .14 | 1.0 | .07 | . 07 | .05 | e. 02 | .56 | . 22 |
| 23 | .24 | . 26 | .16 | . 12 | .12 | . 15 | | . 05 | .06 | e. 02 | .08 | . 07 |
| 24 | .32 | .10 | .13 | . 12 | .14 | .10 | | .05 | .04 | e.06 | .04 | . 05 |
| 25 | .88 | .08 | .11 | .11 | .12 | . 09 | | . 86 | .04 | e. 03 | .03 | . 05 |
| 26 | .96 | . 12 | .09 | . 10 | .10 | . 11 | 07 | .10 | .04 | e. 02 | .03 | .04 |
| 27 | .39 | . 15 | .38 | . 10 | .09 | .10 | | . 07 | .04 | e. 03 | .33 | . 23 |
| 28 | .37 | . 11 | .81 | . 09 | .10 | . 09 | | . 06 | .04 | e. 02 | .11 | . 07 |
| 29 | .26 | .21 | 1.6 | .09 | | .08 | | .05 | .04 | e. 03 | .04 | .18 |
| 30 | .26 | . 45 | .89 | .09 | | .08 | | . 05 | .08 | e. 05 | .03 | . 25 |
| 31 | .20 | | 2.1 | . 15 | | . 07 | | . 05 | | e. 04 | .03 | |
| TOTAL | 12.77 | 4.41 | 12.09 | 8.22 | 5.04 | 4.27 | 4.47 | 3.41 | 1.68 | 1.44 | 1.94 | 1.81 |
| MRAN | .41 | . 15 | .39 | .27 | .18 | .14 | | .11 | .056 | .046 | .063 | .060 |
| MAX | 1.2 | .45 | 2.1 | 1.1 | .65 | 1.0 | | . 86 | .11 | .22 | .56 | .25 |
| MIN . | .10 | .08 | .09 | .09 | .08 | .07 | | .05 | .04 | .02 | .01 | .02 |
| AC-FT | 25 | 8.7 | 24 | 16 | 10 | 8.5 | | 6.8 | 3.3 | 2.9 | 3.8 | 3.6 |
| CFSM | 6.87 | 2.45 | 6.50 | 4.42 | 3.00 | 2.30 | | 1.83 | .93 | .77 | 1.04 | 1.01 |
| IN. | 7.92 | 2.73 | 7.50 | 5.10 | 3.12 | 2.65 | | 2.11 | 1.04 | . 89 | 1.20 | 1.12 |
| | | | | | | 3.03 | | | | . ••• | | _, |

CAL YR 1990 TOTAL 114.32 MEAN .31 MAX 3.8 MIN .05 AC-FT 227 CFSM 5.22 IN. 70.88 WTR YR 1991 TOTAL 61.55 MEAN .17 MAX 2.1 MIN .01 AC-FT 122 CFSM 2.81 IN. 38.16

e Estimated

50063500 QUEBRADA TORONJA AT EL VERDE, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS APRIL 1983 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) |
|--------|--------|---------------------------------------|--------------------------------------|-----------------------------|---------|------|---------------------------------------|--------------------------------------|-----------------------------|
| OCT. 0 | 3 1246 | .34 | 88.9 | 24.5 | APR. 30 | 1312 | .06 | 92 | 24.5 |
| NOV. 0 | 7 1506 | .17 | 112 | 25.0 | MAY 22 | 1320 | .07 | 115 | 23.5 |
| DRC. 1 | 3 1355 | .22 | 104 | 22.5 | JUN. 14 | 1259 | .05 | 80 | 24.0 |
| JAN. 1 | 6 1426 | .18 | 80 | 22.0 | JUL. 16 | 0906 | .04 | 120 | 25.0 |
| FEB. 2 | 1 1543 | .17 | 104 | 23.5 | AUG. 14 | 1205 | .03 | 125 | 25.5 |
| MAR. 2 | 8 1407 | .09 | 87 | 23.5 | SRP. 13 | 1048 | .05 | 115 | 25.0 |

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR

LOCATION.--Lat 18°21'37", long 65°48'49", Hydrologic Unit 21010005, at left abutment, on downstream side of bridge on Highway 966, 0.1 mi (0.2 km) upstream from Quebrada Jiménez, and 1.9 mi (3.1 km) southeast of Río Grande.

DRAINAGE AREA. -- 8.62 mi 2 (22.33 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- February 1959 to April 1963 (annual low-flow and occasional measurements only), August 1966 to current year.

GAGE .-- Water-stage recorder and crest-stage gage. Elevation of gage is 40 ft (12 m), from topographic map.

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

AVERAGE DISCHARGE.--25 years (1967-91), 59.5 ft³/s (1.685 m³/s), 93.74 in/yr (2,381 mm/yr), 43,110 acre-ft/yr (53.2 hm²/yr); median of yearly mean discharges, 54 ft³/s (1.53 m³/s), 39,100 acre-ft/yr (48 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft³/s (544 m³/s), Aug. 13, 1990, gage height, 15.74 ft (4.798 m), from rating curve extended above 600 ft³/s (17.0 m³/s) on basis of step-backwater analysis and slope-area measurement of peak discharge, minimum discharge, 4.0 ft³/s (0.113 m³/s), July 3-5, 1975, Apr. 14, 15, 1984.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 3,000 ft³/s (85.0 m³/s) and maximum (*):

| Date | Time | | harge (m³/s) | Gage 1 (ft) | neight (m) | Date | Time | Dis (ft³/s) | charge (m³/s) | Gage (ft) | height (m) |
|--------|------|--------|-----------------|----------------|---------------|------|------|----------------|------------------|--------------|------------|
| Oct. 7 | 1800 | *2,700 | 76.5 | *7.01 | 2.137 | | | | | | |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum discharge, 6.8 ft³/s (0.192 m³/s), July 26, Aug. 2, 7, 8.

| | DAILY MEAN VALUES | | | | | | | | | | | | |
|---------------|-------------------|------|-------|------|------|------|------|------|------|-------|-------------|-------|--|
| DAY | OCT | NOA | DEC | Jan | FEB | MAR | APR | MAY | JUM | JUL | AUG | SEP | |
| 1 | 46 | 33 | 153 | 231 | 57 | 23 | 29 | 14 | 14 | 81 | 8.4 | 8.2 | |
| 2 | 24 | 30 | 101 | 111 | 30 | 43 | 22 | 14 | 14 | 21 | 7.2 | 8.5 | |
| 3 | 65 | 27 | 295 | 88 | 52 | 44 | 41 | 13 | 12 | 15 | 13 | 8.6 | |
| 4 | 78 | 26 | 67 | 90 | 61 | 37 | 29 | 45 | 12 | 18 | 8.5 | 8.2 | |
| 5 | 84 | 39 | 49 | 98 | 29 | 29 | 17 | 19 | 15 | 11 | 7.7 | 8.0 | |
| 6 | 41 | 32 | 24 | 121 | 205 | 31 | 15 | 40 | 29 | 9.6 | 7.2 | 8.1 | |
| 7 | 249 | 33 | 20 | 65 | 47 | 22 | 17 | 33 | 23 | 10 | 7.2 | 11 | |
| 8 | 86 | 29 | 18 | 75 | 26 | 22 | 168 | 138 | 18 | 14 | 7.0 | 11 | |
| 9 | 41 | 22 | 23 | 83 | 22 | 20 | 34 | 49 | 37 | 9.5 | e9.2 | 13 | |
| 10 | 94 | 24 | 20 | 118 | 22 | 17 | 27 | 37 | 16 | 8.8 | e9.8 | 16 | |
| 11 | 204 | 21 | 16 | 106 | 64 | 18 | 35 | 19 | 40 | 8.8 | e7.7 | 15 | |
| 12 | 42 | 21 | 17 | 57 | 31 | 20 | 60 | 142 | 39 | 8.2 | e7.7 | 11 | |
| 13 | 30 | 18 | 58 | 46 | 29 | 16 | 97 | 39 | 16 | 7.8 | e1 3 | 8.4 | |
| 14 | 27 | 18 | 42 | 52 | 23 | 23 | 153 | 28 | 11 | 9.0 | e9.8 | 8.9 | |
| 15 | 25 | 18 | 32 | 53 | 21 | 17 | 127 | 35 | 17 | 57 | 8.0 | 11 | |
| 16 | 365 | 51 | 86 | 51 | 20 | 15 | 63 | 21 | 14 | 123 | 8.1 | 11 | |
| 17 | 66 | 32 | 28 | 38 | 19 | 14 | 26 | 17 | 13 | 18 | 17 | 19 | |
| 18 | 92 | 23 | 19 | 33 | 191 | 72 | 24 | 17 | 13 | 11 | 58 | 17 | |
| 19 | 90 | 18 | 18 | 30 | 155 | 66 | 20 | 19 | 14 | 9.0 | 19 | 1.2 | |
| 20 | 42 | 17 | 16 | 29 | 213 | 19 | 17 | 62 | 12 | 9.2 | 14 | 10 | |
| 21 | 330 | 19 | 16 | 27 | 62 | 16 | 16 | 24 | 29 | 8.6 | 57 | 14 | |
| 22 | 51 | 74 | 26 | 26 | 42 | 329 | 16 | 42 | 21 | 8.3 | 217 | 115 | |
| 23 | 35 | 38 | 35 | 25 | 41 | 41 | 16 | 20 | 29 | 7.8 | 36 | 26 | |
| 24 | 59 | 22 | 22 | 25 | 48 | 22 | 15 | 16 | 18 | 13 | 12 | 16 | |
| 25 | 256 | 20 | 18 | 24 | 41 | 19 | 18 | 191 | 13 | 11 | 9.1 | 21 | |
| 26 | 284 | 40 | 14 | 23 | 31 | 18 | 22 | 30 | 11 | 7.1 | 8.1 | 22 | |
| 27 | 83 | 75 | 66 | 23 | 22 | 17 | 16 | 24 | 20 | 9.4 | 123 | 152 | |
| 28 29 | 113 | 33 | 122 | 22 | 21 | 15 | 14 | 17 | 19 | 9.4 | 44 | 32 | |
| 30 | 80 9 0 | 62 | 435 | 22 | | 15 | 13 | 15 | 23 | 11 | 12 | 67 | |
| 30 31 | 41 | 169 | 243 | 21 | | 18 | 13 | 14 | 143 | 9.1 | 9.3 | 91 | |
| | | | 498 | 67 | | 20 | | 14 | | 18 | 8.6 | | |
| TOTAL MEAN | 3213 | 1084 | 2597 | 1880 | 1625 | 1098 | 1180 | 1208 | 705 | 571.6 | 783.6 | 779.9 | |
| | 104 | 36.1 | 83.8 | 60.6 | 58.0 | 35.4 | 39.3 | 39.0 | 23.5 | 18.4 | 25.3 | 26.0 | |
| MAX MIN | 365 | 169 | 498 | 231 | 213 | 329 | 168 | 191 | 143 | 123 | 217 | 152 | |
| AC-PT | 24 | 17 | 14 | 21 | 19 | 14 | 13 | 13 | 11 | 7.1 | 7.0 | 8.0 | |
| AC-FT CFSM | 6370 | 2150 | 5150 | 3730 | 3220 | 2180 | 2340 | 2400 | 1400 | 1130 | 1550 | 1550 | |
| IN. | 12.0 | 4.19 | 9.72 | 7.04 | 6.73 | 4.11 | 4.56 | 4.52 | 2.73 | 2.14 | 2.93 | 3.02 | |
| TM. | 13.87 | 4.68 | 11.21 | 8.11 | 7.01 | 4.74 | 5.09 | 5.21 | 3.04 | 2.47 | 3.38 | 3.37 | |

CAL YR 1990 TOTAL 28316 MEAN 77.6 MAX 1180 MIN 14 AC-PT 56160 CFSM 9.00 IN. 122.20 WTR YR 1991 TOTAL 16725.1 MEAN 45.8 MAX 498 MIN 7.0 AC-PT 33170 CFSM 5.32 IN. 72.18

e Estimated

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1958, 1961-66, 1968 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | • | FIMB | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SPR- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPE ATUF WATE (DEG | E BI | D- 1 | YGEN, DIS- DLVED MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI FORM FECA 0.45 UM-M (COLS | , STREP- L, TOCOCCI FECAL, F (COLS. ./ PER |
|-------------------|----------|--|---|--|--|---|---|--|---|---|---|---|--|
| NOV 1990 02 | | 1245 | 31 | 98 | 7.9 | 24 | 5.0 2 | .5 | 8.2 | 100 | <10 | 0 42 | 00 K160 |
| DEC | | | | | | | | | | | | | |
| 04 FEB 1991 | | 0910 | 63 | 64 | 6.8 | 21 | .5 13 | 1 | 8.9 | 99 | 1 | 7 K1 | |
| 07 AP R | (| 0835 | 42 | 67 | 7.0 | 19 | .5 1 | 5 | 9.2 | 100 | 2: | 3 K11 | 00 3700 |
| 05 JUN | (| 0810 | 17 | 103 | 6.9 | 23 | .5 2 | .5 | 8.3 | 97 | 1: | 1 470 | 00 380 |
| 06 | : | 1010 | 23 | 79 | 7.5 | 25 | 5.5 4 | .4 | 8.2 | 100 | 10 |) K18 | 00 3500 |
| AUG 05 | : | 1300 | 7.5 | 110 | 7.9 | 30 | .5 1 | 5 | 7.9 | 100 | <10 | 0 | 10 40 |
| DATE | NI TY | ARD- BSS OTAL MG/L AS ACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIU DIS- SOLVE (MG/ AS) | M, 1 SOI D T1 L RAT | IP- 1 ION SO IO (1 | OTAS- SIUM, DIS- OLVED MG/L S K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFA B DIS- SOLV (MG/ AS SO | DIS- RD SOLVED L (MG/L |
| 02 | | 31 | 0 | 6.9 | 3.4 | 7. | . 6 | 0.6 | 0.60 | 34 | <0. | 5 1. | 9 11 |
| DEC 04 | | | | | | | | | | 16 | | | |
| FEB 1991 07 | | | | | | | | | | 20 | | | |
| APR 05 | | 33 | • | 7.0 | | | | | | - | .0.1 | | |
| JUN | | 33 | 1 | 7.3 | 3.6 | 8. | • • | 0.6 | 0.80 | 33 | <0. | 52. | 0 11 |
| 06 AUG | | | | | | | | · - | | 23 | | | |
| 05 | | 36 | 1 | 7.5 | 4.1 | 8. | .3 | 0.6 | 0.70 | 43 | | 1. | 9 11 |
| | DATE | RI E SC (M | DR, D DIS- S(DLVED (1 IG/L) | LICA, SUN IS- CON OLVED TUE MG/L I AS SO | STI- NTS, S SIS- (SLVED | LIDS, DIS- OLVED TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATI TOTAL (MG/L AS N) | G B NIT TO (M | EN, RITE NO TAL T G/L (| GEN, 2+NO3 A OTAL MG/L | NITRO- GEN, MMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
| 02 | 1990 | • | 0.10 | 18 | 70 | 5.75 | <1 | 0.09 | 0 | . 010 | 0.100 | 0.030 | 0.27 |
| | ١ | | | | | | 3 | 0.19 | 0 | .010 | 0.200 | 0.060 | 0.24 |
| | 1991 | | | | | | 13 | 0.19 | ٥ | .010 | 0.200 | 0.020 | 0.68 |
| APR | · · · · | | 0.10 | 15 | 68 | 3.19 | 1 | 0.04 | | | 0.053 | 0.030 | 0.27 |
| JUN | 5 | | | | | | 3 | 0.05 | _ | | 0.068 | 0.030 | |
| AUG | | | | | | | _ | 0.04 | | | 0.050 | 0.020 | 0.38 |
| | 5 4 | deal c | | 19 | 78 | 1.59 | <1 | 0.04 | , U | . 010 | · . USU | V. V4V | V.36 |
| K = | .wa-1 | GAET C | June | | | | | | | | | | |

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| NOV 1990 | | | | | | | | | | |
| 02 DBC | 0.30 | 0.40 | 1.8 | <0.010 | <1 | <100 | <10 | <1 | 1 | 10 |
| 04 FEB 1991 | 0.30 | 0.50 | 2.2 | 0.050 | | | | | | |
| 07 APR | 0.70 | 0.90 | 4.0 | 0.050 | | | | | | |
| 05 JUN | 0.30 | 0.35 | 1.6 | 0.010 | <1 | <100 | <10 | <1 | <1 | 10 |
| 06 AUG | <0.20 | | | 0.030 | | | | | | |
| 05 | 0.40 | 0.45 | 2.0 | 0.030 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 02 DEC | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| NOV 1990 02 DEC 04 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 02 DEC 04 FEB 1991 07 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 02 DEC 04 FEB 1991 07 APR 05 | TOTAL RECOV- ERABLE (UG/L AS FR) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 02 DEC 04 FEB 1991 07 | TOTAL RECOV- ERABLE (UG/L AS FR) 240 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) <10 | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) 2 | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.03 |

50064200 RIO GRANDE NEAR EL VERDE, PR

LOCATION.--Lat 18°20'54", long 65°50'30", Hydrologic Unit 21010005, on left bank 250 ft (7.6 m) upstream side of bridge at Hwy 960, 0.05 mi (0.08 km) southwest of junction of Highways 956 and 960, 1.1 mi (1.8 km) west of El Verde, and 2.7 mi (4.3 km) south of Río Grande.

DRAINAGE AREA. -- 7.31 mi* (18.93 km*).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- May 1967 to December 1970, January 1972 to September 1982, August 1990 to current year.

GAGE. -- Water-stage recorder. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--14 years (1968-70, 1973-82, 1991), 45.4 ft³/s (1.286 m³/s), 84.34 in/yr, (2,142 mm/yr), 32,890 acre-ft/yr (40.4 hm³/yr); median of yearly mean discharges, 39 ft³/s (1.10 m³/s), 28,200 acre-ft/yr (35 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ft²/s (493 m²/s), Sept. 16, 1975, gage height, 15.5 ft (4.724 m), but may have been exceeded by flood of Dec. 9, 1975, from rating curve extended above 100 ft²/s (2.83 m²/s) on basis of slope-area measurement of peak flow, datum then in use; minimum discharge, 1.6 ft³/s (0.045 m²/s) Mar. 13, 1977.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 3,000 ft³/s (85.0 m³/s) and maximum (*):

| | | | narge | Gage : | height | | | | harge | Gage | height |
|---------|------|---------|--------|--------|--------|------|------|---------|--------|------|--------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 16 | 1630 | *4,100 | 116 | *11.62 | 3.542 | | | | | | |

Minimum discharge, 2.1 ft3/s (0.059 m3/s), Aug. 16.

| | | DI SCHARGE | CUBIC | FRET PER | | WATER Y MRAN | YEAR OCTOBER VALUES | 1990 TO | September | 1991 | | |
|-------|-------|------------|-------|----------|------|-----------------|------------------------|---------|-----------|-------|-------|-------|
| DAY | OCT | MOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 23 | 28 | 85 | 147 | 28 | 14 | 9.0 | 8.3 | 7.9 | 41 | 4.0 | 2.9 |
| 2 | 11 | 25 | 73 | 68 | 18 | 19 | 9.1 | 8.2 | 9.8 | 14 | 3.5 | 2.6 |
| 3 | 45 | 22 | 172 | 49 | 26 | 19 | 9.0 | 7.5 | 8.3 | 8.8 | 3.5 | 2.7 |
| 4 | 59 | 21 | 63 | 47 | 18 | 37 | 9.7 | 10 | 7.0 | 11 | 3.3 | 2.7 |
| 5 | 64 | 24 | 37 | 64 | 14 | 30 | 8.6 | 8.8 | 8.0 | 7.4 | 3.1 | 2.6 |
| 6 | 22 | 23 | 24 | 79 | 44 | 26 | 7.8 | 11 | 11 | 6.1 | 3.0 | 2.6 |
| 7 | 151 | 34 | 21 | 40 | 22 | 17 | 8.5 | 12 | 9.2 | 6.9 | 3.1 | 4.1 |
| 8 | 117 | 24 | 19 | 46 | 14 | 15 | 57 | 50 | 7.5 | 6.0 | 2.8 | 4.4 |
| 9 | 42 | 18 | 21 | 68 | 12 | 15 | 20 | 20 | 9.4 | 5.5 | 2.8 | 9.8 |
| 10 | 62 | 17 | 19 | 78 | 12 | 12 | 12 | 15 | 6.8 | 5.4 | 2.6 | 8.2 |
| 11 | 107 | 16 | 17 | 64 | 38 | 12 | 11 | 10 | 6.4 | 5.5 | 2.6 | 5.5 |
| 12 | 28 | 16 | 17 | 37 | 18 | 12 | 29 | 78 | 20 | 5.4 | 2.5 | 4.7 |
| 13 | 22 | 15 | 20 | 33 | 19 | 11 | 48 | 22 | 9.5 | 5.1 | 2.7 | 3.5 |
| 14 | 19 | 14 | 24 | 32 | 13 | 11 | 55 ` | 17 | 7.0 | 4.9 | 2.5 | 2.7 |
| 15 | 21 | 14 | 23 | 31 | 12 | 10 | 26 | 23 | 11 | 13 | 2.2 | 2.5 |
| 16 | 261 | 30 | 36 | 34 | 11 | 9.9 | | 16 | 6.5 | 53 | 2.3 | 2.7 |
| 17 | 65 | 18 | 20 | 25 | 11 | 9.7 | | 11 | 5.9 | 13 | 2.8 | 3.9 |
| 18 | 51 | 16 | 16 | 22 | 92 | 23 | 11 | 13 | 5.6 | 7.4 | 9.2 | 5.2 |
| 19 | 58 | 14 | 15 | 21 | 99 | 19 | 9.7 | 18 | 5.6 | 5.9 | 7.3 | 3.0 |
| 20 | 36 | 19 | 13 | 20 | 110 | 11 | 9.1 | 24 | 5.2 | 5.7 | 5.4 | 2.5 |
| 21 | 182 | 16 | 13 | 19 | 41 | 9.8 | 8.8 | 12 | 30 | 5.2 | 15 | 5.6 |
| 22 | 40 | 70 | 21 | 17 | 28 | 111 | 8.7 | 15 | 14 | 5.0 | 39 | 79 |
| 23 | 29 | 24 | 30 | 17 | 30 | 25 | 8.8 | 12 | 14 | 4.8 | 15 | 12 |
| 24 | 44 | 17 | 17 | 17 | 23 | 13 | 8.6 | 9.2 | 11 | 4.8 | 4.5 | 6.0 |
| 25 | 146 | 17 | 14 | 16 | 24 | 11 | 8.2 | 39 | 6.9 | 4.9 | 3.3 | 5.6 |
| 26 | 134 | 38 | 12 | 15 | 23 | 11 | 12 | 17 | 6.0 | 4.2 | 3.0 | 8.9 |
| 27 | 65 | 85 | 61 | 15 | 15 | 10 | 8.5 | 15 | 12 | 5.0 | 43 | 135 |
| 28 | 81 | 26 | 83 | 14 | 14 | 9.4 | | 9.9 | 11 | 4.3 | 23 | 30 |
| 29 | 55 | 49 | 224 | 14 | | 8.7 | | 8.6 | 10 | 3.8 | 5.3 | 57 |
| 30 | 75 | 68 | 122 | 14 | | 8.7 | | 8.0 | 28 | 4.0 | 3.6 | 36 |
| 31 | 33 | | 250 | 25 | | 8.7 | | 7.7 | | 4.5 | 3.1 | |
| TOTAL | 2148 | | 1582 | 1188 | 829 | 558.9 | | 536.2 | 310.5 | 280.6 | 229.0 | 454.0 |
| MEAN | 69.3 | | 1.0 | 38.3 | 29.6 | 18.0 | | 17.3 | 10.3 | 9.05 | 7.39 | 15.1 |
| MAX | 261 | 85 | 250 | 147 | 110 | 111 | | 78 | 30 | 53 | 43 | 135 |
| MIN | 11 | 14 | 12 | 14 | 11 | 8.7 | | 7.5 | 5.2 | 3.8 | 2.2 | 2.5 |
| AC-FT | 4260 | | 140 | 2360 | 1640 | 1110 | | 1060 | 616 | 557 | 454 | 901 |
| CFSM | 9.48 | | 5.98 | 5.24 | 4.05 | 2.47 | | 2.37 | 1.42 | 1.24 | 1.01 | 2.07 |
| IN. | 10.93 | 4.16 | 3.05 | 6.05 | 4.22 | 2.84 | 2.41 | 2.73 | 1.58 | 1.43 | 1.17 | 2.31 |

WTR YR 1991 TOTAL 9408.0 MEAN 25.8 MAX 261 MIN 2.2 AC-FT 18660 CFSM 3.53 IN. 47.88

50064200 RIO GRANDE NEAR EL VERDE, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- OCTOBER 1990 TO SEPTEMBER 1991

| DATE TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) |
|--------------|---------------------------------------|--------------------------------------|-----------------------------|---------|------|---------------------------------------|--------------------------------------|-----------------------------|
| OCT. 04 1111 | 47.2 | 80 | 26.0 | APR. 17 | 1059 | 12.6 | 107 | 25.0 |
| NOV. 07 1141 | 18.4 | 129 | 26.5 | MAY 16 | 1105 | 15.7 | 105 | 27.5 |
| DRC. 13 0948 | 16.4 | 130 | 23.5 | JUN. 13 | 1219 | 9.09 | 110 | 29.5 |
| FEB. 21 1030 | 38.2 | 90 | 24.0 | JUL. 17 | 1349 | 11.4 | 100 | 28.5 |
| MAR. 28 1115 | 9.10 | 96 | 25.0 | AUG. 13 | 1615 | 2.97 | 166 | 32.5 |

rio mambyes basin 299

50065500 RIO MAMEYES NEAR SABAMA, PR

LOCATION.--Lat 18°19'46", long 65°45'04", Hydrologic Unit 21010005, on left bank, at bridge on Highway 908, 1.4 mi (2.3 km) west of Sabana, 2.0 mi (3.2 km) downstream from Río de la Mina, and 3.2 mi (5.1 km) southeast of Mameyes.

DRAINAGE AREA. -- 6.08 mi2 (17.82 km2),

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- August 1967 to December 1973. June 1903 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 275 ft (04 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation estellite telemetry at station.

AVERAGE DISCHARGE.--14 years (1968-73, 1984-91), 57.7 ft 3 /s (1.634 m^3 /s), 113.89 in/yr (2,093 mm/yr), 41,800 agre-ft/yr (51.5 hm 3 /yr); median of yearly mean discharges, 59 ft 3 /s (1.67 m^3 /s), 42,700 agre-ft/yr (53 hm 3 /yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,500 ft³/s (580 m³/s), Sept. 10, 1909, gage height, 13.19 ft (4.020 m), from rating curve extended above 1,000 ft³/s (51.0 m³/s) on basis of slope-area measurement of peak flow, minimum discharge, 5.1 ft³/s (0.144 m³/s), Apr. 8, 9, 1970.

EXTREMES FOR CURRENT YEAR, -- Peak discharges greater than base discharge of 4,000 ft³/s (113 m³/s) and maximum (*):

| Date | Time | Disch (ft³/s) | arge (m³/o) | Gage (ft) | height (m) | Date | Time | Dieci (ft³/e) | harge (m³/o) | (gage h (ft) | ejght (m) |
|------------------|--------------|------------------|----------------|--------------|----------------|---------|------|------------------|-----------------|-----------------|--------------|
| Oct. 7 July 1 | 1730 0345 | 7,050 5,580 | 200 150 | 9.03 8.34 | 2,752 2,542 | Aug. 22 | 1615 | *7,140 | 202 | *9. 07 | 2.764 |

DISCHARGE, CUBIC FEST PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum discharge, 9.0 ft3/s (0.255 m3/s), Apr. 30, May 1.

| | DAILY MEAN VALUES | | | | | | | | | | | | |
|------------------|-------------------|------|-------------|------|------|-------|-------------|------|---------------|------------|----------|-------------|--|
| DAY | OCT | MOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | |
| 1 | 39 | 44 | 143 | 145 | 34 | 19 | 23 | 22 | 35 | e314 | 18 | 20 | |
| 2 | 34 | 37 | 66 | 94 | 21 | 32 | 19 | 12 | 20 | e38 | 17 | 19 | |
| 1 2 3 4 | 69 | 31 | 322 | 69 | 48 | 45 | 18 | 19 | 17 | e33 | 33 | 1Ó | |
| 4 | 54 | 65 | e350 | 63 | 180 | 30 | 19 | 42 | 17 | 39 | 20 | 16 | |
| 5 | 44 | 74 | -46 | 61 | 46 | 41 | 14 | 15 | 43 | 27 | 27 | 16 15 | |
| 6 7 0 | 30 | 44 | e35 | 07 | 169 | 30 | 13 | 50 | 36 | 23 | 22 | 15 | |
| 7 | 214 | 48 | e31 | 59 | 49 | 25 | 24 | 42 | 30 | 22 | 19 | 17 | |
| 0 | 69 | 36 | #2 0 | 66 | 29 | 34 | 105 | 103 | 28 | 22 | 10 | e18 | |
| 9 | 55 | 29 | e3 6 | 57 | 25 | 24 | 26 | 40 | 40 | 21 | 18 | e47 | |
| 10 | 104 | 32 | •31 | 107 | 23 | 20 | 22 | 32 | 10 | 19 | 17 | e 38 | |
| 11 | 149 | 28 | e30 | 89 | 26 | 28 | 34 | 41 | 71 | 19 | 17 | e26 | |
| 12 | 46 | 25 | # 60 | 49 | 44 | 22 | 36 | 138 | 67 | 19 | 17 | e23 | |
| 13 | 37 | 23 | 44 | 37 | 37 | 23 | 68 | 27 | 24 | 17 | 35 | 10 | |
| 14 | 31 | 22 | 98 | 36 | 26 | 36 | 82 | 21 | 23 | 16 | 17 | 15 | |
| 15 | 32 | 24 | 44 | 46 | 27 | 20 | 61 | 21 | 32 | 69 | 18 | 14 | |
| 16 | 153 | 66 | 52 | 37 | 21 | 16 | 38 | 15 | 19 | 00 | 10 | 17 | |
| 17 | 80 | 47 | 34 | 29 | 19 | 14 | 50 | 15 | 18 | 23 | 50 | 31 | |
| 10 | 163 | 29 | 24 | 26 | 114 | 150 | 27 | 18 | 22 | 10 | 07 | 22 | |
| 19 | 113 | 22 | 23 | 24 | 104 | 74 | 17 | 23 | 30 | 18 | 40 | 18 | |
| 20 | 61, | 28 | 31 | 23 | 111 | 21 | 14 | 48 | 25 | 19 | 58 | 16 | |
| 21 | 187 | 45 | 20 | 22 | 43 | 19 | 13 | 59 | 54 | 16 | 103 | 35 | |
| 22 | 60 | 89 | 26 | 21 | 30 | 192 | 19 | 116 | 32 | 17 | 313 | 97 | |
| 23 | 44 | 32 | 35 | 21 | 34 | 51 | 14 | 30 | 66 | 17 | 70 | 40 | |
| 24 | 59 | 26 | 27 | 20 | 76 | 27 | 11 | 22 | 29 | 20 | 36 | 32 | |
| 25 | 102 | 27 | 20 | 19 | 51 | 24 | 10 | 59 | 31 | -17 | 31 | 52 | |
| 26 | 163 | 48 | 10 | 18 | 31 | 21 | 26 | 23 | 18 | e21 | 38 | 54 | |
| 27 | 109 | 63 | 46 | 1,7 | 21 | 20 | 13 | 21 | 33 | 25 | 113 | 140 | |
| 20 | 115 | 35 | 03 | 17 | 21 | 18 | 11 | 20 | 49 | 20 | 55 | 52 | |
| 29 | 92 | 75 | 194 | 16 | | 17 | 10 | 19 | 31 | 22 | 26 | 111 | |
| 30 | 130 | 167 | 135 | 16 | | 15 | 9,2 | 30 | 185 | 33 | 23 23 | 103 | |
| 31 | 52 | | 241 | 70 | | 15 | | 20 | - | 32 | 23 | | |
| TOTAL | 2690 | 1361 | 2262 | 1461 | 1460 | 1139 | 824.2 | 1153 | 1114 | 1104 | 1390 | 1147 | |
| MEYN | 86.0 | 45.4 | 73.0 | 47.1 | 52.1 | 36.7 | 27.5 | 37.2 | 37.1 | 35.6 | 44.8 | 38.2 | |
| MAX | 214 | 167 | 350 | 145 | 180 | 192 | 105 | 130 | 185 | 314 | 313 | 148 | |
| MIN | 30 | 22 | 18 | 16 | 19 | 14 | 9.2 | 12 | 17 | 16 | 17 | 14 | |
| AC-PT | 5340 | 2708 | 4490 | 2900 | 2900 | 33 60 | 1638 | 2290 | 2210 | 2190 | 2760 | 2200 | |
| Cysm | 12.6 | 6.59 | 10.6 | 6.85 | 7.50 | 5.34 | 3,99 | 5.41 | 5.40 | 5.10 | 6.52 | 5.56 | |
| IN. | 14.54 | 7.36 | 12.33 | 7.90 | 7,89 | 6.16 | 4.46 | 6.23 | 6.02 | 5.97 | 7.52 | 6.20 | |

CAL YR 1990 TOTAL 21974.0 MEAN 60.2 MAX 945 MIN 14.0 AC-FT 43590 CFSM 0.75 IN. 118.01 WTR YR 1991 TOTAL 17105.2 MEAN 46.9 MAX 350 MIN 9.2 AC-FT 33930 CFSM 6.01 IN. 92.49

e Estimated

RIO MAMEYES BASIN

50065500 RIO MAMEYES NEAR SABANA, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS JUNE 1983 TO CURRENT YEAR

| DATE | 7 | rime | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | | TIME | Streamflow, Instantaneous (CPS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|--------|-----|------|---------------------------------------|--------------------------------------|-----------------------------|------|----|------|---------------------------------------|--------------------------------------|-----------------------------|
| OCT. 0 | 2 1 | 1346 | 51.8 | 95 | 26.0 | APR. | 16 | 1439 | 35.2 | 104 | 25.0 |
| NOV. 0 | 6 1 | 1625 | 37.1 | 92 | 26.5 | MAY | 21 | 1638 | 78.2 | 90 | 26.5 |
| DEC. 1 | 2 1 | 1336 | 55.8 | 104 | 23.0 | JUN. | 18 | 1345 | 23.8 | 110 | 28.0 |
| JAN. 1 | 8 1 | L207 | 27.8 | 75 | 22.5 | JUL. | 11 | 1512 | 19.7 | 120 | 28.0 |
| FEB. 1 | 3 1 | 1428 | 30.8 | 96 | 23.0 | AUG. | 13 | 1302 | 22.4 | 124 | 28.5 |
| MAR. 2 | 0 1 | L609 | 20.4 | 96 | 26.0 | SEP. | 15 | 1300 | 21.1 | 100 | 27.5 |

RIO SABANA BASIN 301

50067000 RIO SABANA AT SABANA, PR

LOCATION.--Lat 18°19'52", long 65°43'52", Hydrologic Unit 21010005, on right bank along Highway 988, 0.3 mi (0.5 km) north of junction of Highways 988 and 983 in Sabana, and 3.3 mi (5.3 km) south of Luquillo.

DRAINAGE AREA. -- 3.96 mi 2 (10.26 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- October 1979 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 260 ft (80 m), from topographic map.

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

AVERAGE DISCHARGE.--12 years (1980-91), 19.6 ft³/s (0.555 m³/s), 67.21 in/yr (1,707 mm/yr), 14,200 acre-ft/yr (17.5 hm²/yr); median of yearly mean discharges, 20 ft³/s (0.57 m³/s), 14,500 acre-ft/yr (18 hm²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,010 ft³/s (255 m²/s), Apr. 21, 1983, gage height, 19.35 ft (5.898 m), from floodmark, from rating curve extended above 200 ft³/s (5.66 m³/s) on basis of step-backwater analysis and slope-area measurement; minimum discharge, 0.86 ft³/s (0.024 m³/s), Apr. 17, 1983.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 1,500 ft³/s (42.5 m³/s) and maximum (*):

| | | Discl | harge | Gage height | | | | Disc | harge | Gage 1 | height |
|---------|------|---------|--------|-------------|-------|---------|------|---------|--------|--------|--------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/≈) | (ft) | (m) |
| Oct. 7 | 1730 | 2,310 | 65.4 | 13.34 | 4.066 | June 30 | 1100 | *4,520 | 128 | *15.80 | 4.816 |
| Oct. 16 | 1200 | 1,660 | 47.0 | 12.39 | 3.776 | Aug. 22 | 1615 | 2,750 | 77.9 | 13.90 | 4.237 |

Minimum discharge, 1.4 ft³/s (0.040 m³/s), Apr. 29, 30, May 1, 2.

| | | DI S CHA | RGE, CUBI | C FERT PR | | WATER YE Y MEAN VA | | R 1990 TO | SEPTEMBE | R 1991 | | |
|-------|------------|-----------------|-----------|--------------|--------------|-----------------------|-------|-----------|----------|-------------|-------|-------|
| DAY | OCT | MOA | DRC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 3.9 | e18 | 89 | 50 | 7.9 | 5.2 | 5.5 | 2.0 | 19 | e 80 | 4.9 | 4.7 |
| 2 | 15 | e 16 | 16 | 26 | 4.5 | 4.6 | 4.0 | 1.8 | 3.9 | e25 | 4.8 | 4.9 |
| 3 | 21 | e15 | 115 | 13 | 6.7 | 4.9 | 4.0 | 5.1 | 2.7 | 17 | 9.0 | 4.5 |
| 4 | 9.8 | e14 | 23 | e16 | 26 | 4.5 | 3.4 | 8.4 | 2.8 | 12 | 10 | 4.3 |
| 5 | 5.6 | e 30 | 16 | e19 | 8.4 | 7.6 | 2.7 | 2.6 | 23 | 7.3 | 9.6 | 4.3 |
| 6 | 14 | e18 | 12 | e25 | 29 | 6.6 | 2.9 | 7.9 | 40 | 5.9 | 6.3 | 4.1 |
| 7 | 137 | 17 | 11 | e17 | 8.6 | 5.3 | 4.6 | 21 | 15 | 5.2 | 5.6 | 4.0 |
| 8 | 22 | 14 | 11 | e19 | 4.5 | 6.9 | 16 | 55 | 4.4 | 4.3 | 5.5 | 3.8 |
| 9 | 28 | 12 | 13 | e17 | e4 .3 | 5.9 | 6.4 | 5.8 | 5.0 | 4.1 | 5.0 | 13 |
| 10 | 72 | 11 | 11 | e31 | 04.1 | 5.1 | 3.8 | 9.6 | 3.7 | 4.0 | 4.8 | 9.8 |
| 11 | 81 | 11 | 9.1 | e 26 | -4.4 | 10 | 4.4 | 4.6 | 23 | 3.9 | 4.9 | 5.6 |
| 12 | 13 | 10 | 13 | e15 | e7.6 | 5.9 | 3.3 | 148 | 7.8 | 3.8 | 5.3 | 4.9 |
| 13 | 9.4 | 10 | 9.1 | e11 | e 6.6 | 5.3 | 5.1 | 7.5 | 3.7 | 3.7 | 5.5 | 4.2 |
| 14 | 8.2 | 10 | 67 | e10 | 5.3 | 6.0 | 8.1 | 4.1 | 3.0 | 3.6 | 5.0 | 4.0 |
| 15 | 7.3 | 10 | 13 | e1 3 | 6.2 | 5.2 | 5.4 | 3.8 | 2.7 | 15 | 8.3 | 3.7 |
| 16 | 156 | 13 | 8.7 | e11 | 3.9 | 4.6 | 6.6 | 3.5 | 2.4 | 18 | 8.9 | 4.0 |
| 17 | 58 | 12 | 8.7 | e9. 0 | 3.3 | 4.6 | 3.7 | 8.4 | 2.3 | 5.9 | 22 | 13 |
| 18 | 157 | 11 | 6.9 | 7.2 | 10 | 7.3 | 3.4 | 11 | 5.8 | 4.5 | 36 | 4.8 |
| 19 | 57 | 8.8 | 6.6 | 7.0 | 37 | 8.8 | 3.0 | 4.4 | 7.3 | 5.2 | 9.3 | 3.9 |
| 20 | 25 | 20 | 6.0 | 6.8 | 33 | 4.8 | 2.7 | 8.8 | 2.7 | 7.0 | 31 | 3.5 |
| 21 | 109 | 18 | 6.0 | 6.4 | 8.7 | 4.0 | 2.7 | 45 | 3.7 | 4.5 | 49 | 4.5 |
| 22 | 25 | 13 | 6.6 | 5.6 | 5.2 | 72 | 13 | 135 | 2.9 | 4.2 | 226 | 15 |
| 23 | 33 | 9.3 | 6.9 | 5.5 | 4.9 | 11 | 4.9 | 10 | 19 | 4,3 | 25 | 6.6 |
| 24 | 31 | 8.7 | 6.3 | 5.5 | 15 | 4.8 | 2.1 | 5.5 | 4.1 | 4.8 | 7.3 | 5.4 |
| 25 | 45 | 7.7 | 4.8 | 5.1 | 10 | 4.2 | 1.8 | 7.0 | 2.8 | 4.4 | 5.7 | 7.6 |
| 26 | 65 | 8.9 | 4.4 | 4.7 | 8.7 | 4.2 | 2.6 | 4.6 | 2.4 | 4.1 | 5.0 | 18 |
| 27 | 24 | 10 | 6.3 | 4.5 | 5.1 | 4.9 | 2.1 | 3.5 | 4.8 | 4.4 | 62 | 99 |
| 28 | 21 | 8.5 | 21 | 4.3 | 7.0 | 3.2 | 2.4 | 3.3 | 3.9 | 6.2 | 24 | 19 |
| 29 | 21 | 13 | 148 | 4.4 | | 3.3 | 1.7 | 2.9 | 6.9 | 7.1 | 7.6 | 32 |
| 30 | e52 | 91 | 50 | 4.0 | | 3.4 | 1.5 | 2.8 | 328 | 4.6 | 6.0 | 43 |
| 31 | e21 | | 195 | 12 | | 3.3 | | 2.9 | | 8.5 | 5.9 | |
| TOTAL | 1347.2 | 468.9 | 920.4 | 411.0 | 285.9 | 237.4 | 133.8 | 545.8 | 558.7 | 292.5 | 625.2 | 359.1 |
| MRAN | 43.5 | 15.6 | 29.7 | 13.3 | 10.2 | 7.66 | 4.46 | 17.6 | 18.6 | 9.44 | 20.2 | 12.0 |
| MAX | 157 | 91 | 195 | 50 | 37 | 72 | 16 | 148 | 328 | 80 | 226 | 99 |
| MIN | 3.9 | 7.7 | 4.4 | 4.0 | 3.3 | 3.2 | 1.5 | 1.8 | 2.3 | 3.6 | 4.8 | 3.5 |
| AC-FT | 2670 | 930 | 1830 | 815 | 567 | 471 | 265 | 1080 | 1110 | 580 | 1240 | 712 |
| CFSM | 11.0 | 3.95 | 7.50 | 3.35 | 2.58 | 1.93 | 1.13 | 4.45 | 4.70 | 2.38 | 5.09 | 3.02 |
| IN. | 12.66 | 4.40 | 8.65 | 3.86 | 2.69 | 2.23 | 1.26 | 5.13 | 5.25 | 2.75 | 5.87 | 3.37 |

CAL YR 1990 TOTAL 7604.0 MEAN 20.8 MAX 569 MIN 2.2 AC-FT 15080 CFSM 5.26 IN. 71.43 WTR YR 1991 TOTAL 6185.9 MEAN 16.9 MAX 328 MIN 1.5 AC-FT 12270 CFSM 4.28 IN. 58.11

e Estimated

RIO SABANA BASIN

50067000 RIO SABANA AT SABANA, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD, -- WATER YEARS AUGUST 1981 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) | DATE | TIME | STREAMFLOW, INSTANTAMEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|--------|--------|---------------------------------------|--------------------------------------|-----------------------------|---------|------|---------------------------------------|--------------------------------------|-----------------------------|
| OCT. 0 | 2 1047 | 17.6 | 110 | 26.0 | APR. 16 | 1037 | 8.55 | 96 | 24.5 |
| NOV. 0 | 6 1259 | 16.7 | 103 | 27.5 | MAY 21 | 1433 | 6.40 | 120 | 28.0 |
| DRC. 1 | 1 1546 | 7.52 | 130 | 24.0 | JUN. 17 | 1428 | 2.35 | 130 | 30.0 |
| JAN. 1 | 7 1335 | 6.41 | 90 | 24.5 | JUL. 11 | 1050 | 3.71 | 122 | 27.0 |
| FEB. 1 | 3 1045 | 12.5 | 93 | 23.0 | AUG. 15 | 1510 | 7.38 | 120 | 28.0 |
| MAR. 2 | 1 1213 | 4.56 | 90 | 25.0 | SEP. 27 | 1526 | 314 | 74 | 26.0 |

50071000 RIO FAJARDO MEAR FAJARDO, PR

LOCATION.--Lat 18°17'56", long 65°41'42", Hydrologic Unit 21010005, on left bank off Highway 976, 0.1 mi (0.2 km) upstream from Highway 977 bridge, 0.3 mi (0.5 km) downstream from Quebrada Peñón, 1.1 mi (1.8 km) northeast of Colonia Paraíso, and 3.3 mi (5.3 km) southwest of Fajardo.

DRAINAGE AREA. -- 14.9 mi 2 (38.6 km2).

WATER-DISCHARGE BECORDS

PERIOD OF RECORD. -- 1960-61 (occasional low and peak-flow measurements only), March 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 137.60 ft (41.940 m) above mean sea level. Due to flood damage, gage datum has had changes as follows: Mar. 24, 1961 to May 5, 1969, 138.95 ft (42.352 m), May 6, 1969 to Mar. 16, 1972, 135.05 ft (41.163 m); Mar. 17, 1972 to Mar 25, 1975, 138.60 ft (42.245 m).

REMARKS.--Records fair. Low flow affected by diversions for water supply about 400 m upstream from gaging station (estimated mean daily discharges is 9.0 ft³/s (0.255 m³/s). Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--30 years (1962-91), 68.1 ft³/s (1.928 m³/s), 62.07 in/yr (1,576 mm/yr), 49,340 acre-ft/yr (60.8 hm²/yr); median of yearly mean discharges, 69 ft³/s (1.95 m³/s), 50,000 acre-ft/yr (62 hm²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,500 ft³/s (665 m³/s), Sept. 18, 1989, gage height, 20.00 ft (6.096 m), datum then in use, from rating curve extended above 100 ft³/s (2.83 m³/s) on basis of step-backwater analysis, slope-area measurements, and contracted opening of peak discharges; minimum discharge, 0.86 ft³/s (0.024 m'/s), May 3, 1984.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 3,500 ft3/s (99.1 m3/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

| | | Discl | charge Gage height | | | | | Disc | harge | Gage 1 | neight |
|--------------------|--------------|----------------|--------------------|--------------|----------------|-------------------|--------------|-----------------|---------------------|----------------|----------------|
| Date | Time | (£t³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) |
| Oct. 16 Dec. 29 | 1250 1700 | 4,490 4,170 | 127 118 | 8.78 8.51 | 2.676 2.594 | June 30 July 1 | 1215 0415 | 3,520 *6,360 | 99.7 180 | 7.94 *10.18 | 2.420 3.103 |

Minimum discharge, 4.9 ft3/s (0.139 m3/s), Aug. 14.

| DAY | OCT | MOA | DEC | jan | PEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------------|------|------|--------|------|------|-------|-------|--------|--------|----------|-------|-------|
| 1 2 3 | 27 | 54 | 62 | 127 | 27 | 15 | 12 | 11 | 27 | 613 | 7.3 | 12 |
| 2 | 46 | 43 | 35 | 84 | 12 | 16 | 10 | 10 | 15 | 66 | 5.7 | 11 |
| 3 | 54 | 38 | 221 | 46 | 20 | 15 | 9.5 | 42 | 11 | 41 | 12 | 8.7 |
| 4 | 42 | 100 | 49 | 36 | 166 | 17 | 10 | 63 | 9.0 | 37 | 19 | 8.0 |
| 5 | 26 | 87 | 33 | 42 | 34 | 19 | 11 | 20 | 19 | 26 | 9.8 | 7.8 |
| 6 7 | 35 | 62 | 24 | 48 | 150 | 21 | 9.1 | 21 | 51 | 21 | 7.6 | 7.6 |
| 7 | 185 | 75 | 20 | 36 | 34 | 14 | 22 | 27 | 30 | 21 | 7.3 | 6.9 |
| 8 | 58 | 47 | 18 | 33 | 20 | 15 | 63 | 100 | 16 | 17 | 8.6 | 6.7 |
| 9 | 110 | 34 | 17 | 29 | 14 | 12 | 30 | 36 | 20 | 15 | 7.1 | 12 |
| 10 | 125 | 31 | 17 | 59 | 12 | 10 | 20 | 50 | 13 | 14 | 6.1 | 17 |
| 11 | 204 | 28 | 14 | 50 | 14 | 9.5 | 17 | 34 | 79 | 13 | 6.6 | 12 |
| 12 | 52 | 27 | 28 | 29 | 48 | 8.7 | 17 | 207 | 38 | 14 | 6.4 | 29 |
| 13 | 45 | 24 | 19 | 27 | 35 | 9.4 | 127 | 26 | 17 | 13 | 6.6 | 9.3 |
| 14 | 34 | 21 | 24 | 24 | 16 | 16 | 86 | 16 | 12 | 12 | 5.5 | 7.1 |
| 15 | 63 | 20 | 22 | 26 | 17 | 9.6 | 79 | 23 | 15 | 45 | 7.1 | 6.6 |
| 16 | 510 | 23 | 25 | 29 | 12 | 7.9 | 54 | 19 | 9.5 | 62 | 7.4 | 8.1 |
| 17 | 198 | 22 | 24 | 20 | 11 | 7.4 | 24 | 16 | 8.0 | 19 | 27 | 15 |
| 18 | 245 | 23 | 14 | 18 | 114 | 21 | 14 | 18 | 15 | 13 | 66 | 12 |
| 19 | 204 | 17 | 11 | 16 | 209 | 34 | 10 | 19 | 11 | 12 | 19 | 7.9 |
| 20 | 86 | 19 | 11 | 15 | 65 | 12 | 17 | 28 | 8.8 | 13 | 34 | 6.3 |
| 21 | 286 | 20 | 11 | 14 | 44 | 13 | 15 | 35 | 36 | 11 | 61 | 7.2 |
| 22 | 76 | 24 | 16 | 14 | 28 | 141 | 23 | 84 | 22 | 10 | 260 | 40 |
| 23 | 63 | 19 | 15 | 13 | 35 | 51 | 19 | 28 | 27 | 9.7 | 47 | 14 |
| 24 | 66 | 14 | 14 | 14 | 42 | 26 | 13 | 19 | 16 | 14 | 19 | 10 |
| 25 | 116 | 23 | 12 | 12 | 33 | 21 | 14 | 24 | 10 | 14 11 | 14 | 11 |
| 26 | 144 | 23 | 9.9 | 10 | 27 | 18 | 21 | 18 | 8.1 | 7.5 | 9.7 | 19 |
| 27 | 76 | 33 | 9.4 | 10 | 18 | 16 | 15 | 16 | 17 | 9.3 | 97 | 95 |
| 28 | 152 | 19 | 27 | 12 | 16 | 12 | 14 | 13 | 31 | 9.2 | 50 | 30 |
| 29 | 73 | 30 | 278 | 12 | | 11 . | 11 | 11 | 37 | 14 | 19 | 73 |
| 30 | 207 | 75 | 88 | 11 | | 9.5 | 9.7 | 8.6 | 499 | 9.1 | 14 | 62 |
| 31 | 65 | | 450 | 55 | | 9.5 | | 13 | | 18 | 15 | |
| TOTAL | 3673 | 1075 | 1618.3 | 971 | 1273 | 617.5 | 796.3 | 1055.6 | 1127.4 | 1209.8 | 881.8 | 572.2 |
| MRAN | 118 | 35.8 | 52.2 | 31.3 | 45.5 | 19.9 | 26.5 | 34.1 | 37.6 | 39.0 | 28.4 | 19.1 |
| MAX | 510 | 100 | 450 | 127 | 209 | 141 | 127 | 207 | 499 | 613 | 260 | 95 |
| MIN | 26 | 14 | 9.4 | 10 | 11 | 7.4 | 9.1 | 8.6 | 8.0 | 7.5 | 5.5 | 6.3 |
| AC-PT | 7290 | 2130 | 3210 | 1930 | 2520 | 1220 | 1580 | 2090 | 2240 | 2400 | 1750 | 1130 |
| | | = | | | | | 1000 | | | | | |

1.34

1.78

2.29

2.52

2.62 3.02

1.91

1.28

TOTAL 20177.6 MEAN 55.3 MAX 982 MIN 6.8 AC-FT 40020 CFSM 3.71 IN. 50.38 TOTAL 14870.9 MEAN 40.7 MAX 613 MIN 5.5 AC-FT 29500 CFSM 2.73 IN. 37.13

3.05

2.10

CFSM

7.95

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1960 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TRMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DRMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|---|---|---|--|--|---|---|---|---|---|---|
| OCT 1990 02 | 1400 | 70 | 112 | 8.1 | 28.5 | 7.0 | 8.0 | 102 | 12 | 2000 | 8600 |
| DEC 03 | 0930 | 298 | 93 | 6.8 | 23.5 | 95 | 8.0 | 93 | 34 | 60000 | 37000 |
| FRB 1991 | | 35 | | | | | | 90 | | 380 | |
| 05 APR | 0900 | | 91 | 7.1 | 21.5 | 3.5 | 8.0 | | 15 | | 2100 |
| 04 Jun | 0855 | 13 | 135 | 6.9 | 25.0 | 5.9 | 8.6 | 103 | <10 | K10 | K27 |
| 04 Aug | 0950 | 9.0 | 130 | 7.1 | 26.5 | 0.90 | 7.7 | 95 | <10 | K590 | 460 |
| 06 | 1135 | 7.0 | 130 | 8.2 | 30.0 | 1.0 | 8.4 | 109 | <10 | K60 | K190 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS MONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNR- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDR TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 | | | | _ | | | | | | | |
| 02 Dec | 28 | 2 | 6.6 | 2.8 | 9.8 | 0.8 | 1.4 | 28 | <0.5 | 3.8 | 12 |
| 03 FEB 1991 | | | | | | | | 56 | | | ~- |
| 05 APR | | | | | | | | 20 | | | |
| 04 JUN | 44 | 0 | 10 | 4.7 | 14 | 0.9 | 3.6 | 38 | <0.5 | 3.6 | 16 |
| 04 | | | | | | | | 36 | | | |
| 06 | 32 | 1 | 6.8 | 3.7 | 13 | 1 | 1.2 | 30 | | 3.2 | 14 |
| | | | SOL | IDS, | re s | IDUE | | | | | |
| וּמ | RI I SC ATB () | DR, DI DIS- SC DLVED (M G/L A | LVRD TUR IG/L D S SO | STI- D NTS, SO IS- (T LVED P | ONS SU | 105 G . C, NIT S- TO DED (M | EN, G PRATE NIT PTAL TO EG/L (M | EN, G RITE NO2 TAL TO G/L (M | EN, G +NO3 AMM TAL TO G/L (N | EN, G KONIA ORG YTAL TO KG/L (M | TRO- BEN, BANIC TAL IG/L |
| OCT 19 | | | . ^ | | | | | | | | |
| 02 Dec | | | 2 | | 4.1 | | | | | | 0.19 |
| 03 FEB 19 | 991 | | | • | | | | | | | 0.68 |
| 05 APR | •• | | | | | 21 0 | .28 0 | .021 0 | .300 0 | .021 | 0.38 |
| 04 JUN | < | 0.10 2 | 5 | 100 | 3.53 | 14 0 | .120 0 | .020 0 | .140 0 | .050 | |
| 04 AUG | • | | | | | 61 0 | .063 0 | .010 0 | .073 0 | .040 | 0.56 |
| AUG 06 | • • | 0.20 2 | 4 | 84 | 1.60 | 4 | <0 | .010 0 | .058 <0 | .010 | |
| F - m | n-ideal c | | | | | | | | | | |

K = non-ideal count

<0.01 <0.01

<0.01

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|------------------|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 02 D@C | 0.20 | 0.30 | 1.3 | 0.030 | <1 | <100 | 20 | <1 | <1 | 30 |
| 03 PEB 1991 | 0.80 | 1.0 | 4.4 | 0.130 | | | | | | |
| 05 | 0.40 | | | 0.041 | | | | | | |
| APR 04 JUN | <0.20 | | | 0.040 | <1 | <100 | <10 | <1 | 1 | <10 |
| 04 AUG | 0.60 | 0.67 | 3.0 | <0.010 | | | | | | |
| 06 | 0.20 | 0.26 | 1.1 | 0.010 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | | | | | | | | | | |
| 02 DEC | 530 | 7 | 40 | <0.10 | <1 | <1 | 10 | <0.010 | 2 | 0.04 |
| 03 | | | | | | | | | | |
| FEB 1991 05 | | | | | | | | •- | | |
| APR | | | | | | | | - | | |
| 04 Jun | 360 | 2 | 20 | <0.10 | <1 | <1 | 20 | <0.010 | <1 | 0.03 |
| 04 · · · AUG | | | | | | | | | | |
| 06 | | | | | | | | | | |
| | | | | PESTICI | DE ANALYS | ES | | | | |
| | | | | CHLOR- | | | | DI- | DI- | ENDO- |
| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | AZINON, TOTAL (UG/L) | ELDRIN TOTAL (UG/L) | SULFAN, TOTAL (UG/L) |
| JUN 1991 | | | | | | | | | | |
| 04 | 0950 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| DATE | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL | METHYL PARA- THION, TOTAL (UG/L) | METHYL TRI- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
| | (46/11) | (03/11) | (00/11) | (49/11) | (v.a, n) | (03/11) | (UG/L) | (44) | (44/11) | (44) 11) |
| JUN 1991 04 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| | - | NAF | H- | | | | | | | |
| | | TH LEN | λ- 12 a | | | | | | | |
| | PAR | A- POI | Y- PE | | x- to | | | | | |
| DA | THI TOT | | | | | II- 2,4 ON TOTA | | | | |
| | | /L) (UG/ | | | | /L) (UG | | /L) (UG/ | | /L) |

JUN 1991 04...

<0.01 <0.10

<0.1

<1

<0.01 <0.01

50072500 RIO FAJARDO BELOW FAJARDO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°19'35", long 65°38'47", 1.2 mi (1.9 km) southwest of Playa de Fajardo, and 0.5 mi (0.8 km) east of Fajardo plaza.

DRAINAGE AREA.--23.4 mi2 (60.6 km2).

PERIOD OF RECORD .-- Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | ŦI | næ | DIS- CHARGE, INST. CUBIC FRET PER SECONI | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STANI ARD UNIT: | WAT | re b er i | ID- Ty £ | KYGRN, DIS- BOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS., 100 ML) | FECAL, (COLS. PER |
|----------------|--------------------------------|-----------------------|---|---|---|---|---|--|---|---|---|---|---|
| NOV 1990 07 | 0.6 | 355 | 61 | 150 | 7.4 | | 5.5 | 8.0 | 6.8 | 82 | <10 | K80 | 510 |
| DEC | | _ | - | | | | | | | | | | |
| 03 FEB 1991 | | 145 | R500 | 117 | 6.9 | 2 | 4.5 9 | 3 | 8.0 | 94 | 26 | | |
| 05 APR | 10 | 40, | 54 | 114 | 7.3 | 1 2: | 3.0 | 9.1 | 8.4 | 97 | 17 | 590 | 3800 |
| 04 JUN | 10 | 145 | 10 | 219 | 7.0 |) 2 | 7.5 | 1.5 | 8.4 | 105 | <10 | 420 |) K10 |
| 04 | 12 | 145 | 9.4 | 184 | 8.0 | 2 | 9.0 | 1.4 | 9.6 | 124 | <10 | K100 | K120 |
| 06 | 13 | 30 | 8.5 | 174 | 8.0 | 3 | 1.5 | 2.5 | 8.6 | 111 | <10 | 10 | 120 |
| DATE | Har Nes Tot (Mg As | S AL J/L | HARD- NESS NONCARE WH WAT TOT FLI MG/L AS CACO3 | DIS- SOLVRI | DIS- SOLVI (MG/1 | d, SODI Dis ED SOLVE | UM, - SO ED T /L RA | AD- RP- ION 4 FIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATI DIS- SOLVE! (MG/L AS SO4) | DIS- D SOLVED (MG/L |
| NOV 1990 07 | | 44 | 0 | 11 | 4.3 | L 13 | | 0.8 | 1.3 | 34 | <0.5 | 6.1 | 21 |
| DEC 03 | - | | | | | _ | - | | | 31 | | | |
| FEB 1991 05 | _ | | | | | _ | _ | | | 26 | | | |
| APR 04 | | 57 | 0 | 14 | 5.4 | 1 19 | | 1 | 1.5 | 50 | <0.5 | 5.5 | 34 |
| JUN 04 | | | | | | | | _ | | | | | |
| AUG | _ | | | | | _ | | | | 30 | | | |
| 06 | | 47 | 0 | 11 | 4.7 | 7 19 | | 1 | 1.2 | 39 | | 4.4 | 25 |
| | DATE | RII D SO: (M | DE, I IS- S LVED (G/L | LICA, ST DIS- CO SOLVED TO (MG/L AS 4 | OLIDS, IM OF 4 ONSTI- JENTS, DIS- GOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO GEN, NITRAT TOTAI (MG/1 AS N) | , G TB NIT L TO L (M | EN, C RITE NO: TAL T G/L (1 | GEN, 2+NO3 AM OTAL T MG/L (| GEN, MONIA O OTAL ! MG/L | NITRO- GEN, RGANIC FOTAL (MG/L AS N) |
| NOV 07 | 1990 | 4 1 | 0.10 | 23 | 100 | 16.6 | <1 | 0.33 | 70 N | .030 | 0.400 | 0.040 | 0.16 |
| DEC | ••• | | | | | | 91 | | | | | 0.080 | 0.22 |
| FRB | 1991 | | | | | | 13 | | | | | 0.060 | 0.44 |
| APR | ••• | | 0.10 | 23 | 132 | | | | | | | | |
| JUN | | 1 | 0. TO | | 134 | 3.61 | 3 | | | | | 0.040 | |
| λUG | ••• | | | | | | 3 | | | | | 0.020 | 1.2 |
| 06 | ••• | (| 0.20 | 23 | 112 | 2.57 | 8 | 0.00 | 63 0 | .020 | 0.083 | 0.030 | 0.27 |

K = non-ideal count
E = estimate

50072500 RIO FAJARDO BELOW FAJARDO, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|---|---|---|---|--|-------------------------------------|---|---|---|--|---|
| NOV 1990 | | | | | | | | | | |
| 07 Dæc | 0.20 | 0.60 | 2.7 | 0.030 | <1 | <100 | 20 | <1 | <1 | <10 |
| 03 FRB 1991 | 0.30 | 0.50 | 2.2 | 0.140 | | | | | | |
| 05 | 0.50 | 0.70 | 3.1 | 0.030 | | | | | | |
| APR 04 JUN | <0.20 | | | 0.030 | <1 | <100 | 20 | <1 | <1 | <10 |
| 04 AUG | 1.2 | 1.4 | 6.0 | 0.040 | | | | | | |
| 06 | 0.30 | 0.38 | 1.7 | 0.040 | | | | | | |
| | IRON, TOTAL RECOV- | LEAD, TOTAL RECOV- | Manga - Nese, Total Recov- | MERCURY TOTAL RECOV- | SKLE- NIUM, | SILVER, TOTAL RECOV- | ZINC, TOTAL RECOV- | CYANIDE | | METHY- LENE BLUE ACTIVE SUB- |
| DATE | ERABLE (UG/L AS FE) | ERABLE (UG/L AS PB) | ERABLE (UG/L AS MN) | ERABLE (UG/L AS HG) | TOTAL (UG/L AS SE) | ERABLE (UG/L AS AG) | erable (UG/L AS ZN) | TOTAL (MG/L AS CN) | PHRNOLS TOTAL (UG/L) | STANCE (MG/L) |
| NOV 1990 07 | (UG/L | (UG/L | (UG/L | (UG/L | (UG/L | ERABLE (UG/L | (UG/L | (MG/L | TOTAL | STANCE |
| NOV 1990 | (UG/L As Pe) | (UG/L AS PB) | (UG/L AS MN) | (UG/L AS HG) | (UG/L AS SE) | ERABLE (UG/L AS AG) | (UG/L AS ZN) | (MG/L AS CN) | TOTAL (UG/L) | STANCE (MG/L) |
| NOV 1990 07 DEC 03 FEB 1991 | (UG/L AS FE) 840 | (UG/L AS PB) | (UG/L AS MN) 120 | (UG/L AS HG) <0.10 | (UG/L AS SE) | ERABLE (UG/L AS AG) | (UG/L AS ZN) | (MG/L AS CN) <0.010 | TOTAL (UG/L) | STANCE (MG/L) 0.03 |
| NOV 1990 07 DEC 03 FEB 1991 05 | (UG/L AS FE) 840 | (UG/L AS PB) | (UG/L AS MN) 120 | (UG/L AS HG) <0.10 | (UG/L AS SE) <1 | KRABLE (UG/L AS AG) <1 | (UG/L AS ZN) 10 | (MG/L AS CN) <0.010 | TOTAL (UG/L) 5 | STANCE (MG/L) 0.03 |
| NOV 1990 07 DEC 03 FEB 1991 05 APR 04 JUN | (UG/L AS FE) 840 | (UG/L AS PB) | (UG/L AS MN) 120 | (UG/L AS HG) <0.10 | (UG/L AS SE) <1 | ERABLE (UG/L AS AG) <1 | (UG/L AS ZN) 10 | (MG/L AS CN) <0.010 | TOTAL (UG/L) | STANCE (MG/L) 0.03 |
| NOV 1990 07 DRC 03 FEB 1991 05 APR | (UG/L AS FE) 840 | (UG/L AS PB) | (UG/L AS MN) 120 | (UG/L AS HG) <0.10 | (UG/L AS SE) <1 | KRABLE (UG/L AS AG) <1 | (UG/L AS ZN) 10 | (MG/L AS CN) <0.010 | TOTAL (UG/L) 5 | STANCE (MG/L) 0.03 |
| NOV 1990 07 DBC 03 FBB 1991 05 APR 04 JUN 04 | (UG/L AS FE) 840 | (UG/L AS PB) | (UG/L AS MN) 120 | (UG/L AS HG) <0.10 <0.10 | (UG/L AS SE) <1 | KRABLE (UG/L AS AG) <1 | (UG/L AS ZN) 10 | (MG/L AS CN) <0.010 | TOTAL (UG/L) 5 | STANCE (MG/L) 0.03 0.02 |

RIO BLANCO BASIN

50075000 RIO ICACOS NEAR NAGUABO, PR

LOCATION.--Lat 18°16'38", long 65°47'09", Hydrologic Unit 21010001, in Caribbean National Forest, off Highway 191, at El Yunque, 1.6 mi (2.6 km) upstream from confluence with Río Cubuy, 2.8 mi (4.5 km) north of Florida, and 5.3 mi (8.5 km) northwest of Naguabo Plaza.

DRAINAGE AREA. -- 1.26 mi 2 (3.26 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- July 1945 to March 1953 (operated by Puerto Rico Water Resources Authority), annual maximum, water years 1953-62, annual low-flow measurements 1962-66, October 1979 to current year.

GAGE,--Water-stage recorder, crest-stage gage and sharp-crested weir. Elevation of gage is 2,020 ft (616 m), from topographic map.

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

AVERAGE DISCHARGE.--19 years (1946-52, 1980-91), 14.8 ft²/s (0.419 m²/s), 159.51 in/yr (4,052 mm/yr), 10,720 acre-ft/yr (13.2 hm²/yr); median of yearly mean discharges, 14 ft²/s (0.40 m²/s), 10,100 acre-ft/yr (12 hm²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,860 ft²/s (81.0 m²/s), Apr. 21, 1983, gage height, 8.96 ft (2.731 m), from rating curve extended above 30 ft²/s (0.85 m²/s) on basis of step-backwater analysis; minimum daily discharge, 1.5 ft²/s (0.042 m²/s), Mar. 22, Apr. 10, 1946.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 650 ft³/s (18.4 m³/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | Discharge | | Gage | height | | | Discharge | | Gage height | |
|---------|------|-----------|--------|------|--------------|--------|------|-------------|--------|-------------|--------------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Dec. 29 | 1630 | 678 | 19.2 | 5.38 | 1.640 | Feb. 6 | 1445 | *783 | 22.2 | *5.67 | 1.728 |

Minimum discharge, 3.6 ft³/s (0.102 m³/s), Aug. 2-10, 12, 14-17.

| | DAILY MEAN VALUES | | | | | | | | | | | | |
|-------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|------------|------------|--------------|--|
| DAY | OCT | NOV | DEC | Jan | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | |
| 1 | 9.8 | 11 | 24 | 26 | 9.1 | 8.3 | 7.5 | 5.7 | 6.9 | 44 | 3.9 | 4.1 | |
| | 9.2 | 10 | 16 | 15 | 8.2 | 9.9 | 6.8 | 5.3 | 6.7 | 8.3 | 4.0 | 4.1 | |
| 2 3 4 | 17 | 9.9 | 68 | 11 | 12 | 10 | 10 | 5.8 | 6.4 | 10 | 4.2 | 4.2 | |
| | 13 | 12 | 16 | 10 | 41 | 8.5 | 6.7 | 9.7 | 6.2 | 7.2 | 3.7 | 4.2 | |
| 5 | 11 | 12 | 11 | 13 | 11 | 10 | 6.0 | 5.5 | 9.5 | 6.0 | 3.8 | 4.3 | |
| 6 | 7.6 | 9.8 | 9.0 | 14 | 66 | 9.2 | 6.0 | 6.4 | 9.0 | 5.6 | 4.0 | 4.3 | |
| 7 | 33 | 18 | 7.9 | 10 | 9.9 | 8.0 | 9.9 | 10 | 7.4 | 5.6 | 3.6 | 4.9 | |
| 8 | 19 | 9.8 | 7.4 | 15 | 8.2 | 8.9 | 40 | 26 | 7.9 | 5.3 | 3.6 | 4.2 | |
| 9 | 20 | 9.1 | 8.7 | 14 | 7.6 | 7.6 | 8.8 | 11 | 8.8 | 5.2 | 3.6 | 6.1 | |
| 10 | 29 | 8.9 | 7.3 | 20 | 7.4 | 7.1 | 10 | 8.5 | 6.8 | 5.2 | 3.7 | 4.8 | |
| 11 | 32 | 9.1 | 6.9 | 17 | 8.0 | 7.5 | 8.3 | 24 | 14 | 5.2 | 3.9 | 5.7 | |
| 12 | 9.4 | 8.3 | 8.1 | 10 | 10 | 6.6 | 18 | 41 | 9.2 | 4.9 | 3.8 | 8.0 | |
| 13 14 | 8.5 | 8.0 | 12 | 9.8 | 8.4 | 7.1 | 22 | 8.0 | 6.7 | 5.0 4.8 | 4.2 | 4.3 4.2 | |
| 15 | 8.1 9.9 | 7.9 | 9.2 | 10 | 7.2 | 7.9 | 20 | 12 | 8.6 | 15 | 3.9 3.8 | 4.2 | |
| | | 8.0 | 14 | 12 | 7.1 | 6.5 | 19 | 11 | 6.8 | 13 | 3.8 | | |
| 16 | 55 | 15 | 13 | 10 | 6.4 | 6.3 | 10 | 7.7 | 6.2 | 18 | 3.8 | 4.0 | |
| 17 | 17 | 9.1 | 9.7 | 9.0 | 6.4 | 6.1 | 8.7 | 7.5 | 6.0 | 5.5 | 8.6 | 6.0 | |
| 18 | 50 | 7.9 | 7.8 | 8.5 | 53 | 24 | 8.2 | 8.8 | 6.1 | 4.8 | 11 | 4.4 | |
| 19 | 15 | 7.1 | 7.8 | 8.2 | 30 | 14 | 7.1 | 11 | 6.2 | 4.7 | 4.5 | 3.9 | |
| 20 | 12 | 6.8 | 7.4 | 7.9 | 25 | 7.0 | 6.8 | 12 | 7.2 | 4.6 | 15 | 4.7 | |
| 21 | 43 | 12 | 7.3 | 7.8 | 12 | 7.0 | 6.4 | 11 | 20 | 4.5 | 12 | 7.4 | |
| 22 | 11 | 22 | 8.8 | 7.9 | 11 | 65 | 7.0 | 25 | 9.0 | 4.2 | 54 | 23 | |
| 23 | 9.3 | 7.9 | 10 | 7.9 | 12 | 9.4 | 6.4 | 7.9 | 10 | 4.4 | 6.8 | €50 | |
| 24 | 20 | 6.7 | 8.0 | 7.6 | 16 | 7.6 | 6.3 | 7.0 | 6.3 | 6.5 | 4.7 | e 6.0 | |
| 25 | 29 | 7.6 | 6.9 | 7.4 | 14 | 7.4 | 7.8 | 11 | 5.7 | 4.1 | 4.3 | ●7.0 | |
| 26 | 43 | 10 | 6.6 | 7.4 | 9.7 | 6.9 | 7.8 | 8.1 | 5.6 | 4.6 | 4.2 | €7.2 | |
| 27 | 23 | 13 | 9.3 | 7.2 | 8.7 | 6.7 | 6.3 | 7.0 | 11 | 4.8 | 29 | -40 | |
| 28 | 46 | 7.5 | 18 | 7.0 | 8.9 | 6.4 | 5.9 | 6.6 | 13 | 4.3 | 7.2 | e51 | |
| 29 | 21 | 22 | 63 | 6.9 | | 6.4 | 5.6 | 6.4 | 9.9 | 4.5 | 4.8 | e12 | |
| 30 | 31 | 23 | 28 | 6.8 | | 6.2 | 5.6 | 6.3 | 49 | 6.6 | 4.4 | e 25 | |
| 31 | 12 | | 72 | 21 | | 6.0 | | 6.1 | | 4.6 | 4.5 | | |
| TOTAL | 673.8 | 329.4 | 509.1 | 345.3 | 434.2 | 315.5 | 304.9 | 339.3 | 292.1 | 228.0 | 236.5 | 323.2 | |
| MEAN | 21.7 | 11.0 | 16.4 | 11.1 | 15.5 | 10.2 | 10.2 | 10.9 | 9.74 | 7.35 | 7.63 | 10.8 | |
| MAX | _55 | 23 | 72 | 26 | 66 | 65 | 40 | _41 | 49 | 44 | 54 | 51 | |
| MIN | 7.6 | 6.7 | 6.6 | 6.8 | 6.4 | 6.0 | 5.6 | 5.3 | 5.6 | 4.1 | 3.6 | 3.9 | |
| AC-FT | 1340 | 653 | 1010 | 685 | 861 | 626 | 605 | 673 | 579 | 452 | 469 | 641 | |
| CFSM IN. | 17.3 | 8.71 | 13.0 | 8.84 | 12.3 | 8.08 | 8.07 | 8.69 | 7.73 | 5.84 | 6.05 | 8.55 9.54 | |
| TM. | 19.89 | 9.73 | 15.03 | 10.19 | 12.82 | 9.31 | 9.00 | 10.02 | 8.62 | 6.73 | 6.98 | 7.54 | |

CAL YR 1990 TOTAL 5404.1 MEAN 14.8 MAX 231 NIN 5.2 AC-PT 10720 CFSM 11.8 IN. 159.55 WTR YR 1991 TOTAL 4331.3 MEAN 11.9 MAX 72 MIN 3.6 AC-PT 8590 CFSM 9.42 IN. 127.88

e Estimated

50075000 RIO ICACOS NEAR NAGUABO, PR--Continued WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS AUGUST 1981 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (DEG C) |
|---------|--------|---------------------------------------|--------------------------------------|-----------------------------|------|----|------|---------------------------------------|--------------------------------------|-----------------------------|
| OCT. 1 | 1 1356 | 15.5 | 47 | 23.0 | MAY | 15 | 1404 | 7.87 | 60 | 23.0 |
| NOV. 2 | 8 1339 | 7.43 | 62 | 24.0 | JUN. | 18 | 1051 | 6.49 | 65 | 24.0 |
| DEC. 2 | 0 1255 | 7.23 | 73 | 20.5 | JUL. | 30 | 1305 | 6.85 | 70 | 24.0 |
| FRB. 22 | 2 1315 | 9.94 | 61 | 22.5 | AUG. | 15 | 1215 | 1.09 | 71 | 23.0 |
| MAR. 2 | 6 1111 | 7.00 | 56 | 22.0 | | | | | | |

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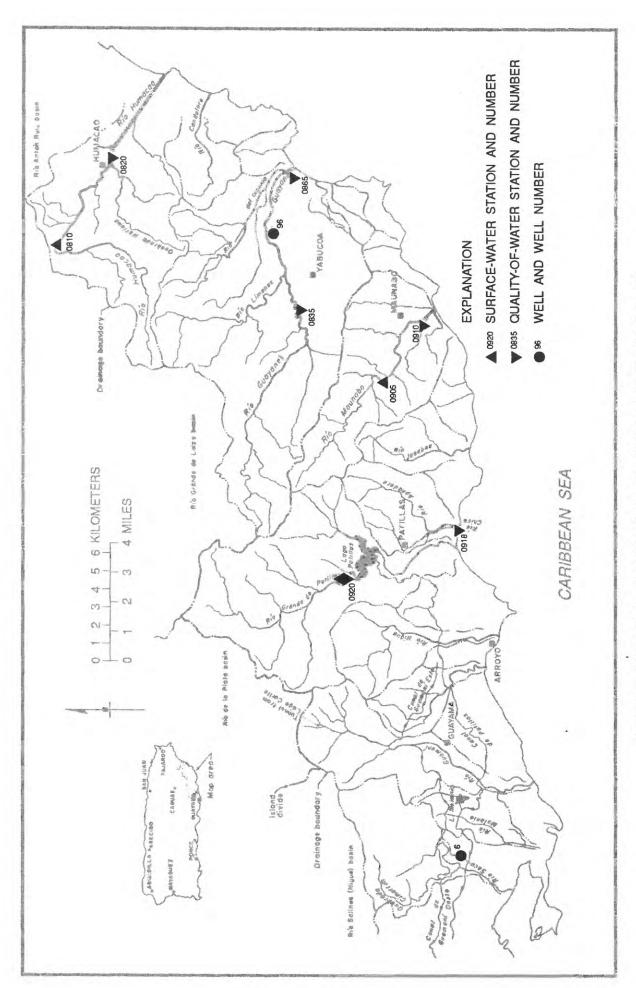


Figure 21.--Southeastern river basins the Río Humacao to Río Seco basins.

RTO HUMACAO BASTN

50081000 RIO HUMACAO AT LAS PIEDRAS, PR

LOCATION.--Lat 18°10'27", long 65°52'11", Hydrologic unit 21010005, on left bank at downstream side of bridge on Highway 921, 0.6 mi (1.0 km) southeast of junction with Highway 30, 0.8 mi (1.3 km) downstream from Quebrada Blanca and 0.8 mi (1.3 km) south of Las Piedras.

DRAINAGE AREA. -- 6.65 mi* (17.22 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- September 1958 to December 1967 (monthly discharge measurements), July 1974 to September 1977, October 1987 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 260 ft (79 m), from topographic map. Prior to July 1974, crest-stage gage at different datum. July 1974 to September 1977 at site 90 ft (27 m) upstream at present datum.

REMARKS.--Records fair except those above 1,000 ft 3 /s (28.3 m^2 /s), which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--7 years (1975-77, 1988-91), 22.7 ft³/s (0.643 m³/s), 46.36 in/yr (1,178 mm/yr), 16,450 acre-ft/yr (20.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft³/s (589 m³/s) Sept. 6, 1960, gage height, 34.4 ft (10.485 m), datum then in use, from floodmarks, and rating curve extended above 5,300 ft³/s (150 m³/s) on basis of slope-area measurement of peak flow; minimum daily discharge, 2.2 ft³/s (0.062 m³/s) July 16, 1974.

EXTREMES FOR CURRENT YEAR .-- Peak discharges greater than base discharge of 1,000 ft1/s (28.3 m2/s) and maximum (*):

| | | | harge | Gage height | | | | | charge | | height |
|---------|------|---------|--------|-------------|-------|--------|------|---------|--------|-------|--------|
| Date | Time | (ft3/s) | (m³/s) | (ft) | (m) | Date | Time | (ft3/s) | (m³/s) | (ft) | (m) |
| June 30 | 1300 | 1,370 | 38.8 | 5.26 | 1.599 | July 1 | 0530 | *2,460 | 69.7 | *6.99 | 2.130 |

Minimum daily discharge, 4.9 ft3/s (0.139 m3/s), June 17.

| | | DISCHARGE | , CUBIC | FRET PER | | WATER Y | EAR OCTOBER | 1990 TO | SEPTEMBER | 1991 | | |
|-------|--------|-----------|---------|----------|-------|---------|-------------|---------|-----------|-------|-------|-------|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 12 | 28 | 21 | 22 | 10 | 13 | 6.8 | 5.5 | 12 | 369 | 9.7 | 8.5 |
| 2 | 9.6 | 22 | 23 | 15 | 9.4 | 10 | 7.2 | 5.5 | 9.7 | 30 | 8.9 | 7.7 |
| 3 | 8.2 | 18 | 27 | 17 | 11 | 10 | 7.3 | 6.4 | 7.4 | 18 | 9.0 | 7.6 |
| 4 | 8.4 | 18 | 21 | 14 | 9.7 | 10 | 6.8 | 6.0 | 6.6 | 15 | 7.4 | 7.1 |
| 5 | 8.0 | 32 | 16 | 15 | 9.1 | 9.4 | 6.6 | 8.1 | 8.4 | 12 | 8.1 | 7.1 |
| 6 | 8.4 | 23 | 15 | 13 | 27 | 27 | 6.6 | 10 | 11 | 10 | 8.7 | 6.8 |
| 7 | 8.3 | 16 | 14 | 17 | 17 | 14 | 6.6 | 7.5 | 8.7 | 9.3 | 7.8 | 7.1 |
| 8 | 8.1 | 16 | 14 | 15 | 10 | 12 | 6.6 | 7.5 | 7.6 | 8.7 | 7.2 | 6.8 |
| 9 | 8.2 | 15 | 14 | 14 | 9.7 | 11 | 7.0 | 8.9 | 7.0 | 8.7 | 6.8 | 7.3 |
| 10 | 80 | 14 | 14 | 14 | 9.6 | 9.6 | 21 | 9.8 | 6.6 | 8.2 | 6.6 | 8.4 |
| 11 | 26 | 14 | 14 | 13 | 19 | 9.4 | 9.3 | 7.4 | 3.1 | 7.7 | 6.6 | 7.9 |
| 12 | 12 | 13 | 14 | 14 | 71 | 9.0 | 8.0 | 6.8 | 9.0 | 7.7 | 6.6 | 7.0 |
| 13 | 18 | 13 | 13 | 13 | 25 | 8.4 | 7.4 | 6.8 | 8.1 | 7.7 | 6.5 | 6.6 |
| 14 | 12 | 13 | 22 | 13 | 12 | 9.0 | 7.1 | 7.2 | 6.8 | 7.5 | 6.0 | 6.5 |
| 15 | 11 | 13 | 18 | 13 | 15 | 8.6 | 8.2 | 7.6 | 6.5 | 13 | 6.0 | 6.0 |
| 16 | 17 | 13 | 16 | 12 | 12 | 8.0 | 7.6 | 7.4 | 5.7 | 53 | 6.1 | 6.3 |
| 17 | 15 | 12 | 14 | 12 | 10 | 7.9 | 6.9 | 7.6 | 4.9 | 14 | 9.7 | 25 |
| 18 | 17 | 12 | 13 | 11 | 10 | 7.5 | 7.3 | 19 | 7.2 | 10 | 7.8 | 11 |
| 19 | 58 | 19 | 13 | 11 | 24 | 9.7 | 7.0 | 9.8 | 6.4 | 9.6 | 7.3 | 8.0 |
| 20 | 53 | 14 | 13 | 10 | 12 | 8.1 | 6.6 | 10 | 6.2 | 13 | 10 | 7.7 |
| 21 | 204 | 29 | 13 | 10 | 14 | 7.7 | 6.6 | 8.6 | 17 | 8.9 | 8.0 | 9.8 |
| 22 | 28 | 16 | 13 | 10 | 11 | 11 | 6.6 | 23 | 9.5 | 8.3 | 15 | 24 |
| 23 | 27 | 13 | 12 | 10 | 10 | 9.1 | 6.5 | 10 | 7.6 | 8.7 | 10 | 16 |
| 24 | 49 | 13 | 12 | 10 | 16 | 8.0 | 6.3 | 8.2 | 7.6 | 10 | 7.3 | 12 |
| 25 | 106 | 12 | 12 | 10 | 11 | 7.4 | 6.7 | 17 | 6.9 | 9.0 | 6.5 | 10 |
| 26 | 66 | 13 | 12 | 10 | 10 | 7.4 | 6.8 | 9.5 | 6.1 | 8.0 | 6.0 | 8.8 |
| 27 | 34 | 15 | 13 | 9.7 | 9.7 | 7.4 | 6.0 | 7.5 | 7.0 | 8.4 | 118 | 12 |
| 28 | 43 | 14 | 13 | 9.7 | 23 | 7.3 | 6.0 | 6.8 | 7.0 | 8.3 | 40 | 16 |
| 29 | 57 | 15 | 15 | 9.4 | | 6.8 | 6.0 | 6.6 | 7.0 | 7.8 | 13 | 86 |
| 30 | 41 | 36 | 17 | 9.0 | | 6.8 | 5.9 | 6.6 | 286 | 13 | 13 | 22 |
| 31 | 24 | | 132 | 11 | | 6.8 | | 6.3 | | 16 | 9.4 | |
| TOTAL | 1077.2 | 514 | 593 | 388.8 | 437.2 | 297.3 | 221.3 | 274.9 | 515.6 | 738.5 | 399.0 | 383.0 |
| MRAN | 34.7 | | 19.1 | 12.5 | 15.6 | 9.59 | 7.38 | 8.87 | 17.2 | 23.8 | 12.9 | 12.8 |
| MAX | 204 | 36 | 132 | 22 | 71 | 27 | 21 | 23 | 286 | 369 | 118 | 86 |
| MIN | 8.0 | 12 | 12 | 9.0 | 9.1 | 6.8 | 5.9 | 5.5 | 4.9 | 7.5 | 6.0 | 6.0 |
| AC-PT | 2140 | | 180 | 771 | 867 | 590 | 439 | 545 | 1020 | 1460 | 791 | 760 |
| CFSM | 5.23 | | 88.5 | 1.89 | 2.35 | 1.44 | 1.11 | 1.33 | 2.58 | 3.58 | 1.94 | 1.92 |
| IN. | 6.03 | 2.88 | 1.32 | 2.17 | 2.45 | 1.66 | 1.24 | 1.54 | 2.88 | 4.13 | 2.23 | 2.14 |

CAL YR 1990 TOTAL 4952.5 MEAN 13.6 MAX 204 MIN 5.2 AC-FT 9820 CFSM 2.04 IN. 27.70 WTR YR 1991 TOTAL 5839.8 MEAN 16.0 MAX 369 MIN 4.9 AC-FT 11580 CFSM 2.41 IN. 32.67

50081000 RIO HUMACAO AT LAS PIEDRAS, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD .-- OCTOBER 1989 TO CURRENT YEAR

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|---------|------|---------------------------------------|--------------------------------------|-----------------------------|--------|---------|---------------------------------------|--------------------------------------|-----------------------------|
| FEB. 02 | 1205 | 19.4 | 159 | 22.0 | JUL. 1 | L9 1259 | 9.35 | 190 | 25.5 |
| MAR. 22 | 1054 | 11.1 | 185 | 22.5 | AUG. 2 | 11139 | 8.15 | 180 | 25.5 |
| MAY 17 | 1055 | 7.19 | 190 | 25.0 | SEP. 1 | L1 1341 | 8.25 | 185 | 27.5 |
| JUN. 20 | 1000 | 6.02 | 190 | 24.5 | | | | | |

3 1 4 RIO HUMACAO BASIN

50082000 RIO HUMACAO AT HIGHWAY 3 AT HUMACAO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°08'49", long 65°49'37", at bridge on Highway 3, 300 ft (91 m) downstream from Quebrada Mariana, and 0.4 mi (0.6 km) south of Humacac.

DRAINAGE AREA. -- 17.3 mi2 (44.8 km2).

PERIOD OF RECORD. -- Water years 1958-66, 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | | MAL | PK-AONTII | DAIA, W | MIDA IDA | TK OCTOR | DER ISSU | IO SEFIEM | DEK 13 | , , , | | |
|------------------|--------------|---|---|--|--|--|--|--|---|---------------------------|---|---|---|
| DATE | | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER ATURE WATER (DEG C | BI IT | Y 80 | D SO GEN, (P IS- C LVED SA | is- LVED ER- ENT | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 | | 1120 | 49 | 235 | 7.4 | 28. | 0 100 | | 7.7 | 98 | 26 | K100000 | 36000 |
| DEC 20 | | 0845 | 20 | 318 | 7.7 | | | | 6.9 | 78 | 17 | 64000 | 10300 |
| FRB 1991 | | | | | | 22. | | | | | | | |
| 08 APR | | 0940 | 18 | 324 | 7.1 | 23. | | | 7.3 | 85 | 29 | 310000 | K130000 |
| 22 Jun | | 1130 | 10 | 396 | 7.1 | 29. | .0 2 | .8 | 6.3 | 82 | 52 | K960000 | 220000 |
| 18 AUG | | 1345 | 10 | 365 | 7.5 | 30. | 5 2 | .8 | 4.5 | 59 | 24 | 680000 | 120000 |
| 19 | | 1140 | 10 | 350 | 7.5 | 30. | 1 5 | .5 | 1.0 | 52 | 25 | 530000 | 69000 |
| DATE | į | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM DIS- SOLVEI (MG/I AS NA | I, A SOF TI RAT | D- S: P- D: ON SO: TO (M | TAS- LIN IUM, WAT IS- TOT LVED FI G/L MG/ | | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 24 | | 70 | 1 | 19 | 5.4 | 18 | | 0.9 | 3.4 | 69 | <0.5 | 14 | 23 |
| DEC 20 | | | | | | | - | | | 93 | | | |
| FEB 1991 08 | | | | | | | _ | . _ . | | 98 | | | |
| APR 22 | | 87 | 0 | 25 | 5.9 | 28 | | 1 : | 3.1 | 93 | <0.5 | 14 | 32 |
| JUN 18 | | | | | | | _ | | | 100 | | | |
| AUG 19 | | 100 | 3 | 29 | 7.0 | 31 | | | | 110 | | 14 | 37 |
| 19 | | 100 | 3 | 29 | 7.0 | 31 | | 1 2 | 2.4 | 110 | | 14 | 37 |
| | DATE | RI B SC (M | DE, D DIS- S DLVED (1 IG/L | LICA, SUI IS- CON OLVED TUI MG/L I AS SO | ISTI- I INTS, SC DIS- (1 DLVED I | LIDS, T DIS- A DLVED D TONS | ESIDUE TOTAL T 105 EG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | GE | N, G NO3 AMM AL TO | EN, CONIA ORC TAL TO G/L (1 | ITRO- GEN, GANIC OTAL 4G/L 5 N) |
| | 1990 4 | | 0.10 | 28 | 152 | 20.2 | 121 | 0.520 | 0.080 | 0. | 600 0 | .240 | 0.76 |
| 20 | 0 | | | | | | 109 | 0.830 | 0.070 | 0. | 900 0 | .750 | 0.35 |
| 01 | 1991 B | | | | | | 53 | 0.760 | 0.040 | 0. | 800 1 | .30 | 0.40 |
| APR 2: JUN | 2 | • | :0.10 | 36 | 200 | 5.42 | 6 | 0.530 | 0.040 | 0. | 570 2 | .80 | 0.80 |
| | в | | | | | | 7 | 0.230 | 0.020 | ٠. | 250 1 | .40 | 0.90 |
| | 9 | | 0.10 | 39 | 220 | 5.94 | 22 | 0.330 | 0.040 | 0. | 370 0 | .720 | 0.18 |
| . | Don - | | | | | | | | | | | | |

K = non-ideal count

RIO HUMACAO BASIN

50082000 RIO HUMACAO AT HIGHWAY 3 AT HUMACAO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 24 DEC | 1.0 | 1.6 | 7.1 | 0.190 | <1 | 200 | 30 | <1 | 2 | 20 |
| 20 FEB 1991 | 1.1 | 2.0 | 8.9 | 0.330 | | | | | | |
| 08 APR | 1.7 | 2.5 | 11 | 0.380 | | | | | | |
| 22 JUN | 3.6 | 4.2 | 18 | 0.750 | <1 | <100 | 70 | <1 | 3 | 20 |
| 18 | 2.3 | 2.6 | 11 | 0.440 | | | | | | |
| 19 | 0.90 | 1.3 | 5.6 | 0.400 | | | | | ` | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- BRABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| OCT 1990 24 DEC 20 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 24 DEC 20 FRB 1991 08 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 24 DEC 20 FEB 1991 | TOTAL RECOV- ERABLE (UG/L AS FR) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) 40 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.06 |
| OCT 1990 24 DEC 20 FEB 1991 08 APR 22 | TOTAL RECOV- ERABLE (UG/L AS FR) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- PRABLE (UG/L AS ZN) 40 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.06 |

316 RIO GUAYANES BASIN

50083500 RIO GUAYANES AT YABUCOA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'33", long 65°54'03", at bridge on Highway 182, 1.4 mi (2.2 km) west-northwest of Yabucoa plaza.

DRAINAGE AREA. -- 17.2 mi (44.6 km²).

PERIOD OF RECORD. -- Water years 1958-62, 1968-70, 1980 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | WATE | eK-AOVPILI | DATA, WA | TER IBAR | OCTOB | EK 1990 1 | U SEPTEME | EK 1331 | | | |
|---|---------------------------------------|--|--|--|--|---|---|---|--|--|--|---|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUI BII IT: (NT) | D- DI Y SOL | SOL IEN, (PE S- CE VED SAT | S- DEN VED CE R- IC ONT (E | (GEN MAND, HEM- CAL HIGH /EL) H/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FRCAL, (COLS. PER 100 ML) |
| OCT 1990 | | | | | | | _ | | | | | |
| 29 DEC | 1220 | 129 | 135 | 7.1 | 25.0 | 59 | 6 | .3 | 76 | 25 | 4100 | 5300 |
| 19 FRB 1991 | 1225 | 32 | 175 | 7.1 | 23.5 | 62 | 7 | .7 | 89 | 16 | 1500 | 630 |
| 08 | 0815 | 39 | 161 | 7.0 | 21.5 | 26 | 7 | .7 | 87 | 20 | 3300 | 3000 |
| APR 23 JUN | 1130 | 21 | 160 | 7.0 | 28.0 | 10 | 7 | .1 | 89 | 18 | 360 | 370 |
| 17 | 1215 | 14 | 150 | 7.5 | 27.0 | 15 | 3 | .4 | 42 | <10 | 500 | 320 |
| AUG 13 | 1150 | 14 | 175 | 7.4 | 27.5 | 25 | 6 | .7 | 83 | 14 | K7700 | 6800 |
| DATE | HARD- NESS TOTAL (MG/L AS | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS | CALCIUM DIS- SOLVED (MG/L | MAGNE- SIUM, DIS- SOLVED (MG/L | SODIUM, DIS- SOLVED (MG/L | SOD: Al SOR! TIC RAT: | D- SI P- DI ON SOL | VED FIR | ty Wh Frt Sui LD to | LFIDR OTAL 4G/L | SULFATE DIS- SOLVED (MG/L | CHLO- RIDE, DIS- SOLVED (MG/L |
| OCT 1990 29 | 37 | 0 | 9.4 | 3.3 | 11 | | 0.8 1 | . 9 | 42 | <0.5 | 4.0 | 11 |
| DEC | | = | | | | | | | | | | |
| 19 FEB 1991 | | | | | | | | - | 66 | | | |
| 08 APR | | | | | | - | | · - | 56 | | | |
| 23 JUN | 51 | 0 | 13 | 4.5 | 16 | : | 1 1 | 4 | 61 | <0.5 | 3.3 | 14 |
| 17 | | | | | | | - | - | 67 | | | |
| AUG 13 | 53 | 0 | 13 | 4.9 | 16 | : | 1 1 | 4 | 62 | | 4.6 | 14 |
| OCT 19 29 DBC 19 FEB 19 08 APR 23 JUN 17 AUG 13 | RI I SG (N AS | DE, DI DIS- SC DILVED (h MG/L A S F) SI | JCA, SUM S- CON. LIVED TUE | 93 3 126 | IDS, TO IS- AT LVED DE ONS S ER PE | SIDUE TAL 105 G. C, US- NDED MG/L) 67 120 46 17 21 | NITRO- GEN, NITRATE TOTAL (MG/L AS N) 0.370 0.590 0.660 0.240 0.200 | NITRO- GEN, NITRITE TOTAL (MG/L AS N) 0.030 0.010 0.040 0.020 0.010 | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) 0.400 0.600 0.700 0.260 0.210 | GE AMMC TOT (MG AS | EN, GINIA ORGANIA ORGANIA ORGANIA TO AND | TRO- EN, ANIC TAL G/L N) 0.76 0.34 0.59 0.16 0.17 |
| K = nc | on-ideal c | count | | | | | | | | | | |

50083500 RIO GUAYANES AT YABUCOA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | MITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------------|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | : | _ | | | | _ | • |
| 29 Dec | 0.80 | 1.2 | 5.3 | 0.070 | <1 | <100 | <10 | <1 | <1 | 20 |
| 19 FEB 1991 | 0.40 | 1.0 | 4.4 | 0.070 | | | | | | |
| 08 APR | 0.70 | 1.4 | 6.2 | 0.120 | | | | | | |
| 23 | 0.20 | 0.46 | 2.0 | 0.060 | <1 | <100 | 10 | <1 | <1 | 10 |
| JUN 17 | 0.20 | 0.41 | 1.8 | 0.060 | | | | | | |
| AUG 13 | 0.50 | 0.68 | 3.0 | 0.220 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | MRTHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 | 5400 | 3 | 170 | 0.10 | <1 | <1 | <10 | <0.010 | 5 | 0.02 |
| DEC 19 | | | | | | | | | | |
| FEB 1991 08 | | | | | | | | | | |
| APR 23 | 1500 | 2 | 70 | <0.10 | <1 | ∢1 | <10 | <0.010 | 2 | 0.01 |
| JUN | | <u>-</u> | | | | | | | _ | |
| AUG | | | | | | | | | | |
| 13 | | | | | | | | | | |
| | | | | PRSTICI | DE ANALYS | RS | | | | |
| | | | | CHLOR- | | | | DI- | DI- | ENDO- |
| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | AZINON, TOTAL (UG/L) | ELDRIN TOTAL (UG/L) | SULFAN, TOTAL (UG/L) |
| JUN 1991 | 1215 | <0.1 | -0.010 | .0.0 | -0.040 | .0.050 | -0.040 | .0.04 | .0.040 | -0 040 |
| 17 | 1213 | ₹0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| DATE | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | MBTHYL PARA- THION, TOTAL (UG/L) | MRTHYL TRI- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
| JUN 1991 17 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| 17 | <0.010 | ₹0.01 | 40.010 | ₹0.010 | ₹0.010 | 40.01 | ₹0.01 | ₹0.01 | ₹0.01 | 40.01 |
| | DAD. | NAP TH LEN | les, | n =0 | | | | | | |
| | PAR. THI | ON, CHI | OR. THA | NE APHR | | I- 2,4 | | 5-T 2, 4 | | |
| DAT | B TOT. (UG | | | | | ON TOTA | | AL TOT (UG/ | | |
| JUN 199 17 | 1 | | | | | | | | | .01 |

RIO GUAYANES BASIN

50086500 RIO GUAYANES ABOVE MOUTH AT PLAYA DE GUAYANES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'45", long 65°49'42", at old railroad crossing, 0.2 mi (0.3 km) from mouth, 0.4 mi (0.6 km) west of Playa de Guayanés, and 3.5 mi (5.6 km) northeast of Yabucoa plaza.

DRAINAGE AREA. -- 34.0 mi2 (88.1 km2).

PERIOD OF RECORD. -- Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | MWID | W-AOWDIII | DATA, WA | TEK IBAK | OCTOBE | K 1330 10 | obf inmoba | 1991 | | |
|----------------------|---|---|--|---|--|--|-------------------------------------|--|--|---|---|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPR- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR BID ITY (NTU | - DIS- SOLVE | CRNT D SATUR- | ICAL (HIGH | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 24 | 0930 | 192 | 145 | 7.3 | 26.0 | 130 | 6.2 | 76 | 30 | 28000 | 29000 |
| 17 | 0935 | 61 | 156 | 6.3 | 23.0 | 17 | 7.4 | 86 | 12 | K1100 | 840 |
| FRB 1991 26 | 0900 | 57 | 165 | 7.6 | 23.5 | 17 | 7.7 | 89 | 15 | 38000 | 970 |
| MAY 03 | 1000 | 22 | 232 | 7.6 | 28.5 | 3. | 5.9 | 76 | 19 | 1100 | 540 |
| JUN 18 | 1115 | 25 | 221 | 7.8 | 29.0 | 10 | 6.3 | 80 | <10 | 380 | 230 |
| AUG 19 | 1000 | 35 | 180 | 7.1 | 27.7 | 16 | 8.3 | 103 | 13 | 2700 | K840 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODI AD SORP TIO RATI | - SIUM - DIS- N SOLVE | , WAT WH TOT FET D FIELD MG/L AS | TOTAL | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 24 | 38 | 0 | 9.3 | 3.7 | 12 | | .8 3.0 | 38 | <0.5 | 6.4 | 14 |
| DEC 17 | | | | | | | | 56 | | | |
| FEB 1991 26 | | | | | | | | 59 | | | |
| MAY 03 | 58 | 0 | 13 | 6.3 | 23 | 1 | 2.0 | | | 4.9 | 18 |
| JUN 18 | | | | | 43 | | 4.0 | 68 | | | |
| AUG 19 | 47 | | | | | | | | | | 16 |
| 19 | • / | | 12 | 4.1 | 16 | 1 | 2.0 | 80 | | 6.6 | 10 |
| OCT 1: 24. DEC | RI I SC ATE () AS | IDE, DI DIS- SC DLVED (N 4G/L A B F) SI | ICA, SUM S- CON: LVED TUE IG/L D: IS SO! | STI- D NTS, SO IS- (T LVBD P 3/L) D | IDS, TO IS- AT LVED DE ONS S ER PE | SIDUR TAL 105 G. C, 1 US- NDRD MG/L) | GEN, NITRATE N TOTAL (MG/L | GEN, ITRITE NO TOTAL T (MG/L (AS N) A | GEN, COLORDO C | GEN, C MONIA ORC OTAL TO MG/L (1 | ETRO- SEN, MANIC OTAL GG/L S N) |
| 17. FEB 1 | | | | | | 33 | 0.580 | 0.020 | 0.600 | 0.020 | |
| 26. NAY | | | | | | 4 | 0.380 | 0.020 | 0.400 | 0.030 | |
| NAY 03. JUN | •• | 0.10 3 | 7 | 149 | 8.91 | 15 | | <0.010 < | 0.050 | 0.030 | 0.47 |
| 18. AUG | • • | | | | | 15 | 0.150 | 0.010 | 0.160 | 0.030 | 0.27 |
| 19. | | 0.10 3 | 8 | 130 1 | .2.3 | 17 | 0.170 | 0.010 | 0.180 | 0.070 | 0.33 |
| K = n | on-ideal o | count | | | | | | | | | |

RIO GUAYANES BASIN 319

50086500 RIO GUAYANES ABOVE MOUTH AT PLAYA DE GUAYANES, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 24 DEC | 1.3 | 1.9 | 8.4 | 0.210 | <1 | <100 | 30 | <1 | 3 | 30 |
| 17 FEB 1991 | <0.20 | | | 0.070 | | | | | | |
| 26 May | <0.20 | | | 0.060 | | | | | | |
| 03 JUN | 0.50 | | | 0.100 | <1 | 200 | <10 | <1 | <1 | 10 |
| 18 | 0.30 | 0.46 | 2.0 | 0.070 | | | | | | |
| 19 | 0.40 | 0.58 | 2.6 | 0.080 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SRLE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 24 DEC | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| OCT 1990 24 DEC 17 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 24 DEC 17 FEB 1991 26 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 24 DEC 17 FEB 1991 26 MAY 03 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) 0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 24 DEC 17 FEB 1991 26 | TOTAL RECOV- ERABLE (UG/L AS FE) 9400 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) 280 | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.01 |

RIO MAUNABO BASIN

50090500 RIO MAUNABO AT LIZAS, PR

LOCATION.--Lat 18°01'38", long 65°56'24", Hydrologic Unit 21010005, on right bank, off Highway 759 at Lixas, about 1.0 mi (1.6 km) downstream Quebrada Coroco, and about 3.0 mi (4.8 km) northwest of Maunabo.

DRAINAGE AREA. -- 5.38 mi 1 (13.93 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- February 1971 to January 1985, February to September 1991.

GAGE. -- Water-stage recorder. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS. -- Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--13 years (1972-84), 18.4 ft³/s (0.521 m³/s), 46.44 in/yr (1,180 mm/yr), 13,330 acre-ft/yr (16.4 hm³/yr); median of yearly mean discharges, 15 ft³/s (0.42 m³/s), 10,900 acre-ft/yr (13 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,780 ft³/s (191 m³/s), Nov. 25, 1977, gage height, 14.84 ft (4.523 m) from rating curve extended above 50 ft³/s (1.42 m³/s) on basis of step-backwater analysis; minimum daily discharge, 2.2 ft³/s (0.062 m³/s) July 16, Aug. 7, 13, 1974.

EXTREMES FOR CURRENT PERIOD. -- Peak discharges greater than base discharge of 600 ft³/s (17.0 m³/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | Discharge | | | Gage | Gage height | | | | Disch | arge | Gage height | |
|--------------------|--------------|---------------|---------------------|------|----------------|---------------|---------|--------------|------------|---------------------|--------------|----------------|
| Date | Tima | (ft^3/a) | (m ³ /s) | (ft) | (m) | Date | | Time | (ft³/s) | (m ³ /s) | (ft) | (m) |
| Feb. 18 June 30 | 1930 1300 | 839 *2,300 | 23.8 65.1 | | 2.256 3.072 | July Sept. | 1 29 | 0045 1115 | 997 646 | 28.2 18.3 | 7.78 7.03 | 2.371 2.143 |

Minimum daily discharge, 4.1 ft³/s (0.116 m³/s), June 16, 17.

| | DAILY MEAN VALUES | | | | | | | | | | | | | |
|-----------------------|-------------------|-----|-----|-----|-----|-------|-------|---------------|-------|--------------|-------|-------|--|--|
| DAY | OCT | NOA | DRC | JAN | PEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | | |
| 1 | | | | | | 11 | 6.3 | 4.5 | 12 | 283 | 14 | 9.5 | | |
| 1 2 3 4 5 | | | | | | 10 | 9.5 | 4.4 | 5.9 | 22 | 9.2 | 8.8 | | |
| 3 | | | | | | 13 | 6.5 | 4.4 | 5.0 | 16 | 8.5 | 7.5 | | |
| 4 | | | | | | 11 | 5.9 | 9.3 | 4.7 | 18 | 8.2 | 7.0 | | |
| 5 | | | | | | 11 | 5.8 | 5.5 | 4.8 | e9.5 | 6.7 | 6.6 | | |
| 6 | | | | | | 19 | 5.6 | 6.8 | 8.3 | e8. 5 | 9.2 | 6.9 | | |
| 7 8 | | | | | | 13 | 5.4 | 8.0 | 8.8 | e7.5 | 7.2 | 6.8 | | |
| 8 | | | | | | 11 | 5.7 | 7.2 | 5.2 | ●7.0 | 7.0 | 6.1 | | |
| 9 | | | | | | 9.7 | 5.7 | 7.1 | 4.7 | e6.6 | 6.6 | 12 | | |
| 10 | | | | | | 9.0 | 5.6 | 5.1 | 4.6 | e6.4 | 6.8 | 8.4 | | |
| 11 | | | | | | 8.7 | 9.3 | 5.3 | 4.9 | e6.4 | 7.4 | 7.6 | | |
| 12 | | | | | | 8.3 | 6.7 | 4.8 | 10 | e6.2 | 7.4 | 6.2 | | |
| 13 | | | | | | 7.9 | 5.8 | 4.7 | 5.3 | e6.2 | 8.2 | 5.6 | | |
| 14 | | | | | | 8.7 | 6.1 | 4.8 | 4.5 | e6.2 | 7.1 | 5.1 | | |
| 15 | | | | | 11 | 8.2 | 8.0 | 5.2 | 4.3 | e 6.4 | 7.3 | 4.7 | | |
| 16 | | | | | 9.3 | 7.6 | 6.2 | 5.5 | 4.1 | e 50 | 7.7 | 5.0 | | |
| 17 | | | | | 8.6 | 7.3 | 5.5 | 7.4 | 4.1 | e12 | 16 | 22 | | |
| 18 | | | | | 84 | 7.4 | 6.5 | 5.4 | 4.8 | 9.0 | 11 | 7.0 | | |
| 19 | | | • | | 52 | 8.0 | 6.0 | 5.3 | 5.2 | 8.9 | 8.6 | 5.3 | | |
| 20 | | | | | 48 | 7.3 | 5.4 | 5.8 | 4.9 | 8.8 | 8.5 | 5.7 | | |
| 21 | | | | | 18 | 6.9 | 5.3 | 6.0 | 12 | 7.0 | 8.9 | 11 | | |
| 22 23 | | | | | 14 | 11 | 5.6 | 5.9 | 5.7 | 6.2 | 14 | 21 | | |
| | | | | | 14 | 8.1 | 5.0 | 5.2 | 7.0 | 7.5 | 8.9 | 31 | | |
| 24 25 | | | | | 13 | 6.9 | 4.8 | 4.9 | 6.3 | 7.1 | 7.5 | 8.5 | | |
| | | | | | 14 | 6.6 | 6.1 | e13 | 5.6 | 6.2 | 6.7 | 7.7 | | |
| 26 27 | | | | | 12 | 6.6 | 5.3 | e6.2 | 5.2 | 6.7 | 6.7 | 6.3 | | |
| 28 | | | | | 11 | 6.7 | 4.9 | e5.4 | 14 | 8.4 | 33 | 9.6 | | |
| 29 | | | | | 15 | 6.3 | 4.9 | e5 .0 | 6.7 | 8.5 | 18 | 7.8 | | |
| 30 | | | | | | 6.1 | 4.8 | e4 . 8 | 5.0 | 14 | 12 | 115 | | |
| 31 | | | | | | 6.0 | 4.6 | e4 . 8 | 267 | 12 | 11 | 11 | | |
| 31 | | | | | | 5.9 | | e4 .6 | | 12 | 14 | | | |
| TOTAL MBAN | | | | | | 274.2 | 178.8 | 182.3 | 450.6 | 600.2 | 313.3 | 382.7 | | |
| MAX | | | | | | 8.85 | 5.96 | 5.88 | 15.0 | 19.4 | 10.1 | 12.8 | | |
| MIN | | | | | | _ 19 | 9.5 | 13 | 267 | 283 | 33 | 115 | | |
| AC-FT | | | | | | 5.9 | 4.6 | 1.1 | 4.1 | 6.2 | 6.6 | 4.7 | | |
| CFSM | | | | | | 544 | 355 | 362 | 894 | 1190 | 621 | 759 | | |
| IN. | | | | | | 1.64 | 1.11 | 1.09 | 2.79 | 3.60 | 1.88 | 2.37 | | |
| TM. | | | | | | 1.90 | 1.24 | 1.26 | 3.12 | 4.15 | 2.17 | 2.65 | | |

e Estimated

rio maunabo basin 321

50091000 RIO MAUNABO AT MAUNABO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'24", long 65°54'19", at bridge on Highway 3, 0.4 mi (0.6 km) southwest of Maunabo plaza, and 1.3 mi (2.1 km) upstream from mouth.

DRAINAGE AREA .-- 12.4 mi2 (32.1 km2).

PERIOD OF RECORD. -- Water years 1958-66, 1975 to current year.

WATER-OUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | WA? | rer-Quality | DATA, W | TER YEAR | OCTOBER | 1990 TO SE | PTEMBER 1 | .991 | | |
|----------------|---|--|---|--|--|---|---|---|---|---|---|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECONI | CIFIC CON- DUCT- ANCE | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGE LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 | | | | | | | | | | | |
| 29 DEC | 1010 | 93 | 199 | 7.2 | 26.0 | 4.0 | 7.1 | 87 | 26 | K10000 | 3500 |
| 19 FEB 1991 | 1025 | 16 | 272 | 7.6 | 24.0 | 13 | 7.5 | 88 | 12 | 710 | 100 |
| 26 | 0935 | 21 | 216 | 7.5 | 26.0 | 7.0 | 7.6 | 93 | 17 | 2100 | 250 |
| APR 23 | 0850 | 9.8 | 252 | 7.3 | 26.0 | 4.9 | 6.6 | 80 | <10 | 2400 | 450 |
| JUN 17 | 1010 | 6.5 | 280 | 7.5 | 28.0 | 5.3 | 7.1 | 89 | <10 | 260 | K20 |
| AUG | | | | | | | | | | | |
| 13 | 0935 | 2.7 | 310 | 7.6 | 28.0 | 9.0 | 6.7 | 83 | 24 | K150 | K140 |
| DATE | HARD - NESS TOTAL (MG/L AS CACO3 | TOT FLI | DIS- | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | I POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT PET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 | 5 | | | | 4.0 | | | | | | |
| 29 DEC | 3 | 7 0 | 14 | 5.3 | 17 | 1 | 2.0 | 54 | <0.5 | 9.9 | 22 |
| 19 FEB 1991 | | | | | | | | 93 | | | |
| 26 APR | | | | | | | | 84 | | | |
| 23 | 8 | 4 0 | 20 | 8.2 | 23 | 1 | 1.2 | 87 | <0.5 | 10 | 24 |
| JUN 17 | | | | | | | | 93 | | | |
| AUG 13 | 11 | 0 0 | 27 | 11 | 32 | 1 | 3.0 | 100 | | 18 | 38 |
| | | • | | | | - | | | | | |
| : | DATE | RIDE, I DIS- S SOLVED (MG/L | LICA, SUB DIS- CON SOLVED TUE (MG/L I AS SO | isti- i ints, sc dis- (1 dived i | LIDS, TO DIS- AT DLVED DEC TONS SU PER PER | 105 3. C, NI JS- T IDED (| GEN, C TRATE NIT COTAL TO MG/L () | HEN, G TRITE NO2 TAL TO GG/L (M | HEN, G +NO3 AMM TAL TO IG/L (M | EN, G ONIA ORG TAL TO G/L (N | TRO- BEN, IANIC TAL IG/L IN) |
| OCT 29 | 1990 | 0.10 | 31 | 134 3 | 13.5 | 49 | 0.680 | .020 0 | .700 0 | . 050 | 0.55 |
| DEC | ••• | | | | | 15 | | | | .750 | 0.25 |
| FRB | 1991 | | | | | | | | | | |
| APR | ••• | | | | | | | | | .240 | 0.36 |
| 23 Jun | ••• | 0.10 | 41 | 180 | 4.75 | 10 | 0.530 | 0.020 0 | .550 0 | . 060 | 0.24 |
| | ••• | | | | | 7 | 0.440 | .040 0 | .480 0 | .360 | 0.34 |
| | ••• | 0.20 | 40 | 229 | 1.68 | 48 | 1.03 | .070 1 | .10 0 | .220 | 0.38 |

K = non-ideal count

RIO MAUNABO BASIN

50091000 RIO MAUNABO AT MAUNABO, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | MITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|---|---|--|--|--|--|---|---|---|--|---|
| OCT 1990 | | | | | | | | | | |
| 29 | 0.60 | 1.3 | 5.8 | 0.060 | <1 | <100 | 20 | <1 | 1 | 20 |
| DEC 19 | 1.0 | 1.6 | 7.1 | 0.170 | | | | | | |
| FEB 1991 26 | 0.60 | 1.1 | 4.9 | 0.150 | | | | | | |
| APR | | | | | | | | | | |
| 23 JUN | 0.30 | 0.85 | 3.8 | 0.210 | <1 | <100 | 20 | <1 | 1 | <10 |
| 17 | 0.70 | 1.2 | 5.2 | 0.530 | | | | | | |
| AUG 13 | 0.60 | 1.7 | 7.5 | 0.890 | | | | | | |
| | IRON, | LRAD, | Manga - Nese, | MERCURY | | SILVER, | ZINC, | | | MRTHY- LENE |
| DATE | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | BLUR ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | RECOV- ERABLE (UG/L AS FE) | RECOV- ERABLE (UG/L | RECOV- ERABLE (UG/L AS MN) | RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 | RECOV- ERABLE (UG/L | RECOV- ERABLE (UG/L | RECOV- ERABLE (UG/L | RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | ACTIVE SUB- STANCE |
| OCT 1990 29 DEC 19 | RECOV- ERABLE (UG/L AS FE) | RECOV- ERABLE (UG/L AS PB) | RECOV- ERABLE (UG/L AS MN) | RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 DEC 19 FEB 1991 26 | RECOV- ERABLE (UG/L AS FE) | RECOV- ERABLE (UG/L AS PB) | RECOV- ERABLE (UG/L AS MN) | RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 DEC 19 FEB 1991 | RECOV- ERABLE (UG/L AS FE) 3700 | RECOV- ERABLE (UG/L AS PB) | RECOV- ERABLE (UG/L AS MN) | RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 DEC 19 FEB 1991 26 APR 23 JUN | RECOV- ERABLE (UG/L AS FE) 3700 720 | RECOV- ERABLE (UG/L AS PB) | RECOV- ERABLE (UG/L AS MN) 130 | RECOV- RRABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) | RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | STANCE (MG/L) 0.01 0.03 |
| OCT 1990 29 DEC 19 FEB 1991 26 APR 23 | RECOV- ERABLE (UG/L AS FE) 3700 | RECOV- ERABLE (UG/L AS PB) | RECOV- ERABLE (UG/L AS MN) 130 | RECOV- RRABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) | RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | ACTIVE SUB- STANCE (MG/L) 0.01 |

RIO CHICO BASIN 323

50091800 RIO CHICO AT PROVIDENCIA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 17°59'16", long 66°00'18", at flat low bridge 200 ft (61 m) south of Highway 3, 0.5 mi (0.8 km) above mouth, and 1.5 mi (2.4 km) southeast of Patillas plaza.

DRAINAGE AREA. -- 4.9 mi2 (12.8 km2).

PERIOD OF RECORD. -- Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | WAT | ER-QUALITY | DATA, WA | TER YEAR | OCTOBE | IR 1990 TO |) SEPTEMB | BR 1991 | | | |
|----------------|---|---|---|--|---|--|--|--|--|--|---|---|
| DATE | Tine | DIS- CHARGE, INST. CUBIC FRET PER SECONE | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUF BII ITY (NTU | DI: | e- cri /ed sat | S- DEI VRD CI R- I(NT (1 UR- LE | YGEN MAND, HEM- CAL HIGH VEL) G/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 | | | | | _ | | | | | | | |
| 31 DEC | 0950 | 25 | 259 | 7.7 | 25.5 | 19 | 7. | .1 | 86 | 15 | 3200 | 2700 |
| 14 FEB 1991 | 0810 | 35 | 134 | 7.3 | 23.0 | 130 | 7. | . 3 | 84 | <10 | 71000 | 82000 |
| 25 APR | 0900 | 3.3 | 357 | 7.9 | 24.0 | 2. | 5 7. | . 8 | 92 | 17 | 430 | 310 |
| 12 JUN | 1035 | 1.1 | 407 | 7.7 | 26.5 | 3. | 4 7. | . 6 | 94 | 31 | K930 | K1000 |
| 07 | 1045 | 1.0 | 420 | 7.5 | 30.5 | 44 | 5. | . 2 | 69. | 36 | 560 | 410 |
| 12 | 1145 | 0.23 | 478 | 7.3 | 31.5 | 3. | 0 3. | . 5 | 45 | 40 | 2300 | 3200 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARE WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODI AE SORF TIC RATI |)- SIU)- DIS | JM, WAT TO B- TOT I FIED FIED L MG/L | ry Wh Prt Sui Lid To As (1 | LFIDE OTAL MG/L S S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 31 | 79 | . 0 | 19 | 7.7 | 26 | 1 | . 1. | .7 | 82 | <0.5 | 13 | 21 |
| DEC 14 | | | | | | | | - | 48 | | | |
| FEB 1991 25 | | | | | | | · | | 110 | | | |
| APR 12 | 100 | 0 1 | 24 | 9.7 | 41 | 2 | 5. | | 98 | <0.5 | 24 | 42 |
| JUN 07 | | - | | | | | | _ | | | | |
| λŪG | | | | | | | | • | 62 | | | |
| 12 | 89 | 5 0 | 22 | 7.4 | 59 | 3 | 10 | | 66 | | 38 | 59 |
| OCT | DATE | RIDE, D DIS- S SOLVED (MG/L | LICA, SUM DIS- CON DLVED TUE MG/L D AS SO | STI- D NTS, SO IS- (T LVED P | IDS, TO IS- AT IVED DEC IONS SU ER PE | SIDUE TAL 105 G. C, US- NDED WG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | GI AMM TO: (M | EN, G ONIA ORG TAL TO G/L (M | TRO- EN, ANIC TAL G/L N) |
| 31 | 1990 | <0.10 | 30 | 168 1 | 1.3 | 16 | 0.790 | 0.010 | 0.800 | 0 | .050 | 0.35 |
| | ::: | | | | | 237 | 0.650 | 0.050 | 0.700 | 0 | . 080 | 1.3 |
| | 1991 | | | | | <1 | 1.39 | 0.010 | 1.40 | 0 | . 050 | 0.55 |
| | | 0.10 | 27 | 232 | 0.68 | 1 | 4.71 | 0.090 | 4.80 | 0 | . 110 | 1.3 |
| | ••• | | | | | 73 | 6.70 | 0.200 | 6.90 | 0 | . 630 | 2.3 |
| AUG 12 | ••• | 0.10 | 26 | 261 | 0.16 | 24 | 5.59 | 0.110 | 5.70 | 0 | .110 | 2.3 |
| | | | | | | | | | | | | |

K = non-ideal count

RIO CHICO BASIN

50091800 RIO CHICO AT PROVIDENCIA, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | MITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------------|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 31 Dec | 0.40- | 1.2 | 5.3 | 0.220 | <1 | <100 | 10 | <1 | 2 | 20 |
| 14 FRB 1991 | 1.4 | 2.1 | 9.3 | 0.540 | | | | | | |
| 25 APR | 0.60 | 2.0 | 8.9 | 1.60 | | | | | | |
| 12 JUN | 1.4 | 6.2 | 27 | 2.40 | <1 | <100 | 80 | <1 | 1 | 10 |
| 07 AUG | 2.9 | 9.8 | 43 | 4.70 | | | | | | |
| 12 | 2.4 | 8.1 | 36 | 6.90 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | MRTHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 31 | 1700 | 1 | 80 | <0.10 | <1 | <1 | 20 | <0.010 | 1 | 0.03 |
| DEC 14 | | | | | | | | | | |
| FRB 1991 25 | | | | | | | | | | |
| APR | | | | | | | | | | |
| 12 Jun | 200 | 2 | 20 | 0.10 | <1 | 1 | 10 | <0.010 | 1 | 0.05 |
| 07 Aug | | | | | | | | | | |
| 12 | | | | | | | | | | |
| | | | | | | | | | | |

RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR

LOCATION.--Lat 18°02'04", long 66°01'58", Hydrologic Unit 21010004, on left bank, at foot bridge, off Highway 184, 1.2 mi (1.9 km) upstream from Lago Patillas Dam and 2.2 mi (3.5 km) northwest of Patillas.

DRAINAGE AREA. -- 18.3 mi 2 (47.4 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- February 1959 to October 1965 (annual low-flow and occasional measurements only), January 1966 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 235 ft (72 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharge, which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--25 years (1967-91), 59.2 ft³/s (1.676 m³/s), 43.93 in/yr (1,116 mm/yr), 42,890 acre-ft/yr (52.9 hm³/yr); median of yearly mean discharges, 60 ft³/s (1.70 m³/s), 43,500 acre-ft/yr (54 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,800 ft³/s (419 m²/s), Sept. 16, 1975, gage height, 12.45 ft (3.795 m), from rating curve extended above 250 ft³/s (7.08 m²/s) on basis of slope-area measurement of peak flow; minimum discharge, 4.6 ft³/s (0.130 m²/s), May 13-16, 1968.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 2,500 ft³/s (70.8 m³/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | Discha Time (ft³/s) | | | Gage height | | | | Discharge (ft³/s) (m³/s) | | Gage 1 | |
|--------------------|------------------------|-----------------|---------------------|----------------|----------------|--------|------|-----------------------------|--------|--------|------------|
| Date | T1me | (It'/s) | (m ³ /s) | (ft) | (m) | Date | Time | (IE-/8) | (m³/s) | (ft) | (=) |
| Oct. 20 Oct. 21 | 2315 0905 | *5,630 3,070 | 159 86.9 | *11.06 9.15 | 3.371 2.789 | May 25 | 0800 | 4,210 | 119 | 10.09 | 3.075 |

Minimum daily discharge, 11 ft3/s (0.312 m3/s), Sept. 1, 7, 8.

| | | | | | DAIL | MEAN VA | LUES | | | | | |
|------------------|------|-----------|------|------|------|---------|------|------------|--------------|--------------|------------|----------|
| DAY | OCT | NOV | DEC | JAN | PRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 80 | 111 | 54 | 79 | 18 | 29 | 15 | e13 | 27 | e4 00 | 14 | 11 |
| 2 | 43 | 96 | 37 | 47 | 16 | 24 | 16 | e13 | 25 | e1 00 | 13 | 21 |
| 1 2 3 4 | 33 | 80 | 46 | 32 | 19 | 26 | 16 | e16 | 19 | e45 | 12 | 14 |
| 4 | 28 | 87 | 43 | 27 | 16 | 26 | 15 | e17 | 17 | e25 | 13 | 12 |
| 5 | 25 | 84 | 33 | 24 | 63 | 28 | 15 | e15 | 19 | e21 | 15 | 12 |
| 6 | 23 | 77 | 30 | 24 | 129 | 45 | 14 | e15 | 34 | -18 | 16 | 12 |
| 7 | 22 | 64 | 28 | 41 | 71,_ | 45 | 14 | •14 | 39 | •17 | 15 | 11 |
| 8 | 26 | 62 | 26 | 49 | 32 | 34 | 17 | e13 | 22 | •16 | 14 | 11 |
| 9 | 102 | 63 | 27 | 39 | 24 | 29 | 16 | 14 | 19 | •16 | 13 | 24 |
| 10 | 64 | 89 | 27 | 37 | 22 | 25 | 15 | 13 | 17 | e15 | 12 | 21 |
| 11 | 42 | 62 | 26 | 35 | 91 | 24 | 22 | 16 | 21 | e15 | 13 | 38 |
| 12 | 42 | 53 | 25 | 34 | 93 | 22 | 23 | 25 | 48 | -14 | 14 | 18 15 |
| 13 | 145 | 47 | 26 | 34 | 126 | 21 | 19 | 14 | 27 | e14 e25 | . 14 13 | 14 |
| 14 | 91 | 44 | 129 | 35 | 57 | 23 | 20 | 14 | 23 | | | |
| 15 | 61 | 42 | 54 | 43 | 39 | 23 | 27 | 14 | 19 | e2 00 | 14 | 13 |
| 16 | 91 | 41 | 35 | 34 | 30 | 21 | 28 | 17 | 15 | ●70 | 16 | 13 |
| 17 | 88 | 42 | 30 | 27 | 26 | 20 | 20 | 16 | 15 | e21 | 58 | 222 |
| 18 | 316 | 40 | 27 | 24 | 32 | 21 | 19 | 18 | 14 | 24 | 59 | 64 |
| 19 | 207 | 37 | 26 | 21 | 44 | 23 | 18 | 17 | 17 | 21 | 16 | 30 |
| 20 | 438 | 36 | 25 | 20 | 62 | 21 | 16 | 16 | 15 | 21 | 14 | 22 |
| 21 | 807 | 44 | 25 | 19 | 48 | 19 | 17 | 16 | 24 | 17 | 41 | 26 |
| 22 | 192 | 37 | 23 | 18 | 34 | 32 | 17 | 17 | 17 | 15 | 78 | 79 |
| 23 | 147 | 33 | 23 | 18 | 28 | 26 | 17 | 16 | 25 | 16 | 48 | 126 |
| 24 | 174 | 30 | 22 | 18 | 29 | 20 | 16 | 14 | 23 | 19 | 30 | 51 |
| 25 | 314 | 31 | 21 | 17 | 28 | 19 | 17 | 398 | 16 | 18 | 15 | 33 |
| 26 | 379 | 32 | 21 | 16 | 27 | 18 | 17 | €66 | e16 | 16 | 12 | 29 |
| 27 | 235 | 35 | 21 | 16 | 24 | 18 | 16 | e34 | e18 | 16 | 39 | 80 |
| 28 | 191 | 34 | 25 | 17 | 35 | 17 | 14 | 29 | e 24 | 13 | 41 | 50 |
| 29 | 149 | 31 | 47 | 17 | | 16 | 15 | 24 | e2 0 | 17 | 16 | 237 |
| 30 | 187 | 83 | 36 | 16 | | 16 | -14 | 22 | e4 50 | 16 | 13 | 86 |
| 31 | 141 | | 148 | 18 | | 16 | | 21 | | 17 | 13 | |
| TOTAL | 4883 | 1647 | 1166 | 896 | 1263 | 747 | 525 | 967 | 1085 | 1278 | 714 | 1395 |
| MEAN | 158 | 54.9 | 37.6 | 28.9 | 45.1 | 24.1 | 17.5 | 31.2 | 36.2 | 41.2 | 23.0 | 46.5 |
| MAX | 807 | 111 | 148 | 79 | 129 | 45 | 28 | 398 | 450 | 400 | 78 | 237 |
| MIN | 22 | 30 | 21 | 16 | 16 | 16 | 14 | 13 | 14 | 13 | 12 | 11 |
| AC-FT | 9690 | 3270 | 2310 | 1780 | 2510 | 1480 | 1040 | 1920 | 2150 | 2530 | 1420 | 2770 |
| CPSM | 8.61 | 3.00 | 2.06 | 1.58 | 2.46 | 1.32 | .96 | 1.70 | 1.98 | 2.25 | 1.26 | 2.54 |
| IN. | 9.93 | 3.35 | 2.37 | 1.82 | 2.57 | 1.52 | 1.07 | 1.97 | 2.21 | 2.60 | 1.45 | 2.84 |

CAL YR 1990 TOTAL 15679.8 MEAN 43.0 MAX 807 MIN 8.1 AC-FT 31100 CFSM 2.35 IN. 31.87 WTR YR 1991 TOTAL 16566 MEAN 45.4 MAX 807 MIN 11 AC-FT 32860 CFSM 2.48 IN. 33.68

e Estimated

RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR--Continued (National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1960 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | Time | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) | HARD- NESS TOTAL (MG/L AS CACO3) |
|------------------|--|--|---|---|---|---|---|--|---|---|--|
| OCT 1990 | | | | | | | | | | | |
| 15 JAN 1991 | 0945 | 59 | 128 | 7.8 | 24.0 | 6.0 | 8.1 | 96 | K1100 | 2300 | 49 |
| 08 | 0950 | 35 | 148 | 7.5 | 22.0 | 12 | 8.2 | 93 | 5600 | 5300 | 46 |
| APR 08 JUL | 0955 | 15 | 175 | 8.0 | 23.5 | 1.4 | 8.2 | 96 | 460 | 210 | 55 |
| 24 | 1030 | 18 | 154 | 8.1 | 27.0 | 0.40 | 8.3 | 102 | K30 | 590 | 47 |
| DATE | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNR- SIUM, DIS- SOLVRD (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) | FLUO- RIDR, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) |
| OCT 1990 15 | 9.3 | 6.3 | 31 | 2 | 1.7 | 39 | 12 | 20 | 0.20 | 20 | 93 |
| JAN 1991 08 | 11 | 4.4 | 13 | 0.8 | 0.80 | 46 | 8.3 | 13 | <0.10 | 20 | 100 |
| APR | | | | | | | | | | | |
| 08 | 13 | 5.5 | 15 | 0.9 | 0.50 | 60 | 10 | 13 | <0.10 | 23 | 109 |
| 24 | 11 | 4.8 | 12 | 0.8 | 0.60 | 49 | 9.2 | 12 | 0.20 | 22 | 87 |
| | SUM CON TUR D DATE SO | STI- D NTS, SO IS- (T LVRD P | IDS, GE IS- NO2- LVED DI ONS SOI | EN, G NO3 AMM S- D LVED SO S/L (M | EN, G ONIA AMM IS- D LVED SO G/L (M | RN, GEONIA MOI IS- OR LVRD TY G/L () | GANIC PHOTAL TO | HOS- PHO ORUS I OTAL SO MG/L (M | IOS- PHO DRUS OF DIS- DI DLVED SOI | PRUS PE THO, OR S- I VED SC J/L (M | IOS- LATE, ITHO, IIS- DLVED IG/L PO4) |
| OCT | | | | | | | | | | | |
| | 1991 | 126 1 | 4.7 0. | .300 0 | .010 | 0.01 | 0.40 | 0.010 0 | 0.020 | .010 | 0.03 |
| 08 | ••• | 99 | 9.56 0. | 200 0 | . 050 | 0.06 | 0.40 | 0.040 0 | .020 0 | .010 | 0.03 |
| APR 08 JUL | ••• | 116 | 4.30 0. | 067 <0 | .010 | | 0.40 | 0.020 <0 | .010, <0 | .010 | |
| | ••• | 101 | 4.32 <0. | 050 0 | .020 | 0.03 | <0.20 | 0.020 <0 | .010 <0 | .010 | |

K=non-ideal count

RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR--Continued (National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | ALUM- INUM, DIS- SOLVED (UG/L AS AL) | ARSENIC DIS- SOLVED (UG/L AS AS) | BARIUM, DIS- SOLVED (UG/L AS BA) | BERYL- LIUM, DIS- SOLVED (UG/L AS BE) | CADMIUM DIS- SOLVED (UG/L AS CD) | CHRO- MIUM, DIS- SOLVED (UG/L AS CR) | COBALT, DIS- SOLVED (UG/L AS CO) | COPPER, DIS- SOLVED (UG/L AS CU) | IRON, DIS- SOLVED (UG/L AS FE) | LEAD, DIS- SOLVED (UG/L AS PB) |
|----------------------------------|---|--|--|---|--|---|--|--|--|--|
| OCT 1990 15 JAN 1991 | 120 | <1 | 11 | <0.5 | 2.0 | <1 | <3 | 5 | 180 | 27 |
| 08 | 130 | <1 | 12 | <0.5 | <1.0 | <1 | <3 | 5 | 110 | 4 |
| APR 08 JUL | 20 | <1 | 14 | <0.5 | <1.0 | <1 | <3 | 1 | 22 | 1 |
| 24 | 10 | ∢1 | 11 | <0.5 | <1.0 | <1 | <3 | 1 | 27 | 1 |
| | | | | | | | | | | |
| DATE | LITHIUM DIS- SOLVED (UG/L AS LI) | MANGA- NESE, DIS- SOLVED (UG/L AS MN) | MBRCURY DIS- SOLVED (UG/L AS HG) | MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) | NICKEL, DIS- SOLVED (UG/L AS NI) | SELE- NIUM, DIS- SOLVED (UG/L AS SE) | SILVER, DIS- SOLVED (UG/L AS AG) | STRON- TIUM, DIS- SOLVED (UG/L AS SR) | VANA- DIUM, DIS- SOLVED (UG/L AS V) | ZINC, DIS- SOLVED (UG/L AS ZN) |
| OCT 1990 15 | DIS- (UG/L | NRSE, DIS- SOLVED (UG/L | DIS- SOLVED (UG/L | DENUM, DIS- SOLVED (UG/L | DIS- SOLVED (UG/L | NIUM, DIS- SOLVED (UG/L | DIS- SOLVED (UG/L | TIUM, DIS- SOLVED (VG/L | DIUM, DIS- SOLVED (UG/L | DIS- SOLVED (UG/L |
| OCT 1990 15 JAN 1991 08 | DIS- SOLVED (UG/L AS LI) | NESE, DIS- SOLVED (UG/L AS MN) | DIS- SOLVED (UG/L AS HG) | DENUM, DIS- SOLVED (UG/L AS MO) | DIS- SOLVED (UG/L AS NI) | NIUM, DIS- SOLVED (UG/L AS SE) | DIS- SOLVED (UG/L AS AG) | TIUM, DIS- SOLVED (UG/L AS SR) | DIUM, DIS- SOLVED (UG/L AS V) | DIS- SOLVED (UG/L AS ZN) |
| OCT 1990 15 JAN 1991 | DIS- SOLVED (UG/L AS LI) | NESE, DIS- SOLVED (UG/L AS MN) | DIS- SOLVED (UG/L AS HG) | DENUM, DIS- SOLVED (UG/L AS MO) | DIS- SOLVED (UG/L AS NI) | NIUM, DIS- SOLVED (UG/L AS SE) | DIS- SOLVED (UG/L AS AG) | TIUM, DIS- SOLVED (UG/L AS SR) | DIUM, DIS- SOLVED (UG/L AS V) | DIS- SOLVED (UG/L AS ZN) |

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| | | STRRAM- FLOW, INSTAN- | SEDI- MENT, SUS- | SEDI- MENT, DIS- CHARGE, SUS- | SED. SUSP. SIEVE DIAM. PERCENT FINER |
|----------------|------|-----------------------------|------------------------|---|---|
| DATE | TIME | Tanrous (CPS) | PENDED (MG/L) | PENDED (T/DAY) | THAN .062 MM |
| OCT 1990 | | | | | |
| 15 ЈАН 1991 | 0945 | 59 | 9 | 1.4 | |
| 08 | 0950 | 35 | 22 | 2.1 | |
| APR | | | | | |
| 08 | 1005 | 15 | 14 | 0.57 | 70 |
| JUL | | | | | |
| 24 | 1030 | 18 | 21 | 1.02 | 77 |

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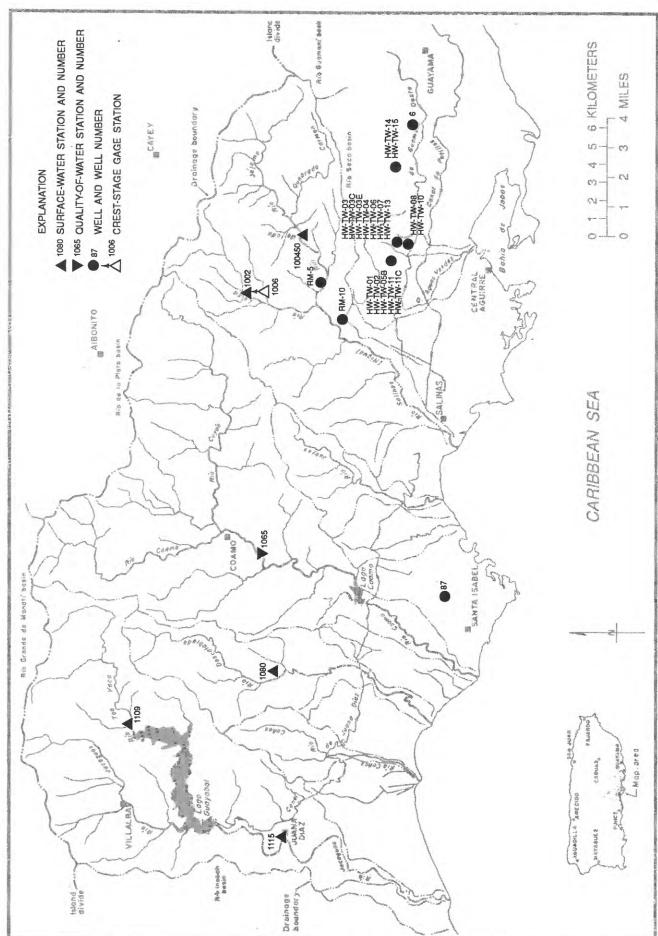


Figure 22.--South coast river basins the Río Salinas to Río Jacaguas basins.

RIO SALINAS BASIN

50100200 RIO LAPA NEAR RABO DEL BUEY, PR

LOCATION.--Lat 18°03'36", long 66°14'28", Hydrologic Unit 21010004, on left bank, at bridge on Highway 1, Km 9.7, 1.5 mi (2.4 km) north of Rabo del Buey, and 4.4 mi (7.1 km) northeast of Salinas Plaza.

DRAINAGE AREA. -- 9.92 ml 2 (25.69 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- 1953-63 (annual low-flow measurements only), September 1988 to current year.

GAGE. -- Water-stage recorder and crest-stage gage. Elevation of gage is 394 ft (120 m), from topographic map.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,750 ft³/s (49.6 m³/s), Oct. 20, 1990, gage height, 10.23 ft (3.118 m) from rating curve extended above 100 ft³/s (2.83 m³/s) on basis of step-backwater analysis; minimum daily discharge, 0.02 ft³/s (0.001 m²/s), Aug. 29, 1989.

EXTREMES FOR CURRENT YEAR .-- Peak discharges greater than base discharge of 200 ft3/s (5.66 m3/s) and maximum (*):

| | | Discharge | | Gage height | | | | Disc | harge | Gage height | | |
|------|----|-----------|---------|---------------------|--------|-------|---------|------|---------|---------------------|------|-------|
| Dat | • | Time | (ft3/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft3/s) | (m ³ /s) | (ft) | (m) |
| Oct. | 9 | 1515 | 1,240 | 35.1 | 9.51 | 2.899 | Oct. 26 | 2015 | 523 | 14.8 | 8.11 | 2.472 |
| Oct. | 16 | 1515 | 437 | 12.4 | 7.88 | 2.402 | Oct. 25 | 2215 | 912 | 25.8 | 8.96 | 2.731 |
| Oct. | 18 | 1930 | 783 | 22.2 | 8.70 | 2.652 | Feb. | 1745 | 207 | 5.86 | 7.06 | 2.152 |
| Oct. | 20 | 2315 | *1,750 | 49.6 | *10.23 | 3.118 | Feb. 12 | 1800 | 255 | 7.22 | 7.28 | 2.219 |
| Oct. | 21 | 0845 | 907 | 25.7 | 8.96 | 2.731 | | | | | | |

Minimum daily discharge 0.16 ft3/s (0.004 m3/s), July 23.

| | | DISCHARG | E, CUBIC | FEET PER | | WATER YE Y MEAN VA | EAR OCTOBER | 1990 TO | SEPTEMBER | 1991 | | | |
|----------|----------|----------|----------|----------|-------|-----------------------|-------------|--------------|-------------|--------------|-------------|-------|--|
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JOL | AUG | SEP | |
| 1 | 31 | 74 | 10 | 7.8 | 2.3 | 2.2 | 1.3 | e. 65 | e2.0 | e1.9 | e.40 | .42 | |
| 2 | 14 | 69 | 9.1 | 6.1 | 2.3 | 2.1 | 1.4 | e. 60 | e2.1 | e1.5 | e.33 | .44 | |
| 3 | 6.1 | 61 | 11 | 5.1 | 2.1 | 2.1 | 1.4 | e. 54 | e1.9 | e1.0 | e.31 | .43 | |
| 4 | 4.5 | 56 | 10 | 4.7 | 2.1 | 2.1 | 1.3 | e. 52 | e1.5 | e.72 | e.28 | .42 | |
| 5 | 3.9 | 53 | 7.6 | 4.4 | 20 | 2.3 | 1.2 | e.50 | e1.1 | e. 68 | e.30 | .32 | |
| 6 | 3.4 | 43 | 7.4 | 4.5 | 12 | 2.2 | 1.1 | e.50 | e1.2 | e.30 | e.31 | .36 | |
| 7 | 3.2 | 41 | 7.1 | 4.5 | 7.5 | 2.1 | 1.1 | e. 54 | e1.0 | e.20 | e.37 | . 60 | |
| 8 | 17 | 36 | 6.6 | 4.7 | 3.5 | 2.0 | 1.3 | e.56 | e.54 | 0.24 | e.36 | . 57 | |
| 9 | 97 | 34 | 5.5 | 4.8 | 2.9 | 1.8 | 1.4 | e. 66 | e.84 | e.23 | e.42 | .46 | |
| 10 | 51 | 32 | 5.5 | 4.4 | 23 | 1.8 | 1.1 | e.78 | e.90 | e.33 | e.45 | .48 | |
| 11 | 19 | 29 | 6.7 | 4.1 | 56 | 1.7 | 1.1 | e. 80 | e.60 | e.33 | e.52 | .42 | |
| 12 | 19 | 26 | 7.0 | 3.9 | 74 | 1.7 | 1.1 | e1.0 | e1.1 | e.27 | .50 | .39 | |
| 13 | 65 | 24 | 5.8 | 3.8 | 63 | 1.6 | 1.1 | e1.3 | e1.3 | e.22 | e.45 | .42 | |
| 14 | 55 | 22 | 5.8 | 3.6 | 20 | 1.6 | 1.1 | e1.5 | e.74 | e.21 | 0.74 | .38 | |
| 15 | 44 | 20 | 5.2 | 3.4 | 9.2 | 1.5 | 1.0 | e1.3 | e.56 | e. 25 | ●.78 | .36 | |
| 16 | 84 | 20 | 4.8 | 3.4 | 6.3 | 1.5 | .99 | 01.4 | e.40 | e4. 0 | e.80 | .37 | |
| 17 | 60 | 18 | 4.8 | 3.2 | 5.1 | 1.5 | .93 | e1.5 | e.36 | e1.5 | e.52 | 4.7 | |
| 18 | 120 | 17 | 4.8 | 3.0 | 4.5 | 1.4 | .90 | e1.7 | e.34 | e.70 | 0.40 | 1.2 | |
| 19 | 84 | 15 | 4.6 | 3.0 | 4.3 | 1.4 | .84 | e2.0 | e.37 | e. 60 | e.36 | 1.3 | |
| 20 | 94 | 24 | 4.4 | 3.0 | 4.1 | 1.4 | .77 | e2.2 | 0.41 | e.45 | e.35 | .70 | |
| 21 | 242 | 19 | 4.3 | 2.9 | 3.7 | 1.3 | .80 | e2.0 | e.43 | e. 25 | e.40 | .57 | |
| 22 | 137 | 17 | 4.2 | 2.9 | 3.4 | 1.6 | .81 | e2.2 | 0.45 | e.17 | e1.7 | . 93 | |
| 23 | 107 | 16 | 4.1 | 2.8 | 3.2 | 1.8 | .76 | e2.2 | e.54 | e.16 | e2.3 | 1.9 | |
| 24 | 141 | 15 | 4.1 | 2.8 | 3.0 | 1.4 | .70 | e2.1 | e.52 | . 19 | e1.0 | . 88 | |
| 25 | 185 | 14 | 4.2 | 2.8 | 2.7 | 1.3 | .70 | e3.0 | e.52 | .18 | e.80 | .73 | |
| 26 | 164 | 13 | 4.1 | 2.8 | 2.4 | 2.8 | .71 | e3.1 | e.35 | . 18 | e.60 | . 85 | |
| 27 | 127 | 12 | 4.0 | 2.7 | 2.2 | 2.1 | .68 | e2.5 | e.30 | .18 | . 69 | .80 | |
| 28 | 109 | 11 | 4.0 | 2.8 | 2.4 | 1.6 | .70 | e2.3 | e.32 | .25 | .75 | . 68 | |
| 29 | 97 | 10 | 4.5 | 2.8 | | 1.6 | .64 | e2.3 | e.32 | .30 | .56 | 1.4 | |
| 30 31 | 94 81 | 12 | 4.5 | 2.7 | | 1.5 | .64 | e2.2 e2.0 | e2.0 | e.52 e.52 | .46 | 1.2 | |
| TOTAL | 2359.1 | 853 | 188.7 | 115.9 | 347.2 | 54.4 | 29.57 | 46.45 | 25.01 | 18.53 | 18.66 | 24.68 | |
| MEAN | 76.1 | 28.4 | 6.09 | 3.74 | 12.4 | 1.75 | .99 | 1.50 | .83 | .60 | .60 | .82 | |
| MAX | 242 | 74 | 13 | 7.8 | 74 | 2.8 | 1.4 | 3.1 | 2.1 | 4.0 | 2.3 | 4.7 | |
| MIN | 3.2 | 10 | 4.0 | 2.5 | 2.1 | 1.3 | .64 | .50 | .30 | .16 | .28 | .32 | |
| AC-FT | 4680 | 1690 | 374 | 230 | 689 | 108 | 59 | 92 | 50 | 37 | 37 | 49 | |
| CFEM | 7.67 | 2.87 | .61 | .38 | 1.25 | .18 | .10 | . 15 | .08 | .06 | .06 | .08 | |
| IN. | 8.85 | 3.20 | .71 | .43 | 1.30 | .20 | .11 | .17 | .09 | .07 | .07 | .09 | |

CAL YR 1990 TOTAL 3977.83 MEAN 10.9 MAX 242 MIN .06 AC-FT 7890 CFSM 1.10 IN. 14.92 WTR YR 1991 TOTAL 4081.20 MEAN 11.2 MAX 242 MIN .16 AC-FT 8100 CFSM 1.13 IN. 15.30

e Estimated

RIO SALINAS BASIN 331

50100450 RIO MAJADA AT LA PLENA, PR

LOCATION.--Lat 18°02'40", long 66°12'27", Hydrologic Unit 21010004, on right bank, upstream side of bridge on Hwy 712, about 0.3 mi (0.5 km) southwest of La Plena.

DRAINAGE AREA. -- 16.7 mi2 (43.3 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- September 1988 to current year.

GAGE. -- Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map.

REMARKS.-Records fair. Some regulation at low flow upstream from station by local residents for agricultural purposes.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,820 ft³/s (108 m²/s), Oct. 25, 1990, gage height, 10.34 ft (3.152 m) from rating curve extended above 100 ft³/s (2.832 m²/s) on basis of step-backwater analysis and logarithmic extension; minimum daily discharge, 0.05 ft³/s (0.001 m²/s), June 4-10, 1990.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 250 ft³/s (7.08 m³/s) and maximum (*):

DISCHARGE, CURIC FERT PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | Disc | Discharge | | height | | | Disc | harge | Gage height | | |
|---------|------|---------|---------------------|------|--------|---------|------|---------|---------------------|-------------|-------|--|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Tima | (ft³/s) | (m ³ /s) | (ft) | (m) | |
| Oct. 9 | 1545 | 756 | 21.4 | 6.86 | 2.091 | Oct. 24 | 1900 | 912 | 25.8 | 7.17 | 2.185 | |
| Oct. 18 | 1945 | 2,000 | 56.6 | 8.72 | 2.658 | Oct. 25 | 2145 | *3,820 | 108 | *10.34 | 3.152 | |
| Oct. 20 | 2330 | 3.210 | 90.9 | 9.87 | 3.008 | | | | | | | |

Minimum daily discharge 0.56 ft³/s (0.016 m³/s), Aug. 20, Sept. 6.

| | | DISCHA | RGE, CUBIC | FRRT PER | | WATER YEA Y MEAN VAL | | 1990 TO | SEPTEMBE | R 1991 | | |
|--------|--------|--------|------------|----------|-------|-------------------------|------|---------|----------|--------|-------|-------|
| | | | | | DALL | II MANN VAL | N ES | | | | | |
| DAY | OCT | NOV | DEC | Jan | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 8.2 | 59 | 14 | 11 | 3.8 | 4.6 | 3.0 | . 95 | 3.4 | 5.2 | .92 | . 64 |
| 2 | 5.2 | 50 | 12 | 8.8 | 3.5 | 4.0 | 3.1 | . 92 | 3.6 | 3.7 | .76 | . 61 |
| 3 | 3.6 | 44 | 13 | 7.7 | 3.7 | 4.0 | 3.0 | .79 | 3.1 | 2.4 | . 69 | . 68 |
| 4 | 2.5 | 43 | 12 | 7.3 | 3.9 | 4.4 | 2.9 | .78 | 2.3 | 2.1 | . 65 | . 60 |
| 5 | 1.8 | 42 | 9.4 | 7.0 | 8.1 | 4.6 | 2.6 | .74 | 1.9 | 1.3 | .66 | . 62 |
| 6 7 | 2.0 | 36 | 9.5 | 6.8 | 40 | 4.6 | 2.2 | . 83 | 2.2 | . 82 | . 62 | .56 |
| | 2.1 | 33 | 9.9 | 6.5 | 21 | 4.4 | 2.3 | . 92 | 1.7 | . 64 | .75 | . 57 |
| 8 | 9.1 | 31 | 9.5 | 6.8 | 7.9 | 4.2 | 2.6 | . 94 | 1.2 | . 80 | .71 | .79 |
| 9 | 120 | 29 | 9.2 | 6.3 | 6.3 | 4.4 | 2.9 | 1.1 | 1.9 | .77 | . 83 | .80 |
| 10 | 26 | 26 | 9.2 | 5.7 | 11 | 3.8 | 2.7 | 1.3 | 2.0 | 1.1 | .90 | . 94 |
| 11 | 9.9 | 25 | 10 | 5.7 | 22 | 4.0 | 2.1 | 1.3 | 1.4 | 1.1 | 1.1 | 1.1 |
| 12 | 9.9 | 24 | 11 | 5.2 | 57 | 4.0 | 2.1 | 1.7 | 2.6 | . 85 | .99 | . 90 |
| 13 | 56 | 22 | 9.9 | 5.0 | 43 | 3.8 | 2.0 | 2.2 | 3.0 | .71 | .85 | .76 |
| 14 | 15 | 21 | 14 | 4.8 | 16 | 4.0 | 1.6 | 2.6 | 1.8 | . 68 | 1.6 | . 63 |
| 15 | 13 | 20 | 10 | 5.3 | 11 | 4.2 | 1.8 | 2.2 | 1.3 | . 89 | 1.6 | . 69 |
| 16 | 18 | 19 | 9.5 | 5.0 | 8.5 | 4.0 | 2.2 | 2.4 | .94 | 15 | 1.6 | . 62 |
| 17 | 18 | 18 | 8.4 | 4.5 | 7.4 | 3.8 | 1.7 | 2.6 | .84 | 8.2 | .88 | 3.5 |
| 18 | 139 | 17 | 7.8 | 4.2 | 6.5 | 4.0 | 1.6 | 3.2 | .76 | 4.1 | .72 | 2.9 |
| 19 | 77 | 17 | 7.8 | 4.0 | 7.6 | 4.2 | 1.6 | 3.5 | .83 | 2.4 | . 66 | . 88 |
| 20 | 155 | 20 | 7.9 | 3.9 | 8.3 | 4.4 | 1.6 | 3.7 | . 95 | 2.2 | .56 | 2.8 |
| 21 | 320 | 19 | 8.0 | 3.9 | 6.2 | 4.0 | 1.7 | 3.3 | .97 | 1.6 | .84 | 1.1 |
| 22 | 82 | 18 | 7.9 | 3.8 | 5.7 | 3.6 | 1.8 | 3.8 | 1.0 | 1.4 | 3.3 | 1.0 |
| 23 | 52 | 17 | 8.3 | 3.7 | 5.2 | 4.2 | 1.7 | 3.8 | 1.3 | . 98 | 4.6 | 5.4 |
| 24 | 130 | 16 | 8.5 | 3.6 | 5.0 | 3.3 | 1.3 | 3.5 | 1.2 | . 85 | 1.4 | 3.0 |
| 25 | 343 | 16 | 8.4 | 3.5 | 5.0 | 3.2 | 1.4 | 5.3 | 1.2 | . 87 | .83 | 1.4 |
| 26 | 221 | 15 | 8.0 | 3.6 | 4.8 | 3.8 | 1.8 | 5.4 | .82 | . 87 | .66 | . 95 |
| 27 | 155 | 15 | 7.8 | 3.5 | 4.6 | 4.2 | 1.2 | 4.1 | . 69 | 1.0 | . 64 | . 81 |
| 28 | 113 | 15 | 7.9 | 3.6 | 4.6 | 3.1 | 1.2 | 4.0 | .73 | . 81 | .98 | .74 |
| 29 | 82 | 13 | 9.0 | 3.6 | | 2.7 | 1.2 | 4.0 | .73 | 1.7 | . 96 | 4.8 |
| 30 | 103 | 15 | 9.1 | 3.7 | | 3.1 | 1.1 | 3.9 | 5.6 | 1.7 | .84 | 4.2 |
| 31 | 77 | | 13 | 3.6 | | 2.8 | | 3.4 | | 1.3 | . 65 | |
| TOTAL | 2369.3 | 755 | 299.9 | 161.6 | 337.6 | 121.4 | 60.0 | 79.17 | 51.96 | 68.04 | 33.75 | 44.99 |
| MRAN | 76.4 | 25.2 | 9.67 | 5.21 | 12.1 | 3.92 | 2.00 | 2.55 | 1.73 | 2.19 | 1.09 | 1.50 |
| MAX | 343 | 59 | 14 | 11 | 57 | 4.6 | 3.1 | 5.4 | 5.6 | 15 | 4.6 | 5.4 |
| MIN | 1.8 | 13 | 7.8 | 3.5 | 3.5 | 2.7 | 1.1 | .74 | .69 | . 64 | .56 | .56 |
| AC-FT | 4700 | 1500 | 595 | 321 | 670 | 241 | 119 | 157 | 103 | 135 | 67 | 89 |
| CFSM | 4.58 | 1.51 | . 58 | .31 | .72 | . 23 | .12 | . 15 | .10 | . 13 | .07 | . 09 |
| IN. | 5.28 | 1.68 | . 67 | .36 | .75 | .27 | .13 | .18 | .12 | . 15 | .08 | .10 |

CAL YR 1990 TOTAL 3818.58 MEAN 10.5 MAX 343 MIN .05 AC-FT 7570 CFSM .63 IN. 8.51 WTR YR 1991 TOTAL 4382.71 MEAN 12.0 MAX 343 MIN .56 AC-FT 8690 CFSM .72 IN. 9.76

RIO COAMO BASIN

50106500 RIO COAMO NEAR COAMO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'52", long 66°22'10", Hydrologic Unit 21010004, on Highway 153 bridge, 0.4 mi (0.6 km) above Río de la Mina, and 1.8 mi (2.9 km) south of Coamo plaza.

DRAINAGE AREA. -- 46.0 mi2 (119.1 km2).

PERIOD OF RECORD. -- Water years 1978 to current year.

WATER-QUALITY RECORDS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | SOLVI | CENT ED SATUR | DEMAND, D CHEM- ICAL (HIGH - LEVEL) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|-----------------------|---------------------------------------|--|--|--|---|--|--|-------------------------------------|---|---|---|
| NOV 1990 06 | 1135 | 81 | 658 | 8.4 | 28.0 | 1.6 | 8.0 | 10 | 2 20 | K140000 | 4600 |
| DEC 13 | 1005 | 28 | 697 | 8.2 | 24.5 | 1.9 | 7. | 5 8 | 9 <10 | 2100 | 370 |
| FEB 1991 19 APR | 1250 | 12 | 576 | 8.3 | 27.5 | 2.0 | 8.9 | 5 10 | 7 12 | K7400 | 440 |
| 24 Jun | 1335 | 6.4 | 731 | 8.0 | 32.0 | 2.9 | 8.: | 9 11 | 7 27 | 33000 | 2100 |
| 19 AUG | 1225 | 4.8 | 740 | 8.1 | 31.5 | 1. | 9.: | 3 13 | 3 25 | K6500 | K130 |
| 21 | 1245 | 33 | 680 | 8.0 | 33.0 | 2.0 | 7. | ı | 7 28 | 3000 | 600 |
| DATE | HARD- NESS TOTAL (MG/L AS | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS | CALCIUM DIS- SOLVED (MG/L | MAGNE- SIUM, DIS- SOLVED (MG/L | SODIUM, DIS- SOLVED (MG/L | SODI AD SORP TIO RATIO | SOLV | d, wat wh - Tot fe ED FIELD | T SULFIDE TOTAL | SULFATE DIS- SOLVED (MG/L | CHLO- RIDE, DIS- SOLVED (MG/L |
| NOV 1990 06 | 260 | 2 | 70 | 21 | 32 | 0 | .9 3.4 | 0 24 | 0 <0.5 | 33 | 37 |
| DEC 13 | | | | | | | | 25 | 0 | | |
| FRB 1991 19 | | | | | | | | 24 | 0 | | |
| APR 24 | 240 | 0 | 65 | 20 | 48 | 1 | 6.0 | 25 | 0 <0.5 | 38 | 57 |
| JUN 19 | | | | | | | | 26 | 0 | | |
| AUG 21 | 240 | 3 | 64 | 19 | 39 | 1 | 5.: | 3 26 | 0 | 34 | 53 |
| | | | | | | | | | | | |
| DA7 | ri I SC Fe (1 | IDE, DI DIS- SC DLYED (1 SG/L | LICA, SUN IS- CON OLVED TUE MG/L I AS SO | ISTI- I INTS, SC DIS- (1 DLVED I | LIDS, TO DIS- AT DLVRD DE CONS S PER PE | SIDUE TAL 105 G. C, I US- NDED MG/L) | NITRO- GEN, NITRATE I TOTAL (MG/L AS N) | GEN, NITRITE N TOTAL (MG/L | GEN, CO2+NO3 AMI TOTAL TO (MG/L (I | GEN, (MONIA ORO OTAL TO MG/L (1 | ITRO- JEN, JANIC OTAL (G/L J N) |
| NOV 19 | | | | | | | | | | | |
| DEC | | | 30 | | 10.9 | 2 | 2.58 | 0.120 | | 0.210 | 0.79 |
| 13 FEB 199 | 91 | | | | | <1 | 2.41 | 0.190 | | 0.780 | 0.72 |
| APR | | | | | | 12 | 1.50 | 0.200 | | 0.690 | 0.41 |
| 24 Jun | | | 28 | 412 | 7.08 | 6 | 0.690 | 0.610 | | 3.70 | 1.2 |
| 19 AUG | • | | | | | 8 | 0.660 | 0.540 | 1.20 | 3.10 | 1.3 |

400 35.5

0.600

1.20 3.40

2.3

4 0.600

K = non-ideal count

0.20 30

50106500 RIO COAMO NEAR COAMO, PR--Continued

WATER-QUALITY RECORDS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | MITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | MITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| NOV 1990 | | | | | | | | | | |
| 06 | 1.0 | 3.7 | 16 | 0.270 | <1 | <100 | 60 | <1 | 1 | <10 |
| DEC | | | | | | | | | | |
| 13 FBB 1991 | 1.5 | 4.1 | 18 | 0.500 | | | | | | |
| 19 | 1.1 | 2.8 | 12 | 0.470 | | | | | | |
| APR | | | | | | | | | _ | _ |
| 24 Jun | 4.9 | 6.2 | 27 | 0.960 | 1 | 100 | 70 | <1 | 2 | 10 |
| 19 | 4.4 | 5.6 | 25 | 0.540 | | | | | | |
| DUA | | | _ | | | | | | | |
| 21 | 5.7 | 6.9 | 31 | 0.890 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 06 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| NOV 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 06 DEC 13 FEB 1991 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 06 DEC 13 FEB 1991 19 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| MOV 1990 06 DEC 13 FEB 1991 19 APR 24 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 06 DEC 13 FEB 1991 19 | TOTAL RECOV- BRABLE (UG/L AS FE) 420 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |

RIO DESCALABRADO BASIN

50108000 RIO DESCALABRADO NEAR LOS LLANOS, PR

LOCATION.--Lat 18°03'08", long 66°25'34", Hydrologic Unit 21010004, at bridge on Highway 14, 1.5 mi (2.4 km) west of Los Llanos, and 5.3 mi (8.5 km) east of Juana Días.

DRAINAGE AREA. -- 12.9 mi 2 (33.4 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1959-65 (annual low-flow measurements only), 1965 (annual maximum discharge), January 1966 to June 1969, July to December 1969 (maximum discharge only), February 1984 to current year.

GAGE. -- Water-stage recorder. Elevation of gage is 220 ft (67 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some regulation at low flow by local resident upstream from station.

AVERAGE DISCHARGE.--7 years (1985-91), 10.02 ft³/s (0.284 m³/s), 10.55 in/yr (268 mm/yr), 7,259 acre-ft/yr (8.950 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft³/s (850 m³/s), Oct. 7, 1985, gage height, 24.37 ft (7.428 m), from rating curve extended above 10,000 ft³/s (283 m³/s) on basis of step-backwater analysis; no flow many days.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 1,500 ft³/s (42.5 m³/s) and maximum (*):

| Date | Time | Disc (ft³/s) | harge (m³/s) | Gage (ft) | height (m) | Date | Time | Disc (ft ³ /s) | charge (m³/s) | Gage (ft) | height (m) |
|---------|------|-----------------|-----------------|--------------|------------|------|------------|------------------------------|------------------|--------------|------------|
| Oct. 21 | 0815 | *2,490 | 71.0 | *9.17 | 2.795 | | No other p | eak great | er than b | ase disch | arge. |

Minimum discharge, 0.23 ft3/s (0.006 m3/s), Aug. 10-14.

| | | di s char | GE, CUBIC | FRET PER | | WATER Y Y MEAN V | TRAR OCTOBER ALUES | 1990 TO | SEPTEMBER | 1991 | | |
|-------|--------------|------------------|-----------|----------|-------|----------------------|-----------------------|---------|-----------|-------------|-------|--------------|
| DAY | OCT | NOA | DEC | Jan | FEB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
| 1 | e19 | 86 | 13 | 3.5 | 2.9 | 3.0 | ●.60 | 2.2 | .74 | 3.8 | 1.9 | 76 |
| 2 | e13 | 77 | 13 | 2.8 | 2.0 | 1.1 | e3.5 | 6.2 | . 85 | 2.2 | .98 | 17 |
| 3 | e 8.0 | 67 | 13 | 2.4 | 2.6 | 1.0 | e 20 | 6.5 | .59 | 1.9 | . 67 | 7.4 |
| 4 | e 5.0 | 61 | 12 | 2.0 | 2.5 | 1.8 | ●72 | 2.4 | .52 | 2.6 | .52 | 7.4 |
| 5 | e3.0 | 61 | 12 | 1.9 | 9.3 | 1.4 | e15 | 1.7 | .49 | 2.0 | .52 | 6.8 |
| 6 | e 3.5 | e 50 | 11 | 1.9 | 9.2 | 2.1 | e4 . 0 | 1.3 | .38 | 2.0 | .46 | 5.7 |
| 7 | e 3.8 | e38 | 11 | 1.8 | 6.5 | 1.4 | e 3.3 | . 85 | .30 | 2.5 | .35 | 74 |
| 8 | e 20 | e34 | 11 | 2.4 | 2.3 | 1.6 | e3. 6 | 5.8 | .29 | 19 | .35 | e 20 |
| 9 | e170 | e28 | 11 | 2.5 | 2.1 | . 90 | e4.1 | 2.3 | .28 | 11 | .29 | -8. 0 |
| 10 | e 60 | 26 | 11 | 2.3 | 3.0 | . 89 | e4 . 6 | . 92 | .26 | 2.5 | .23 | e2.5 |
| 11 | e11 | 25 | 9.8 | 2.2 | 2.6 | . 91 | e4 .6 | 77 | .26 | 2.3 | .23 | e1.5 |
| 12 | e13 | 23 | 15 | 3.5 | 26 | .56 | e4 . 7 | 5.2 | .96 | 2.6 | .28 | e1.2 |
| 13 | e100 | 23 | 11 | 3.2 | 13 | . 48 | e4 .3 | 1.9 | .33 | 2.5 | .23 | 6.6 |
| 14 | e19 | 20 | 9.8 | 2.2 | 5.7 | . 44 | e3.8 | 2.7 | .39 | 2.7 | 7.8 | 2.9 |
| 15 | e 16 | 18 | 8.4 | 2.0 | 4.9 | .41 | e 3.8 | 1.2 | .40 | 4.3 | 2.4 | 2.2 |
| 16 | -24 | 17 | 7.7 | 2.1 | 4.5 | .40 | e4.5 | 1.1 | .36 | 138 | 1.1 | 1.7 |
| 17 | e23 | 16 | 7.4 | 2.6 | 4.5 | . 38 | e4 . 0 | 1.3 | .53 | 12 | 1.5 | 7.0 |
| 18 | e 200 | 14 | 6.8 | 2.2 | 3.6 | .40 | e4 . 0 | 1.6 | .49 | 17 | 1.2 | 4.0 |
| 19 | 119 | 12 | 5.9 | 1.9 | 4.2 | . 36 | 4.0 | 1.6 | .42 | e2.5 | .70 | 106 |
| 20 | 160 | 67 | 5.7 | 1.8 | 3.4 | .38 | 3.7 | 1.5 | .62 | e1.2 | .69 | 44 |
| 21 | 497 | 47 | 5.3 | 2.0 | 2.5 | . 35 | 3.8 | 1.5 | .64 | e.60 | . 64 | 29 |
| 22 | 134 | 25 | 4.4 | 1.8 | 2.5 | . 69 | 3.3 | 2.2 | .84 | e.52 | 5.9 | 21 |
| 23 | 96 | 22 | 5.1 | 2.1 | 2.7 | . 31 | 3.6 | 1.4 | .99 | . 32 | 5.8 | 30 |
| 24 | 130 | 20 | 5.7 | 2.0 | 2.8 | . 33 | 2.7 | 1.1 | .94 | . 51 | .96 | 25 |
| 25 | 283 | 19 | 5.4 | 2.4 | 2.7 | .31 | 2.5 | 1.5 | .88 | . 43 | .89 | 26 |
| 26 | 164 | 18 | 4.4 | 2.6 | 2.3 | 43 | 2.6 | 1.3 | 1.2 | . 35 | .81 | 24 |
| 27 | 129 | 18 | 3.5 | 2.8 | 1.8 | 11 | 2.0 | . 98 | 1.3 | .49 | 3.2 | 22 |
| 28 | 218 | 16 | 3.2 | 2.7 | 3.1 | .71 | 1.8 | .79 | 1.2 | 67 | 11 | 23 |
| 29 | 119 | 15 | 2.8 | 2.6 | | 40 | 1.8 | . 80 | 1.8 | 14 | 2.7 | 23 |
| 30 | 137 | 15 | 3.0 | 2.3 | | e.32 | 1.8 | .74 | 4.0 | 3.6 | 1.2 | 20 |
| 31 | 98 | | 6.4 | 3.0 | | €.28 | | .70 | | 2.8 | .99 | |
| TOTAL | 2995.3 | 978 | 254.7 | 73.5 | 135.2 | 77.61 | | 138.28 | 23.25 | 325.22 | 56.49 | 644.9 |
| MRAN | 96.6 | 32.6 | 8.22 | 2.37 | 4.83 | 2.50 | 6.60 | 4.46 | .77 | 10.5 | 1.82 | 21.5 |
| MAX | 497 | 86 | 15 | 3.5 | 26 | 43 | 72 | 77 | 4.0 | 138 | 11 | 106 |
| MIN | 3.0 | 12 | 2.8 | 1.8 | 1.8 | .28 | .60 | .70 | .26 | . 32 | .23 | 1.2 |
| ac-Pt | 5940 | 1940 | 505 | 146 | 268 | 154 | 393 | 274 | 46 | 645 | 112 | 1280 |
| CFSM | 7.49 | 2.53 | . 64 | . 18 | : .37 | . 19 | .51 | . 35 | .06 | . 81 | . 14 | 1.67 |
| IN. | 8.64 | 2.82 | .73 | .21 | .39 | . 22 | .57 | .40 | . 07 | . 94 | .16 | 1.86 |

CAL YR 1990 TOTAL 5289.96 MEAN 14.5 MAX 497 MIN .05 AC-FT 10490 CFSM 1.12 IN. 15.25 WTR YR 1991 TOTAL 5900.45 MEAN 16.2 MAX 497 MIN .23 AC-FT 11700 CFSM 1.25 IN. 17.02

e Estimated

LOCATION.--Lat 18°07'37", long 66°27'24", Hydrologic Unit 21010004, on right bank, off a dirt road about 0.3 mi (0.5 km) from road 553, 2.4 mi (3.9 km) southeast from Villalba plaza, and 0.2 mi (0.3 km) downstream from confluence with Quebrada Limón.

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR

DRAINAGE AREA. -- 7.64 mi* (19.79 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- April 1989 to current year.

GAGE. -- Water stage recorder. Elevation of gage is 525 ft (160 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 3,740 ft³/s (106 m³/s), Aug. 24, 1989, gage-height, 9.62 ft (2.932 m), from rating curve extended above 100 ft³/s (2.83 m³/s) on basis of step-backwater analysis, minimum discharge, 0.44 ft³/s (0.012 m³/s), Aug. 7, 8, 1990.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 1,000 ft³/s (28.3 m³/s) and maximum (*):

| | | Disch | narge | Gage h | eight | | | Disc | harge | Gage h | eight |
|---------|------|---------|--------|--------|--------------|---------|------|---------|--------|--------|--------------|
| Date | Time | (ft³/s) | (m²/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (=) |
| Oct. 9 | 1625 | 1,030 | 29.2 | 6.54 | 1.993 | Oct. 21 | 0900 | +1,800 | 51.0 | *7.67 | 2.338 |
| Oct. 14 | 1340 | 1,420 | 40.2 | 7.16 | 2.182 | Nov. 20 | 1455 | 1,750 | 49.6 | 7.60 | 2.316 |
| Oct. 16 | 1600 | 1,040 | 29.4 | 6.56 | 2.999 | May 20 | 1630 | 1,180 | 34.4 | 6.80 | 2.073 |

Minimum discharge, 1.1 ft3/s (0.031 m3/s), June 25, 26.

| | | DI SCHA | RGE, CUBIC | FRET PER | | WATER Y MEAN | YEAR OCTOBER | 1990 TO | September | 1991 | | |
|-------------|-------|---------|------------|----------|-------|-----------------|--------------|---------|-----------|-------|-------|-------|
| DAY | OCT | NOV | DEC | 7117 | FRB | MAR | | WIY | JUN | JUL | AUG | SRP |
| DAI | OCT | MOV | DEC | Jan | FED | MAK | APK | MAY | OUM | OOL | AUG | DAF |
| 1 | 133 | 70 | 17 | 7.9 | 3.7 | 3.2 | | 2.5 | 3.8 | 8.9 | 2.5 | 39 |
| 2 | 82 | 62 | 16 | 6.6 | 3.7 | 2.9 | 9.9 | 8.3 | 4.5 | 6.0 | 2.4 | 18 |
| 3 | 35 | 58 | 16 | 6.0 | 3.8 | 2.8 | 6.2 | 3.9 | 3.6 | 5.1 | 2.1 | 7.3 |
| 4 | 25 | 51 | 16 | 6.1 | 3.6 | 2.7 | 4.4 | 15 | 3.1 | 4.9 | 2.1 | 5.5 |
| 5 | 21 | 49 | 15 | 5.6 | 5.3 | 2.6 | 3.4 | 4.8 | 3.1 | 4.7 | 2.1 | 4.7 |
| 6 | 36 | 43 | 15 | 5.4 | 6.2 | 2.5 | 2.9 | 2.9 | 2.8 | 4.9 | 2.1 | 4.3 |
| 7 8 9 | 33 | 40 | 14 | 5.4 | 6.1 | 2.4 | | 2.6 | 2.6 | 7.4 | 2.1 | 6.9 |
| 8 | 66 | 37 | 14 | 5.1 | 4.5 | 2.3 | | 2.8 | 2.4 | 36 | 2.1 | 6.0 |
| 9 | 150 | 34 | 14 | 4.8 | 3.8 | 2.2 | | 2.4 | 2.2 | 13 | 2.1 | 4.3 |
| 10 | 126 | 33 | 14 | 4.5 | 3.9 | 2.1 | 2.5 | 2.3 | 2.1 | 5.0 | 2.0 | 4.4 |
| 11 | 77 | 28 | 14 | 4.5 | 5.4 | 2.1 | | 15 | 2.1 | 3.9 | 1.9 | 4.7 |
| 12 | 71 | 25 | 14 | 4.6 | 12 | 2.1 | | 4.5 | 2.7 | 3.5 | 1.9 | 4.2 |
| 13 | 108 | 24 | 12 | 4.7 | 12 | 2.1 | | 66 | 2.2 | 3.5 | 1.9 | 4.3 |
| 14 | 244 | 22 | 11 | 4.6 | 5.9 | 2.4 | | 21 | 2.2 | 3.1 | 35 | 4.3 |
| 15 | 113 | 20 | 11 | 4.3 | 4.9 | 2.4 | 2.3 | 7.7 | 2.4 | 3.1 | 9.9 | 3.9 |
| 16 | 154 | 19 | 11 | 4.5 | 4.6 | 2.4 | | 4.9 | 2.2 | 81 | 4.3 | 3.7 |
| 17 | 103 | 20 | 10 | 4.3 | 4.8 | 2.2 | | 4.1 | 2.1 | 24 | 3.8 | 4.3 |
| 18 | 116 | 19 | 9.3 | 4.4 | 4.0 | 2.2 | | 4.2 | 2.0 | 10 | 2.6 | 4.2 |
| 19 | 92 | 18 | 9.0 | 4.2 | 4.0 | 2.1 | | 4.2 | 2.0 | 5.7 | 2.0 | 4.5 |
| 20 | 65 | 231 | 8.8 | 4.1 | 3.8 | 2.3 | 2.3 | 89 | 2.5 | 4.3 | 1.9 | 26 |
| 21 | 410 | 63 | 8.8 | 4.2 | 3.6 | 2.2 | | 45 | 1.9 | 3.4 | 4.8 | 11 |
| 22 | 107 | 46 | 8.8 | 4.2 | 3.7 | 3.0 | | 19 | 2.1 | 3.0 | 19 | 5.7 |
| 23 | 80 | 36 | 8.7 | 4.2 | 3.5 | 3.4 | | 12 | 2.1 | 2.9 | 26 | 5.0 |
| 24 | 96 | 30 | 8.5 | 4.1 | 3.3 | 2.8 | 2.1 | 9.1 | 2.2 | 2.6 | 10 | 4.3 |
| 25 | 171 | 26 | 8.2 | 3.8 | 3.4 | 2.8 | 2.1 | 7.6 | 1.8 | 2.6 | 5.5 | 3.9 |
| 26 | 168 | 23 | 7.8 | 3.8 | 3.3 | 45 | 2.1 | 6.9 | 1.9 | 2.4 | 4.2 | 3.5 |
| 27 | 115 | 21 | 7.2 | 3.7 | 3.1 | 21 | 2.1 | 5.3 | 1.9 | 2.4 | 8.0 | 3.5 |
| 28 | 112 | 20 | 6.6 | 3.8 | 3.2 | 6.4 | 2.1 | 4.4 | 1.9 | 49 | 5.0 | 3.6 |
| 29 | 97 | 18 | 6.4 | 3.6 | | 4.4 | 2.2 | 4.2 | 1.9 | 8.6 | 3.5 | 3.7 |
| 30 | 102 | 17 | 6.6 | 3.7 | | 3.7 | 2.2 | 4.3 | 18 | 3.3 | 3.2 | 3.7 |
| 31 | 83 | | 9.6 | 3.6 | | 3.3 | | 4.2 | | 2.7 | 2.9 | |
| TOTAL | 3391 | 1203 | 348.3 | 144.3 | 133.1 | 146.0 | 86.1 | 390.1 | 88.3 | 320.9 | 178.9 | 212.4 |
| MBAN | 109 | 40.1 | 11.2 | 4.65 | 4.75 | 4.71 | 2.87 | 12.6 | 2.94 | 10.4 | 5.77 | 7.08 |
| MAX | 410 | 231 | 17 | 7.9 | 12 | 45 | 9.9 | 89 | 18 | 81 | 35 | 39 |
| MIN | 21 | 17 | 6.4 | 3.6 | 3.1 | 2.1 | 2.1 | 2.3 | 1.8 | 2.4 | 1.9 | 3.5 |
| AC-FT | 6730 | 2390 | 691 | 286 | 264 | 290 | | 774 | 175 | 637 | 355 | 421 |
| CFSM | 14.3 | 5.25 | 1.47 | . 61 | .62 | . 62 | | 1.65 | .39 | 1.35 | .76 | . 93 |
| IN. | 16.51 | 5.86 | 1.70 | .70 | . 65 | .71 | | 1.90 | .43 | 1.56 | . 87 | 1.03 |

CAL YR 1990 TOTAL 6685.3 MEAN 18.3 MAX 410 MIN .45 AC-FT 13260 CFSM 2.40 IN. 32.55 WTR YR 1991 TOTAL 6642.4 MEAN 18.2 MAX 410 MIN 1.8 AC-FT 13180 CFSM 2.38 IN. 32.34

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued WATER-QUALITY RECORDS

PERIOD OF RECORDS. -- Water years 1988 to 1991.

PERIOD OF DAILY RECORD. --

SUSPENDED-SEDIMENT DISCHARGE: April 1988 to September 1991.

EXTREMES FOR PERIOD OF DAILY RECORD. -SEDIMENT CONCENTRATION: Maximum daily mean, 2,510 mg/L October 21, 1990; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 6,340 tons (5,750 tonnes) October 21, 1990; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

MRAN

EXTREMES FOR WATER YEARS 1989-90.--SEDIMENT CONCENTRATION: Maximum daily mean, 2,510 mg/L October 21, 1990; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 6,340 tons (5,750 tonnes) October 21, 1990; Minimum daily mean, 0.0 ton (0.0 tonne) few days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

MRAN

| | | MEAN | | | MEAN | | | MISAN | |
|-------|------------|----------|------------|-----------|----------|------------------|-----------|----------|------------|
| | MRAN | CONCIEN- | Sediment | MBAN | CONCEN- | Sediment | mran | CONCEN- | Sediment |
| | DI SCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE | DISCHARGE | TRATION | DISCHARGE |
| DAY | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) |
| | | OCTOBER | | 1 | NOVEMBER | | 1 | DECEMBER | |
| 1 | 133 | 490 | 348 | 70 | 38 | 7.1 | 17 | 30 | 1.3 |
| 2 | 82 | 337 | 257 | 62 | 32 | 5.4 | 16 | 30 | 1.3 |
| 3 | 35 | 35 | 3.7 | 58 | 22 | 3.3 | 16 | 29 | 1.3 |
| 4 | 25 | 32 | 2.1 | 51 | 21 | 2.8 | 16 | 25 | 1.1 |
| 5 | 21 | 44 | 2.4 | 49 | 22 | 2.9 | 15 | 15 | . 62 |
| 6 | 36 | 124 | 30 | 43 | 28 | 3.2 | 15 | 12 | .45 |
| 7 | 33 | 96 | 8.8 | 40 | 31 | 3.3 | 14 | 17 | . 63 |
| 8 | 66 | 261 | 89 | 37 | 30 | 3.0 | 14 | 23 | . 87 |
| 9 | 150 | 670 | 642 | 34 | 25 | 2.2 | 14 | 28 | 1.1 |
| 10 | 126 | 553 | 242 | 33 | 19 | 1.7 | 14 | 30 | 1.1 |
| 11 | 77 | 279 | 61 | 28 | 15 | 1.1 | 14 | 30 | 1.1 |
| 12 | 71 | 269 | 62 | 25 | 15 | .99 | 14 | 29 | 1.1 |
| 13 | 108 | 423 | 133 | 24 | 18 | 1.2 | 12 | 34 | 1.0 |
| 14 | 244 | 1120 | 1770 | 22 | 115 | 6.2 | 11 | 42 | 1.2 |
| 15 | 113 | 165 | 53 | 20 | 41 | 2.1 | 11 | 48 | 1.4 |
| 16 | 154 | 857 | 996 | 19 | 48 | 2.4 | 11 | 54 | 1.5 |
| 17 | 103 | 327 | 98 | 20 | 36 | 1.8 | 10 | 58 | 1.6 |
| 18 | 116 | 480 | 256 | 19 | 29 | 1.4 | 9.3 | 60 | 1.5 |
| 19 | 92 | 349 | 106 | 18 | 22 | 1.0 | 9.0 | 61 | 1.5 |
| 20 | 65 | 235 | 57 | 231 | 1410 | 4310 | 8.8 | 57 | 1.4 |
| 21 | 410 | 2510 | 6340 | 63 | 132 | 28 | 8.8 | 49 | 1.2 |
| 22 | 107 | 416 | 124 | 46 | 28 | 3.3 | 8.8 | 38 | . 93 |
| 23 | 80 | 286 | 62 | 36 | 30 | 2.9 | 8.7 | 28 | . 65 |
| 24 | 96 | 295 | 104 | 30 | 31 | 2.5 | 8.5 | 23 | .49 |
| 25 | 171 | 494 | 228 | 26 | 33 | 2.2 | 8.2 | 20 | .43 |
| 26 | 168 | 432 | 197 | 23 | 32 | 1.9 | 7.8 | 19 | .39 |
| 27 | 115 | 313 | 101 | 21 | 31 | 1.8 | 7.2 | 18 | . 34 |
| 28 | 112 | 253 | 86 | 20 | 30 | 1.6 | 6.6 | 17 | .29 |
| 29 | 97 | 202 | 58 | 18 | 30 | 1.4 | 6.4 | 13 | .20 |
| 30 | 102 | 269 | 92 | 17 | 30 | 1.4 | 6.6 | 10 | . 18 |
| 31 | 83 | 59 | 14 | | | | 9.6 | 14 | .37 |
| TOTAL | 3391 | | 12623.0 | 1203 | | 4410.09 | 348.3 | | 28.54 |

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued
SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MBAN Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JANUARY | | 1 | FEBRUARY | | | MARCH | |
| 1 | 7.9 | 20 | .44 | 3.7 | 35 | .35 | 3.2 | 30 | .27 |
| 2 | 6.6 | 26 | .45 | 3.7 | 32 | .32 | 2.9 | 30 | .22 |
| 3 | 6.0 | 20 | .32 | 3.8 | 30 | .30 | 2.8 | 31 | .22 |
| 4 | 6.1 | 15 | .23 | 3.6 | 27 | .28 | 2.7 | 31 | .21 |
| 5 | 5.6 | 15 | .22 | 5.3 | 24 | .39 | 2.6 | 25 | . 17 |
| 6 | 5.4 | 14 | . 19 | 6.2 | 21 | .43 | 2.5 | 15 | .10 |
| 7 | 5.4 | 38 | . 59 | 6.1 | 21 | .42 | 2.4 | 10 | . 06 |
| 8 | 5.1 | 33 | . 43 | 4.5 | 18 | .21 | 2.3 | 10 | .06 |
| 9 | 4.8 | 19 | .23 | 3.8 | 18 | .19 | 2.2 | 10 | . 06 |
| 10 | 4.5 | 15 | . 17 | 3.9 | 77 | .80 | 2.1 | 10 | . 06 |
| 11 | 4.5 | 11 | . 13 | 5.4 | 13 | .17 | 2.1 | 14 | .08 |
| 12 | 4.6 | 9 | . 11 | 12 | 31 | 2.1 | 2.1 | 22 | . 12 |
| 13 | 4.7 | 9 | .11 | 12 | 27 | 1.2 | 2.1 | 27 | . 16 |
| 14 | 4.6 | 18 | .23 | 5.9 | 8 | .13 | 2.4 | 26 | . 16 |
| 15 | 4.3 | 32 | .38 | 4.9 | 8 | .11 | 2.4 | 20 | .13 |
| 16 | 4.5 | 44 | .49 | 4.6 | 7 | .09 | 2.4 | 15 | . 09 |
| 17 | 4.3 | 46 | .52 | 4.8 | 8 | .11 | 2.2 | 10 | . 05 |
| 18 | 4.4 | 40 | . 47 | 4.0 | 8 | .09 | 2.2 | 8 | . 04 |
| 19 | 4.2 | 36 | .40 | 4.0 | 9 | .09 | 2.1 | 8 | . 04 |
| 20 | 4.1 | 30 | .31 | 3.8 | 10 | .10 | 2.3 | 8 | . 04 |
| 21 | 4.2 | 24 | . 26 | 3.6 | 10 | .10 | 2.2 | 8 | .05 |
| 22 | 4.2 | 20 | .21 | 3.7 | 10 | .09 | 3.0 | 20 | . 16 |
| 23 | 4.2 | 13 | . 14 | 3.5 | 11 | .09 | 3.4 | 32 | .31 |
| 24 | 4.1 | 9 | . 10 | 3.3 | 11 | .09 | 2.8 | 39 | .30 |
| 25 | 3.8 | 12 | . 12 | 3.4 | 15 | .13 | 2.8 | 36 | .27 |
| 26 | 3.8 | 18 | .18 | 3.3 | 19 | .17 | 45 | 189 | 70 |
| 27 | 3.7 | 23 | . 22 | 3.1 | 23 | .19 | 21 | 52 | 4.7 |
| 28 | 3.8 | 28 | .27 | 3.2 | 28 | .23 | 6.4 | 24 | .40 |
| 29 | 3.6 | 33 | .31 | | | | 4.4 | 28 | . 32 |
| 30 | 3.7 | 38 | .37 | | | | 3.7 | 33 | . 32 |
| 31 | 3.6 | 38 | .38 | | | | 3.3 | 25 | . 23 |
| TOTAL | 144.3 | | 8.98 | 133.1 | | 8.97 | 146.0 | | 79.40 |

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued
SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | Mean | | | MBAN | | | mean | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | mran Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 3.1 | 30 | .24 | 2.5 | 13 | .11 | 3.6 | 5 | . 06 |
| 2 | 9.9 | 32 | 1.8 | 8.3 | 21 | . 58 | 4.5 | 4 | . 05 |
| 3 | 6.2 | 19 | .40 | 3.9 | 12 | .12 | 3.6 | 3 | . 03 |
| 4 | 4.4 | 11 | . 12 | 15 | 63 | 16 | 3.1 | 3 | . 02 |
| 5 | 3.4 | 13 | .11 | 4.8 | 17 | .24 | 3.1 | 3 | . 02 |
| 6 | 2.9 | 18 | .13 | 2.9 | 18 | .13 | 2.8 | 2 | . 02 |
| 7 | 2.8 | 21 | . 15 | 2.6 | 1220 | 8.5 | 2.6 | 2 | . 02 |
| 8 | 2.6 | 21 | . 14 | 2.8 | 38 | .29 | 2.4 | 3 | . 02 |
| 9 | 2.7 | 20 | . 13 | 2.4 | 31 | .20 | 2.2 | 5 | . 03 |
| 10 | 2.5 | 14 | .09 | 2.3 | 18 | .11 | 2.1 | 12 | .06 |
| 11 | 2.3 | 26 | .16 | 15 | 59 | 9.5 | 2.1 | 13 | . 07 |
| 12 | 2.5 | 43 | . 29 | 4.5 | 14 | .24 | 2.7 | 6 | . 04 |
| 13 | 2.6 | 47 | .31 | 66 | 477 | 322 | 2.2 | 3 | . 02 |
| 14 | 2.4 | 48 | .29 | 21 | 121 | 9.0 | 2.2 | 3 | . 02 |
| 15 | 2.3 | 45 | . 28 | 7.7 | 22 | .53 | 2.4 | 3 | .02 |
| 16 | 2.4 | 40 | .26 | 4.9 | 7 | .10 | 2.2 | 4 | .02 |
| 17 | 2.4 | 32 | . 19 | 4.1 | 8 | .10 | 2.1 | 4 | . 02 |
| 18 | 2.2 | 38 | . 22 | 4.2 | 10 | .11 | 2.0 | 3 | .02 |
| 19 | 2.2 | 45 | . 27 | 4.2 | 11 | .12 | 2.0 | 3 | .02 |
| 20 | 2.3 | 53 | . 33 | 89 | 637 | 941 | 2.5 | 3 | .01 |
| 21 | 2.4 | 57 | .36 | 45 | 88 | 14 | 1.9 | 3 | . 01 |
| 22 | 2.4 | 51 | .32 | 19 | 19 | 1.1 | 2.1 | 4 | .02 |
| 23 | 2.3 | 41 | . 24 | 12 | 6 | .23 | 2.1 | 6 | . 03 |
| 24 | 2.1 | 30 | . 17 | 9.1 | 3 | .08 | 2.2 | 12 | . 06 |
| 25 | 2.1 | 23 | . 13 | 7.6 | 2 | .05 | 1.8 | 22 | .11 |
| 26 | 2.1 | 22 | . 12 | 6.9 | 2 | .04 | 1.9 | 29 | . 14 |
| 27 | 2.1 | 21 | . 12 | 5.3 | 2 | .04 | 1.9 | 16 | .09 |
| 28 | 2.1 | 20 | . 12 | 4.4 | 3 | .04 | 1.9 | 15 | .08 |
| 29 | 2.2 | 20 | . 12 | 4.2 | 6 | .07 | 1.9 | 6 | .03 |
| 30 | 2.2 | 15 | .09 | 4.3 | 7 | .08 | 18 | 167 | 26 |
| 31 | | | | 4.2 | 6 | .07 | | | |
| TOTAL | 86.1 | | 7.70 | 390.1 | | 1324.78 | 88.3 | | 27.16 |

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | Sediment Discharge (Tons/Day) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JULY | | | AUGUST | | si | eptember | |
| 1 | 8.9 | 10 | .26 | 2.5 | 7 | .05 | 39 | 350 | 172 |
| 2 | 6.0 | 9 | . 15 | 2.4 | Š | .03 | 18 | 32 | 2.3 |
| 3 | 5.1 | 7 | .10 | 2.1 | Ă | .02 | 7.3 | 6 | . 14 |
| 4 | 4.9 | Ś | . 07 | 2.1 | 3 | .02 | 5.5 | 3 | .05 |
| 5 | 4.7 | 5 | .06 | 2.1 | 3 | .02 | 4.7 | 2 | . 03 |
| 6 | 4.9 | 5 | . 06 | 2.1 | 3 | .02 | 4.3 | 2 | . 02 |
| 7 | 7.4 | 15 | . 68 | 2.1 | 4 | .02 | 6.9 | 7 | .26 |
| 8 | 36 | 517 | 219 | 2.1 | 4 | .02 | 6.0 | 6 | . 13 |
| 9 | 13 | 29 | 1.3 | 2.1 | 5 | .02 | 4.3 | 2 | . 02 |
| 10 | 5.0 | 10 | . 14 | 2.0 | 5 | .02 | 4.4 | 2 | .02 |
| 11 | 3.9 | 9 | . 09 | 1.9 | 5 | .02 | 4.7 | 2 | .02 |
| 12 | 3.5 | 8 | . 07 | 1.9 | 5 | .02 | 4.2 | 2 | . 02 |
| 13 | 3.5 | 6 | . 05 | 1.9 | 5 | .03 | 4.3 | 2 | .03 |
| 14 | 3.1 | 4 | . 04 | 35 | 283 | 140 | 4.3 | 4 | . 05 |
| 15 | 3.1 | 4 | . 03 | 9.9 | 31 | 1.6 | 3.9 | 5 | .06 |
| 16 | 81 | 342 | 153 | 4.3 | 9 | .10 | 3.7 | 4 | . 05 |
| 17 | 24 | 43 | 4.0 | 3.8 | 6 | .07 | 4.3 | 3 | . 04 |
| 18 | 10 | 3 | .08 | 2.6 | 4 | .03 | 4.2 | 2 | . 03 |
| 19 | 5.7 | 3 | . 05 | 2.0 | 3 | .02 | 4.5 | 6 | .08 |
| 20 | 4.3 | 3 | . 04 | 1.9 | 3 | .01 | 26 | 67 | 16 |
| 21 | 3.4 | 3 | . 03 | 4.8 | 15 | .69 | 11 | 13 | .50 |
| 22 | 3.0 | 3 | . 02 | 19 | 53 | 5.6 | 5.7 | 3 | . 05 |
| 23 | 2.9 | 3 | . 02 | 26 | 51 | 4.5 | 5.0 | 2 | . 03 |
| 24 | 2.6 | 4 | . 03 | 10 | 10 | .30 | 4.3 | 1 | . 02 |
| 25 | 2.6 | 5 | . 04 | 5.5 | 5 | .08 | 3.9 | 1 | .01 |
| 26 | 2.4 | 4 | . 02 | 4.2 | 3 | .04 | 3.5 | 1 | .00 |
| 27 | 2.4 | 3 | . 02 | 8.0 | 14 | 1.0 | 3.5 | 1 | .00 |
| 28 | 49 | 275 | 204 | 5.0 | 6 | .10 | 3.6 | 1 | .01 |
| 29 | 8.6 | 33 | . 88 | 3.5 | 1 | .02 | 3.7 | 1 | . 02 |
| 30 | 3.3 | 16 | . 15 | 3.2 | 3 | .03 | 3.7 | 2 | . 02 |
| 31 | 2.7 | 10 | . 08 | 2.9 | 3 | .02 | | | |
| TOTAL | 320.9 | | 584.56 | 178.9 | | 154.52 | 212.4 | | 192.01 |
| YEAR | 6642.4 | | 19449.71 | | | | | | |

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|-----------|---|---|--|--|--|--|--|
| OCT 1990 | | | | | | | |
| 01 | 1349 | 598 | 2590 | 4200 | 19 | 30 | |
| MAY 1991 | | | | | | | |
| 13 | 1431 | 330 | 5270 | 4700 | 14 | 21 | 25 |
| 20 | 1603 | 537 | 14500 | 21000 | 10 | 12 | 18 |
| JUL | | | | | | | |
| 08 | 1455 | 378 | 7890 | 8050 | 18 | 22 | 32 |
| 28 | 1733 | 247 | 3250 | 2200 | 16 | 32 | 42 |
| AUG | | | | | | | |
| 14 | 1700 | 351 | 3180 | 3000 | 12 | 21 | 28 |
| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1990 | | | | | | | |
| 01 | 47 | 60 | 71 | 84 | 96 | 96 | 99 |
| MAY 1991 | | | | | | | |
| 13 | 35 | 44 | 61 | 73 | 89 | 97 | 99 |
| 20 | 25 | 34 | 49 | 62 | 83 | 94 | 99 |
| JUL | | | | | | | |
| 08 | 42 | 57 | 74 | 85 | 96 | 99 | 100 |
| 28 AUG | 55 | 66 | 84 | 91 | 96 | 98 | 100 |
| 14 | 44 | 56 | 86 | 93 | 98 | 99 | 99 |

RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STRRAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|--|
| OCT 1990 | | | | | |
| 01 | 1324 | 358 | 5500 | 5300 | 41 |
| 01 | 1334 | 454 | 4500 | 5500 | 53 |
| 21 | 1022 | 1130 | 1930 | 5900 | 82 |
| MAY | | | | | |
| 14 | 1437 | 16 | 111 | 5 | 97 |
| 20 | 1608 | 827 | 9340 | 21000 | 50 |
| JUN | | | | | |
| 07 | 1630 | 150 | 1930 | 800 | 93 |
| JUL | | | | | |
| 08 | 1440 | 378 | 4200 | 4300 | 50 |
| 28 | 1608 | 365 | 1520 | 1500 | 72 |
| 28 | 1718 | 363 | 2840 | 2800 | 65 |
| AUG | | | | | |
| 14 | 1615 | 80 | 1300 | 280 | 94 |
| 14 | 1640 | 351 | 4800 | 4500 | 67 |
| SRP | | | | | • • • |
| 29 | 1220 | 1.5 | 434 | 1.8 | 88 |
| | | | | | |

50111500 RIO JACAGUAS AT JUANA DIAZ, PR

LOCATION.--Lat 18°03'16", long 66°30'40", Hydrologic Unit 21010004, on Highway 14 bridge, 0.4 mi (0.6 km) west of Juana Días plasa, and 4.0 mi (6.4 km) downstream from Lago Guayabal.

DRAINAGE AREA. -- 49.8 ml 3 (129.0 km3).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- March 1984 to current year.

GAGE. -- Water-stage recorder. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records poor. Flow regulation from Lago Guayabal. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--7 years (1985-91), 50.0 ft³/s (1.416 m³/s), 13.63 in/yr (346 mm/yr), 36,225 acre-ft/yr (44.7 hm²/vr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft³/s (1,130 m²/s), Oct. 7, 1985, gage height, 29.42 ft (8.967 m) from rating curve extended above 500 ft³/s (14.2 m²/s) on basis of step-backwater analysis and logarithmic extension; minimum daily discharge, 0.68 ft³/s (0.012 m²/s), Sept. 1, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,470 ft³/s (239 m²/s), Oct. 16, gage height, 15.9 ft (4.846 m) from rating curve extended above 500 ft²/s (14.2 m²/s) on basis of step-backwater analysis and logarithmic extension; minimum daily discharge 1.5 ft³/s (0.042 m²/s), May 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAILY MEAN VALUES | | | | | | | | | | | | |
|-------------------|-------|------|------|-------|-------|-------|------|-------|--------------|--------------|-------------|-------------|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
| 1 | 291 | 250 | 39 | 39 | 6.6 | 7.7 | 3.4 | 2.9 | 2.9 | e28 | e8.1 | 5.4 |
| 2 | 440 | 203 | 23 | 23 | 7.6 | 10 | 2.9 | 1.7 | 3.5 | e19 | e8.2 | 39 |
| 3 | 215 | 197 | 21 | 16 | 6.9 | 10 | 2.6 | 1.7 | 4.6 | e 20 | 23 | 17 |
| 4 | 138 | 168 | 31 | 15 | 6.7 | 9.5 | 2.7 | 1.5 | 3.2 | e21 | 24 | 14 |
| 5 | 102 | 175 | 36 | 18 | 27 | 8.1 | 3.0 | 1.7 | 3.0 | e18 | 43 | 12 |
| 6 | 111 | 167 | 37 | 20 | 43 | 7.9 | 3.4 | 1.9 | 2.7 | e2 0 | 60 | 9.0 |
| 7 | 113 | 162 | 33 | 22 | 39 | 7.2 | 3.1 | 1.9 | 2.5 | e54 | 67 | 9.1 |
| 8 | 152 | 151 | 52 | 17 | 28 | 6.1 | 2.9 | 3.0 | 2.6 | e140 | 49 | 9.0 |
| 9 | 376 | 132 | 52 | 12 | 21 | 5.3 | 2.9 | 4.0 | 2.4 | e54 | 33 | 4.7 |
| 10 | 887 | 118 | 44 | 11 | 15 | 5.3 | 2.8 | 2.4 | 2.3 | e 22 | 21 | 4.3 |
| 11 | 427 | 104 | 44 | 10 | 21 | 5.4 | 3.1. | 11 | 2.4 | e21 | 16 | 3.7 |
| 12 | 255 | 98 | 46 | 9.4 | 15 | 4.8 | 3.1 | 3.5 | 2.9 | e23 | 25 | 3.6 |
| 13 | 486 | 95 | 51 | 8.8 | 23 | 4.5 | 2.8 | 2.6 | 2.8 | e23 | 27 | 3.3 |
| 14 | 738 | 113 | 55 | 8.1 | 11 | 6.7 | 2.8 | 2.8 | 2.4 | e29 | 5.0 | 3.3 |
| 15 | 320 | 108 | 54 | 7.9 | 7.7 | 6.8 | 3.1 | 2.6 | 2.7 | e 82 | 10 | 3.2 |
| 16 | 848 | 113 | 51 | 7.3 | 9.6 | 5.7 | 3.2 | 4.9 | 4.2 | e454 | 19 | 11 |
| 17 | 241 | 112 | 30 | 6.5 | 11 | 5.7 | 3.2 | 3.2 | 4.3 | e 130 | 53 | 7.5 |
| 18 | 235 | 94 | 23 | 6.4 | 11 | 5.5 | 3.4 | 3.8 | 4.0 | e62 | 35 | 5.2 |
| 19 | 288 | 84 | 24 | 7.3 | 12 | 4.2 | 3.5 | 4.2 | e3.7 | e17 | 19 | 34 |
| 20 | 301 | 273 | 18 | 8.1 | 28 | 3.9 | 3.5 | 3.4 | e5.6 | e9. 0 | 5.0 | 106 |
| 21 | 1210 | 100 | 18 | 8.3 | 24 | 4.2 | 3.6 | 3.2 | e 6.6 | e6.0 | 2.2 | 140 |
| 22 | 367 | 88 | 25 | 8.3 | 22 | 5.6 | 3.7 | 3.7 | e8.0 | e4.3 | 97 | 103 |
| 23 | 280 | 44 | 18 | 10 | 20 | 4.9 | 3.7 | 3.5 | e8.8 | e3.4 | 125 | 77 |
| 24 | 427 | 45 | 19 | 29 | 16 | 3.5 | 3.1 | 3.4 | e8.2 | e4 .3 | 55 | 86 |
| 25 | 641 | 39 | 28 | 35 | 14 | 3.1 | 3.7 | 3.3 | e9. 0 | e 3.7 | 16 | e79 |
| 26 | 662 | 40 | 23 | 38 | 10 | 11 | 4.1 | 3.5 | e10 | e3.5 | 5.3 | e74 |
| 27 | 439 | 46 | 19 | 38 | 8.5 | 7.8 | 3.2 | 3.5 | e1 0 | e50 | 16 | e68 |
| 28 | 370 | 43 | 19 | 17 | 8.1 | 3.8 | 2.9 | 3.3 | e13 | e290 | 57 | e64 |
| 29 | 296 | 39 | 19 | 8.8 | | 4.5 | 3.1 | 2.8 | e 23 | e74 | 42 | e 66 |
| 30 | 417 | 40 | 23 | 7.7 | | 4.3 | 3.1 | 2.8 | e35 | e 30 | 34 | e 66 |
| 31 | 289 | | 28 | 7.0 | | 3.2 | | 2.9 | | e23 | 23 | |
| TOTAL | 12362 | 3441 | 1003 | 479.9 | 472.7 | 186.2 | 95.6 | 100.6 | 196.3 | 1738.2 | 1022.8 | 1127.3 |
| MEAN | 399 | 115 | 32.4 | 15.5 | 16.9 | 6.01 | 3.19 | 3.25 | 6.54 | 56.1 | 33.0 | 37.6 |
| MAX | 1210 | 273 | 55 | 39 | 43 | 11 | 4.1 | 11 | 35 | 454 | 125 | 140 |
| MIN AC-FT | 102 | 39 | 18 | 6.4 | 6.6 | 3.1 | 2.6 | 1.5 | 2.3 | 3.4 | 2.2 | 3.2 |
| AC-FT CFSM | 24520 | 6830 | 1990 | 952 | 938 | 369 | 190 | 200 | 389 | 3450 | 2030 | 2240 |
| IN. | 8.01 | 2.30 | . 65 | .31 | .34 | . 12 | .06 | . 07 | .13 | 1.13 | .66 | .75 |
| TEG. | 9.23 | 2.57 | .75 | . 36 | .35 | . 14 | . 07 | . 08 | .15 | 1.30 | .76 | .84 |

CAL YR 1990 TOTAL 18658.37 MRAN 51.1 MAX 1210 MIN .68 AC-FT 37010 CFSM 1.03 IN. 13.94 WTR YR 1991 TOTAL 22225.6 MRAN 60.9 MAX 1210 MIN 1.5 AC-FT 44080 CFSM 1.22 IN. 16.60

e Estimated

50111500 RIO JACAGUAS AT JUANA DIAZ, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS APRIL 1984 TO SEPTEMBER 1985, OCTOBER 1987 TO CURRENT YEAR

| DATE | | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- Ture (Deg C) | DATE | | TIME | STRRAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|------|----|------|---------------------------------------|--------------------------------------|-----------------------------|------|----|------|---------------------------------------|--------------------------------------|-----------------------------|
| Jan. | 29 | 1133 | 8.62 | 400 | 24.0 | MAY | 20 | 1019 | 3.11 | 510 | 24.0 |
| MAR. | 12 | 1138 | 4.91 | 430 | 24.0 | JUNE | 18 | 1259 | 3.67 | 440 | 24.0 |
| APR. | 24 | 1342 | 3.02 | 410 | 24.0 | | | | | | |

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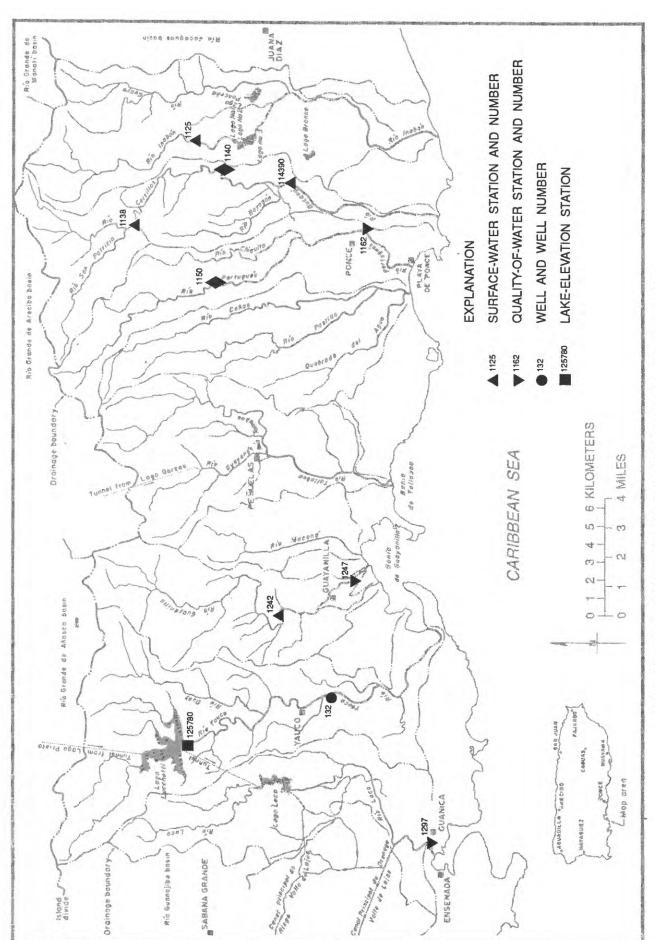


Figure 23.--South coast river basins the Río Inabón to Río Loco basins.

50112500 RIO INABON AT REAL ABAJO, PR

LOCATION.--Lat 18°05'10", long 66°33'46", Hydrologic Unit 21010004, at bridge on private road, off Highway 511 at Hacienda La Concordia, 0.4 mi (0.6 km) upstream from diversion canal, 0.5 mi (0.8 km) north of Real Abajo, and 6.1 mi (9.8 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA. -- 9.70 mi* (25.12 km*).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- 1962-63 (annual low-flow measurements only), February to June 1964 (monthly measurements only), July 1964 to July 1970, April 1971 to current year.

GAGE. -- Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map. Prior to April 1971 nonrecording gage and crest-stage gage at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--25 years (1965-69, 1972-91), 18.6 ft³/s (0.527 m²/s), 26.04 in/yr (661 mm/yr), 13,480 acre-ft/yr (16.6 hm²/yr); median of yearly mean discharges, 18 ft²/s (0.51 m³/s), 13,000 acre-ft/yr (16 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft³/s (538 m³/s), Oct. 7, 1985, gage height, 25.3 ft (7.711 m), datum then in use, from floodmark, from rating curve extended above 30 ft³/s (0.85 m³/s) on basis of contracted opening and flow-over-road measurements of peak flow, minimum daily discharge, 0.80 ft³/s (0.023 m³/s), July 23, 1977.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 500 ft³/s (14.2 m³/s), and maximum (*):

| | | Discharge | | Gage 1 | height | | | Disc | charge | Gage | height |
|---------|------|-----------|---------------------|--------|--------|---------|------|---------|--------|-------|--------|
| Date | Time | (ft3/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft3/s) | (m3/s) | (ft) | (m) |
| Oct. 21 | 0925 | 668 | 18.9 | 8.04 | 2.450 | July 16 | 1145 | *772 | 28 | *8.93 | 2.722 |

Minimum daily discharge, 3.2 ft3/s (0.091 m3/s), Apr. 26.

| | | DISCHA | ARGE, CUBI | C FEET PE | | WATER YE | | R 1990 TO | SEPTEMBE | IR 1991 | | |
|-------|------|--------|------------|-----------|-------|----------|-------|-----------|----------|------------|-------|------|
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 82 | 86 | 19 | 9.2 | 7.4 | 5.4 | 5.8 | 7.7 | 5.6 | 13 | e21 | 26 |
| 2 | 93 | 68 | 18 | 7.6 | 6.8 | 4.9 | 16 | 8.0 | e7.0 | 13 | 16 | 20 |
| 3 | 54 | 57 | 19 | 7.2 | 7.1 | 5.3 | 15 | 12 | e6.2 | 11 | 14 | 17 |
| 4 | 30 | 54 | 17 | 6.6 | 8.2 | 5.9 | 16 | e17 | e5.4 | 10 | 12 | 15 |
| 5 | 27 | 61 | 16 | 6.6 | 12 | 6.5 | 13 | e11 | e5.2 | 10 | e18 | 13 |
| 6 | 30 | 52 | 15 | 6.5 | 17 | 6.3 | 16 | @9.9 | e5.0 | 11 | e13 | 11 |
| 7 | 36 | 43 | 15 | 6.6 | 13 | 5.8 | 12 | 7.6 | m4.8 | 29 | 14 | 16 |
| 8 | 44 | 39 | 14 | 6.8 | 8.5 | 5.4 | 7.1 | 13 | e4.8 | 47 | 13 | 13 |
| 9 | 64 | 36 | 14 | 6.5 | 7.6 | 5.2 | 5.6 | 10 | e4.7 | 42 | 11 | 14 |
| 10 | 94 | 33 | 13 | 5.8 | 7.7 | 4.8 | 5.5 | 7.1 | e4.6 | 18 | 11 | 13 |
| 11 | 99 | 31 | 13 | 5.5 | 9.7 | 5.1 | 5.2 | 20 | e4.5 | 14 | 9.6 | 12 |
| 12 | 68 | 29 | 13 | 5.4 | 7.6 | 5.0 | 5.2 | 19 | e9.0 | 12 | 9.5 | 11 |
| 13 | 115 | 27 | 12 | 5.3 | 7.9 | 5.0 | 4.6 | 18 | e5.6 | 13 | 11 | 13 |
| 14 | 108 | 26 | 12 | 5.1 | 7.4 | 4.8 | 4.5 | 14 | e8.9 | 11 | e32 | 11 |
| 15 | 63 | 25 | 15 | 5.5 | 7.2 | 4.7 | 4.7 | 9.6 | e7.8 | 11 | e16 | 12 |
| 16 | 61 | 25 | 14 | 6.1 | 9.0 | 4.6 | 5.0 | 7.2 | e6.0 | 115 | 44 | 20 |
| 17 | 46 | 24 | 12 | 5.6 | 7.5 | 4.6 | 4.2 | 5.5 | e4.7 | 44 | 28 | 21 |
| 18 | 39 | 23 | 10 | 5.6 | 6.8 | 4.8 | 3.7 | 8.2 | e8.0 | 46 | 20 | 16 |
| 19 | 50 | 29 | 10 | 5.4 | 6.6 | 5.0 | 3.5 | 7.6 | e23 | 28 | 17 | 26 |
| 20 | 66 | 45 | 9.9 | 5.7 | 6.4 | 5.4 | 3.5 | 13 | e16 | 16 | 36 | 35 |
| 21 | 180 | 34 | 9.7 | 6.0 | 6.0 | 5.1 | 3.7 | 14 | e50 | 12 | 25 | 27 |
| 22 | 88 | 32 | 9.2 | 6.0 | 5.8 | 5.1 | 3.9 | 8.2 | e21 | 14 | 66 | 19 |
| 23 | 53 | 32 | 9.1 | 6.2 | 5.5 | 7.0 | 4.0 | 5.9 | e17 | 12 | 48 | 17 |
| 24 | 76 | 28 | 8.8 | æ6.6 | 5.5 | 4.6 | 3.7 | 4.9 | e13 | 10 | 47 | 14 |
| 25 | 127 | 39 | 8.8 | e5.5 | 5.5 | 4.1 | 3.4 | 4.6 | e11 | 9.1 | 41 | 13 |
| 26 | 115 | 37 | 8.4 | e5.0 | 5.5 | 61 | 3.2 | 4.6 | 12 | 10 | 27 | 12 |
| 27 | 93 | 28 | 8.1 | e4.8 | 5.4 | 31 | 3.4 | 4.9 | 10 | 11 | 28 | 11 |
| 28 | 104 | 24 | 7.7 | e4.7 | 5.4 | 13 | 3.5 | 4.7 | 9.9 | 27 | 30 | 32 |
| 29 | 87 | 21 | 7.1 | 5.4 | | 9.5 | 3.5 | 4.9 | 8.7 | 19 | 24 | 21 |
| 30 | 131 | 20 | 7.0 | 5.8 | | 7.9 | 3.5 | 5.4 | 23 | 14 | 20 | 14 |
| 31 | 114 | | 11 | 6.0 | | 6.6 | | 5.6 | | e18 | 18 | |
| TOTAL | 2437 | 1108 | 375.8 | 186.6 | 216.0 | 259.4 | 191.9 | 293.1 | 322.4 | 670.1 | 740.1 | 515 |
| MEAN | 78.6 | 36.9 | 12.1 | 6.02 | 7.71 | 8.37 | 6.40 | 9.45 | 10.7 | 21.6 | 23.9 | 17.2 |
| MAX | 180 | 86 | 19 | 9.2 | 17 | 61 | 16 | 20 | 50 | 115 | 66 | 35 |
| MIN | 27 | 20 | 7.0 | 4.7 | 5.4 | 4.1 | 3.2 | 4.6 | 4.5 | 9.1 | 9.5 | 11 |
| AC-FT | 4830 | 2200 | 745 | 370 | 428 | 515 | 381 | 581 | 639 | 1330 | 1470 | 1020 |
| CFSM | 8.10 | 3.81 | 1.25 | . 62 | .80 | . 86 | .66 | . 97 | 1.11 | 2.23 | 2.46 | 1.77 |
| IN. | 9.35 | 4.25 | 1.44 | .72 | .83 | . 99 | .74 | 1.12 | 1.24 | 2.57 | 2.84 | 1.98 |

CAL YR 1990 TOTAL 6214.53 MMAN 17.0 MAX 180 MIN .93 AC-FT 12330 CFSM 1.76 IN. 23.83 WTR YR 1991 TOTAL 7315.40 MEAN 20.0 MAX 180 MIN 3.2 AC-FT 14510 CFSM 2.07 IN. 28.05

e Estimated

RIO BUCANA BASIN

50113800 RIO CERRILLOS ABOVE LAGO CERRILLOS NEAR PONCE, PR

LOCATION.--Lat 18°07'01", long 66°36'17", Hydrologic Unit 21010004, on right bank, 0.3 mi (0.5 km) downstream from confluence with Río San Patricio, 0.1 mi (0.2 km) southwest of Hwy 139 and 2.4 mi (3.7 km) northwest of Maraguez.

DRAINAGE ARRA. -- 15.4 mi2 (39.9 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- December 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 720 ft (210 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Waximun discharge, 2,500 ft³/s (70.8 m²/s), Sept. 25, 1990, estimated based on mean daily discharge correlation with nearby station 50115000; minimum discharge, 3.3 ft³/s (0.093 m²/s), Aug. 16-18, 20, 21, 1990.

EXTREMES FOR CURRENT YEAR...-Peak discharges greater than base discharge of 600 ft3/s (17.0 m3/s) and maximum (*):

| | | Disc | harge | Gage 1 | neight | | | Disc | charge | Gage 1 | height |
|---------|------|----------------------|--------|--------|--------|---------|------|---------|--------|--------|--------|
| Date | Time | (ft ³ /s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 2 | 1515 | 737 | 20.9 | 3.71 | 1.131 | Oct. 25 | 2000 | *1,070 | 30.3 | *4.40 | 1.341 |
| Oct. 14 | 1515 | 621 | 17.6 | 3.42 | 1.042 | Aug. 16 | 1445 | 628 | 17.8 | 3.36 | 1.024 |
| Oct. 16 | 1530 | 624 | 17.7 | 3.35 | 1.021 | Aug. 20 | 1445 | 603 | 17.1 | 3.37 | 1.027 |
| Oct. 21 | 0930 | 777 | 22.0 | 3.80 | 1.158 | Sept.28 | 1515 | 699 | 19.9 | 3.62 | 1.103 |

Minimuna discharge, 4.8 ft3/s (0.14 m3/s), Mar. 10-26.

| | | DI SCHARGE | , CUBIC | FEET PER | | | YEAR OCTOBER VALUES | 1990 TO | septemb e r | 1991 | | |
|--------|------------|------------|---------|----------|-------|-------|---------------------|---------|--------------------|-------------|-------------|------|
| DAY | OCT | NOV | DEC | JAN | PEB | MAR | APR | NAY | JUN | JUL | AUG | SEP |
| 1 | <u>[•]</u> | 114 | 24 | 14 | 8.3 | 5.6 | | 8.8 | 9.3 | 26 | 30 | 40 |
| 2 | 188 | 92 | 25 | 12 | 8.2 | 5.2 | | 6.7 | 11 | 18 | 18 | 34 |
| 3 | 137 | 78 | 24 | 12 | 8.5 | 5.2 | | 7.6 | 9.2 | 21 | e14 | 29 |
| 4 | 71 | 76 | 22 | 12 | 8.3 | 5.1 | | 43 | 8.2 | 18 | e150 | 26 |
| 5 | 51 | 92 | 22 | 12 | 13 | 5.5 | 15 | 24 | 8.3 | 13 | e8 6 | 25 |
| 6 7 | 46 | 77 | 21 | 12 | 13 | 5.6 | | 14 | 7.9 | 12 | 31 | 24 |
| 7 | 58 | 65 | 21 | 12 | 11 | 5.4 | | 8.7 | 7.6 | 35 | 18 | 24 |
| 8 | 59 | 56 | 20 | 12 | 9.2 | 5.2 | | 14 | 7.4 | 41 | 16 | 24 |
| 9 | 87 | 51 | 20 | 12 | 8.8 | 5.4 | | 16 | 7.4 | 26 | 15 | 25 |
| 10 | 90 | 46 | 20 | 11 | 10 | 5.3 | 7.4 | 12 | 7.4 | 16 | 16 | 23 |
| 11 | 118 | 42 | 19 | 11 | 11 | 5.1 | | 28 | 7.0 | 13 | 16 | 21 |
| 12 | 129 | 40 | 18 | 11 | 13 | 5.1 | | 21 | 14 | 12 | 16 | 23 |
| 13 | 249 | 37 | 19 | 11 | 17 | 4.8 | | 13 | 9.2 | 12 | 17 | 22 |
| 14 | 229 | 36 | 21 | 10 | 9.2 | 4.8 | | 11 | 14 | e11 | 60 | 20 |
| 15 | 155 | 33 | 28 | 11 | 8.0 | 4.8 | 6.7 | 11 | 12 | e15 | 27 | 20 |
| 16 | 166 | 35 | 20 | 10 | 7.4 | 4.8 | | 10 | 8.1 | e130 | 62 | 50 |
| 17 | 140 | 32 | 17 | 9.6 | 7.7 | 4.8 | | 8.9 | 7.4 | e4 0 | 42 | 33 |
| 18 | 111 | 30 | 17 | 9.4 | 6.6 | 4.8 | | 16 | 35 | 81 | 23 | 23 |
| 19 | 118 | 34 | 16 | 9.2 | 6.9 | 4.8 | | 16 | 25 | 45 | 16 | 36 |
| 20 | 142 | 61 | 15 | 9.2 | 6.6 | 4.8 | 6.0 | 23 | 16 | 23 | 98 | 57 |
| 21 | 345 | 43 | 15 | 9.2 | 6.3 | 4.6 | | 18 | 55 | 19 | 95 | 34 |
| 22 | 162 | 50 | 15 | 9.2 | 6.3 | 5.7 | | 17 | 27 | 18 | 163 | 27 |
| 23 | 104 | 47 | 15 | 9.2 | 5.7 | 5.8 | | 12 | 14 | 1,7 | 113 | 25 |
| 24 | 141 | 39 | 15 | 9.1 | 5.6 | 4.8 | | 11 | 11 | 15 | 72 | 22 |
| 25 | 309 | 51 | 15 | 8.7 | 5.6 | 4.8 | 5.7 | 9.9 | 10 | 14 | 107 | 21 |
| 26 | 278 | 39 | 14 | 8.7 | 5.6 | 82 | 5.7 | 10 | 9.4 | 13 | 86 | 20 |
| 27 | 263 | 32 | 13 | 8.7 | 5.7 | 19 | 5.7 | 9.1 | 9.1 | 13 | 72 | 37 |
| 28 | 246 | 28 | 14 | 8.3 | 5.1 | 8.1 | | 8.3 | 9.2 | 31 | 55 | 81 |
| 29 | 195 | 26 | 12 | 8.3 | | 6.6 | | 8.3 | 8.7 | 17 | 43 | 40 |
| 30 | 170 | 24 | 13 | 8.2 | | 6.0 | | 8.3 | 61 | 15 | 36 | 26 |
| 31 | 136 | | 15 | 7.9 | | 6.0 | | 8.8 | | 47 | 33 | |
| TOTAL | 4787 | 1506 | 565 | 317.9 | 237.6 | 255.7 | | 433.4 | 445.8 | 827 | 1646 | 912 |
| MRAN | 154 | | 18.2 | 10.3 | 8.49 | 8.25 | | 14.0 | 14.9 | 26.7 | 53.1 | 30.4 |
| MAX | 345 | 114 | 28 | 14 | 17 | 82 | | 43 | 61 | 130 | 163 | 81 |
| MIN | 46 | 24 | 12 | 7.9 | 5.1 | 4.8 | | 6.7 | 7.0 | 11 | 14 | 20 |
| AC-FT | 9500 | | 1120 | 631 | 471 | 507 | | 860 | 884 | 1640 | 3260 | 1810 |
| CFSM | 10.0 | | 1.18 | . 67 | .55 | . 54 | | . 91 | .96 | 1.73 | 3.45 | 1.97 |
| IN. | 11.56 | 3.64 | 1.36 | .77 | .57 | . 62 | . 64 | 1.05 | 1.08 | 2.00 | 3.98 | 2.20 |

CAL YR 1990 TOTAL 10752.0 MEAN 29.5 MAX 345 MIN 3.3 AC-FT 21330 CFSM 1.91 IN. 25.99 WTR YR 1991 TOTAL 12198.5 MEAN 33.4 MAX 345 MIN 4.8 AC-FT 24200 CFSM 2.17 IN. 29.47

e Estimated

RIO BUCANA BASIN

50113800 RIO CERRILLOS ABOVE LAGO CERRILLOS NEAR PONCE, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD. -- JANUARY TO JUNE 1991.

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) | DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CON- DUCTANCE (UMHOS) | TEMPERA- TURE (DEG C) |
|---------|------|---------------------------------------|--------------------------------------|-----------------------------|---------|------|---------------------------------------|--------------------------------------|-----------------------------|
| JAN. 11 | | 11.0 | 280 | 22.0 | | 1057 | 18.7 | 210 | 24.0 |
| APR. 25 | 1421 | 5.67 | 290 | 24.0 | JUNE 20 | 1413 | 15.0 | 200 | 24.0 |

50114000 RIO CERRILLOS NEAR PONCE, PR

LOCATION.--Lat 18°04'15", long 66°34'51", Hydrologic Unit 21010004, on right bank off Highway 139, 0.8 mi (1.3 km) below Lago Cerrillos Dam, 2.3 mi (3.7 km) upstream from Quebrada Ausubo and 4.6 mi (7.4 km) northeast of Plaza Dagetau in Ponce.

DRAINAGE AREA.--17.8 mi² (46.1 km²), excludes 17.4 mi² (45.1 km²), upstream from Lago Cerrillos Dam.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- February to April 1964 (monthly measurements only), May 1964 to June 1985, July 1985 to April 1991 (semi-monthly measurements only), May to September 1991.

GAGE.--Water-stage recorder. Datum of gage is 253.10 ft (77.145 m), above mean sea level. Prior to March 22, 1977 at site 0.15 mi (0.24 km) upstream and datum 9.90 ft (3.018 m) higher.

REMARKS.--Records poor. Flow regulated by Lago Cerrillos Dam since May 1991. Gage-height and precipitation satellite telemetry at station. Prior to June 1985 some low-flow regulation by construction upstream.

AVERAGE DISCHARGE.--20 years (1965-84), 35.1 ft³/s (1.994 m³/s), 26.78 in/yr (680 mm/yr), 25,430 acre-ft/yr (31.4 hm²/yr); median of yearly mean discharges, 33 ft³/s (0.93 m³/s), 23,900 acre-ft/yr (29 hm³/yr), prior to Lago Cerrillos Dam construction.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,400 ft²/s (634 m²/s), Sept. 16, 1975, gage-height, 11.2 ft (3.414 m), site and datum then in use, from floodmarks, from rating curve extended above 150 ft²/s (4.25 m²/s) on basis of slope-area measurement of peak flow; minimum discharge, 2.2 ft²/s (0.062 m²/s), May 28, 1967, prior to Lago Cerrillos Dam construction.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 297 ft³/s (8.41 m²/s), July 16, gage-height 3.34 ft (1.018 m), from rating curve extended above 100 ft³/s (14.2 m³/s) on basis of step-backwater analysis; minimum daily discharge, 6.6 ft³/s (0.187 m³/s), May 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAILY MRAN VALUES | | | | | | | | | | | | |
|-------------------|-----|-----|-----|-----|-----|-----|------|--------------|-------|------|------|------|
| DAY | OCT | NOA | DRC | Jan | FEB | MAR | APR. | MAY | JUN | JUL | AUG | SEP |
| 1 | | | | | | | | e9. 0 | 10 | 33 | 42 | 14 |
| 2 | | | | | | | | e 6.6 | 10 | 15 | 17 | 13 |
| 3 | | | | | | | | e7.4 | 10 | 14 | 15 | 13 |
| 2 3 4 | | | | | | | | e42 | 9.0 | 20 | 13 | 13 |
| 5 | | | | | | | | e25 | 9.0 | 14 | 39 | 12 |
| 6 | | | | | | | | e15 | 9.7 | 12 | 39 | 13 |
| 7 | | | | | | | | e8. 6 | 7.3 | 21 | 18 | 12 |
| 8 | | | | | | | | e14 | 8.4 | 35 | 16 | 11 |
| 9 | | | | | | | | -16 | 8.2 | 29 | 14 | 12 |
| 10 | | | | | | | | e12 | 7.3 | 16 | 13 | 13 |
| 11 | | | | | | | | e 30 | 8.2 | 14 | 12 | 13 |
| 12 | | | | | | | | e21 | 13 | 12 | 12 | 13 |
| 13 | | | | | | | | e13 | 14 | 12 | 12 | 15 |
| 14 | | • | | | | | | -11 | 11 | 11 | 37 | 14 |
| 15 | | | | | | | | e11 | 16 | 14 | 26 | 14 |
| 16 | | | | | | | | e9.8 | 11 | 106 | 45 | 17 |
| 17 | | | | | | | | e8.8 | 11 | 42 | 35 | 14 |
| 18 | | | | | | | | e16 | 17 | 62 | 25 | 15 |
| 19 | | | | | | | | e16 | 35 | 54 | 17 | 14 |
| 20 | | | | | | | | e27 | 24 | 27 | 33 | 14 |
| 21 | | | | | | | | e23 | 29 | 19 | 46 | 15 |
| 22 | | | | | | | | e22 | 42 | 18 | 36 | 15 |
| 23 | | | | | | | | e12 | 16 | 17 | 22 | 17 |
| 24 | | | | | | | | -11 | 13 | 15 | 25 | 20 |
| 25 | | | | | | | | e9.8 | 10 | 13 | 23 | 19 |
| 26 | | | | | | | | e 9.8 | 10 | 13 | 18 | 20 |
| 27 | | | | | | | | e9.0 | 11 | 13 | 13 | 21 |
| 28 | | | | | | | | e8.2 | 9.0 | 23 | 11 | 22 |
| 29 | | | | | | | | •7.6 | 12 | 29 | 13 | 20 |
| 30 | | | | | | | | 7.9 | 34 | 13 | 14 | 25 |
| 31 | | | | | | | | 9.7 | | 26 | 14 | |
| TOTAL | | | | | | | | 449.2 | 435.1 | 7 62 | 715 | 463 |
| MEAN | | | | | | | | 14.5 | 14.5 | 24.6 | 23.1 | 15.4 |
| MAX | | | | | | | | 42 | 42 | 106 | 46 | 25 |
| MIN | | | | | | | | 6.6 | 7.3 | 11 | ii | ii |
| AC-FT | | | | | | | | 891 | 863 | 1510 | 1420 | 918 |
| CFSM | | | | | | | | .81 | .81 | 1.38 | 1.30 | . 87 |
| IN. | | | | | | | | | | | | |
| TM. | | | | | | | | . 94 | .91 | 1.59 | 1.49 | . 97 |

e Estimated

RIO BUCANA BASIN

50114000 RIO CERRILLOS NEAR PONCE, PR

Location.--Lat 18°04'15", long 66°34'51", Hydrologic unit 21010004, on right bank off Highway 139, 2.3 mi (3.7 km) upstream from Quebrada Ausubo and 4.6 mi (7.4 km) northeast of Plaza Degetau in Fonce.

DRAINAGE AREA. -- 17.8 mi² (46.1 km²)

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1964 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEST PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|---|---|---|--|--|---|---|---|---|---|---|
| OCT 1990 | | | | | | | | | | | |
| 19 DEC | 1145 | 150 | 291 | 8.1 | 24.0 | 120 | 8.4 | 99 | 30 | 34000 | 67000 |
| 12 FEB 1991 | 1145 | 22 | 313 | 8.5 | 24.5 | 8.6 | 8.8 | 105 | <10 | K700 | K150 |
| 06 APR | 0830 | 18 | 314 | 8.2 | 20.0 | 29 | 8.8 | 97 | 23 | K1900 | 5500 |
| 10 JUN | 1100 | 10 | 297 | 8.5 | 24.5 | 2.8 | 8.4 | 100 | 10 | 310 | K100 |
| 05 | 1345 | 4.4 | 326 | 8.5 | 31.5 | 7.5 | 7.9 | 107 | 22 | K50 | K 50 |
| λŪĠ 29 | 1535 | 14 | 232 | 8.3 | 28.5 | 4.3 | 6.7 | 86 | 16 | 470 | M220 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 | | | | | | | | | | | |
| 19 | 110 | 0 | 33 | 5.5 | 8.5 | 0.4 | 1.0 | 100 | <0.5 | 16 | 6.6 |
| 12 | | | | | | | | 150 | | | |
| FEB 1991 06 | | | | | | | | 150 | | | |
| APR | | | | | | | | | | | |
| 10 Jun | 130 | 0 | 42 | 6.9 | 11 | 0.4 | 1.0 | 130 | <0.5 | 18 | 9.3 |
| 05 | | | | | | | | 130 | | | |
| 29 | 120 | 0 | 35 | 6.8 | 10 | 0.4 | 1.3 | 140 | | 19 | 7.4 |
| | | | | IDS. | | TOKNE | | | | | |

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE T-DTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|--|---|---|---|--|--|--|--|--|--|
| OCT 1990 | | | | | | | | | | |
| 19 | 0.20 | 24 | 155 | 63 | 287 | 0.930 | 0.070 | 1.00 | 0.080 | 0.22 |
| DEC | | | | | | | | | | |
| 12 | | | | | 17 | 0.380 | 0.020 | 0.400 | 0.020 | |
| FEB 1991 | | | | | | | | | | |
| 06 | | | | | 77 | 0.780 | 0.020 | 0.800 | 0.030 | 0.87 |
| APR | | | | | | | | | | |
| 10 | <0.10 | 21 | 187 | 5.31 | 3 | | <0.010 | 0.230 | <0.010 | |
| JUN | | | | | | | | | | |
| 05 | | | | | 15 | 0.580 | 0.010 | 0.590 | 0.030 | 0.27 |
| AUG | | | | | | | | | | |
| 29 | <0.10 | 22 | 162 | 6.12 | 192 | 0.470 | 0.010 | 0.480 | 0.130 | 0.27 |

K = non-ideal count

50114000 RIO CERRILLOS NEAR PONCE, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 19 | 0.30 | 1.3 | 5.8 | 0.190 | <1 | 200 | <10 | <1 | 5 | 30 |
| 12 FEB 1991 | <0.20 | | | 0.060 | | | | | | |
| 06 APR | 0.90 | 1.7 | 7.5 | 0.070 | | | | | | |
| 10 | 0.50 | 0.73 | 3.2 | 0.020 | <1 | <100 | 20 | 3 | <1 | <10 |
| 05 | 0.30 | 0.89 | 3.9 | 0.050 | | | | | | |
| 29 | 0.40 | 0.88 | 3.9 | 0.040 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| OCT 1990 19 DEC 12 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 DEC 12 FEB 1991 06 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 DEC 12 FEB 1991 06 APR 10 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 DEC 12 FEB 1991 06 APR | TOTAL RECOV- ERABLE (UG/L AS FE) 10000 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) 370 | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- RRABLE (VG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) <0.01 |

352 RIO BUCANA BASIN

50114390 RIO BUCANA AT HWY 14 BRIDGE NEAR PONCE, PR

LOCATION.--Lat 18°02'29", long 66°34'58", Hydrologic Unit 21010004, on left bank, 200 ft (61 m) upstream from bridge on Highway 14, 0.2 mi (0.3 km) southeast of Escuela Cerrillos, and 2.8 mi (4.5 km) northeast of Degetau Plaza in Ponce.

DRAINAGE AREA. -- 24.9 mi 2 (64.5 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to September 1986 (maximum only), published as "Río Bucaná Floodway Channel at Highway 14 bridge", October 1986 to July 1987 (maximum only), August 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 116.40 ft (35.500 m) above mean sea level. Prior to Oct. 1, 1986, crest-stage gage located at Highway 14 bridge, at elevation of mean sea level.

REMARKS.--Records poor. Only minor regulation of low flow at present. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 17,400 ft³/s (493 m²/s), Oct. 7, 1985, gage height, 13.48 ft (4.109 m), (previously published as 129.88 ft (39.59 m) near sea level from floodmark and rating curve extended above 200 ft³/s (5.66 m²/s), on basis of step-backwater analysis; minimum daily discharge, 3.9 ft³/s (0.110 m³/s), June 29, 1990, result of regulation.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 1,600 ft³/s (45.3 m³/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | Disc | harge | Gage | height | | | | Dis | charge | Gage | height |
|---------|------|---------|--------|------|--------------|------|----|------|---------|--------|-------|--------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 2 | 1815 | 1,680 | 47.8 | 6.66 | 2.030 | Oct. | 21 | 1115 | 2,510 | 71.1 | 7.60 | 2.316 |
| Oct. 14 | 1730 | 1,950 | 55.2 | 6.99 | 2.130 | Oct. | 25 | 1945 | *3,570 | 101 | *8.55 | 2.606 |
| Oct. 16 | 1545 | 1,890 | 53.5 | 6.92 | 2.109 | July | 16 | 1515 | 1,650 | 46.7 | 6.62 | 2.018 |

Minimum daily discharge, 4.8 ft3/s (0.136 m3/s), Apr. 17.

| | | | | | DAIL | y mban va | LUES | | | | | |
|-------|-------|------|------|-------|-------|-----------|-------|-------|-------|------|------|------|
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 366 | 351 | 28 | 15 | 10 | 7.4 | 7.7 | 14 | 12 | 92 | 79 | 29 |
| 2 | 455 | 283 | 27 | 12 | 9.7 | 7.1 | 8.3 | 11 | 11 | 22 | 18 | 39 |
| 3 | 390 | 245 | 27 | 14 | 9.6 | 6.7 | 29 | 9.2 | 11 | 15 | 15 | 23 |
| ă | 164 | 224 | 26 | 14 | 11 | 6.8 | 9.4 | 15 | 9.9 | 26 | 14 | 19 |
| 5 | 96 | 253 | 23 | 13 | 15 | 8.0 | 33 | 51 | 8.6 | 16 | 39 | 18 |
| 6 | 78 | 223 | 22 | 12 | 20 | 7.6 | 12 | 42 | 10 . | 12 | 137 | 16 |
| 7 | 64 | 164 | 20 | 12 | 17 | 6.3 | 38 | 18 | 6.6 | 12 | 25 | 25 |
| 8 | 122 | 125 | 20 | 12 | 11 | 5.7 | 11 | 17 | 8.2 | 66 | 17 | 19 |
| 9 | 172 | 101 | 19 | 13 | 9.7 | 5.6 | 9.6 | 38 | 6.7 | 65 | 15 | 17 |
| 10 | 249 | 88 | 18 | 11 | 9.5 | 5.4 | 6.7 | 24 | 5.9 | 20 | 12 | 16 |
| 11 | 304 | 77 | 17 | 11 | 14 | 5.5 | 6.5 | 19 | 7.8 | 16 | 10 | 15 |
| 12 | 318 | 69 | 17 | 11 | 12 | 5.7 | 6.6 | 43 | 13 | 12 | 10 | 13 |
| 13 | 906 | 63 | 18 | 11 | 21 | 5.2 | 6.6 | 33 | 16 | 11 | 10 | 17 |
| 14 | 804 | 58 | 20 | 11 | 23 | 5.1 | 5.3 | 16 | 9.1 | 11 | 37 | 13 |
| 15 | 543 | 53 | 24 | 11 | 13 | 5.3 | 5.8 | 13 | 18 | 15 | 98 | 12 |
| 16 | 619 | 55 | 31 | 10 | 11 | 5.8 | 5.0 | 15 | 9.1 | 461 | 84 | 37 |
| 17 | 498 | 51 | 21 | 11 | 12 | 5.8 | 4.8 | 11 | 7.5 | 139 | 96 | 87 |
| 18 | 354 | 44 | 18 | 10 | 10 | 6.5 | 5.2 | 17 | 9.1 | 144 | 61 | 22 |
| 19 | 463 | 50 | 17 | 9.7 | 9.9 | 6.6 | 5.6 | 30 | 58 | 199 | 21 | 18 |
| 20 | 575 | 105 | 16 | 9.2 | 9.5 | 6.9 | 6.6 | 24 | 34 | 42 | 196 | 75 |
| 21 | 1560 | 77 | 16 | 10 | 8.6 | 6.9 | 4.9 | 45 | 22 | 22 | 219 | 84 |
| 22 | 617 | 81 | 17 | 10 | 8.3 | 7.3 | 6.0 | 29 | 89 | 18 | 531 | 43 |
| 23 | 431 | 50 | 16 | 9.9 | 7.9 | 9.0 | 6.8 | 18 | 26 | 21 | 504 | 28 |
| 24 | 578 | 68 | 16 | 9.4 | 8.2 | 7.6 | 6.5 | 12 | 13 | 15 | 101 | 17 |
| 25 | 1330 | 66 | 15 | 10 | 8.5 | 6.9 | 5.1 | 12 | 11 | 13 | 174 | 15 |
| 26 | 1080 | 64 | 15 | 10 | 8.0 | 85 | 8.9 | 12 | 11 | 12 | 302 | 14 |
| 27 | 810 | 46 | 15 | 10 | 7.6 | 126 | 7.7 | 13 | 11 | 12 | 85 | 20 |
| 28 | 793 | 39 | 15 | 9.7 | 7.8 | 19 | 5.8 | 11 | 8.5 | 18 | 110 | 130 |
| 29 | 591 | 39 | 13 | 9.6 | | 11 | 6.6 | 11 | 11 | 41 | 49 | 138 |
| 30 | 552 | 35 | 13 | 9.4 | | 9.4 | 6.3 | 12 | 37 | 13 | 37 | 24 |
| 31 | 444 | | 16 | 9.1 | | 8.3 | | 11 | | 12 | 29 | |
| TOTAL | 16326 | 3247 | 596 | 340.0 | 322.8 | 421.4 | 287.3 | 646.2 | 511.0 | 1593 | 3135 | 1043 |
| MRAN | 527 | 108 | 19.2 | 11.0 | 11.5 | 13.6 | 9.58 | 20.8 | 17.0 | 51.4 | 101 | 34.8 |
| MAX | 1560 | 351 | 31 | 15 | _23 | 126 | 38 | 51 | _89 | 461 | 531 | 138 |
| MIN | 64 | 35 | 13 | 9.1 | 7.6 | 5.1 | 4.8 | 9.2 | 5.9 | 11 | 10 | 12 |
| AC-FT | 32380 | 6440 | 1180 | 674 | 640 | 836 | 570 | 1280 | 1010 | 3160 | 6220 | 2070 |
| CFSM | 21.2 | 4.35 | .77 | .44 | .46 | . 55 | .38 | . 84 | .68 | 2.06 | 4.06 | 1.40 |
| IN. | 24.39 | 4.85 | .89 | . 51 | .48 | . 63 | .43 | . 97 | .76 | 2.38 | 4.68 | 1.56 |

CAL YR 1990 TOTAL 27228.8 MEAN 74.6 MAX 1560 MIN 3.9 AC-FT 54010 CFSM 3.00 IN. 40.68 WTR YR 1991 TOTAL 28468.7 MEAN 78.0 MAX 1560 MIN 4.8 AC-FT 56470 CFSM 3.13 IN. 42.53

50115000 RIO PORTUGUES NEAR PONCE, PR

LOCATION.--Lat 18°04'45", long 66°38'01", Hydrologic Unit 21010004, on right bank 30 ft (9 m) upstream from bridge on Highway 504, 0.2 mi (0.3 km) upstream from small unnamed tributary, 4.4 mi (7.1 km) upstream from Río Chiquito, and 4.7 mi (7.6 km) north of Plaza Degetau in Ponce.

DRAINAGE AREA. -- 8.82 ml2 (22.84 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- February to June 1964 (monthly measurements only), July 1964 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 470 ft (143 m), from topographic map. Prior to Dec. 4, 1964, non-recording gage at same site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some low-flow regulation due to unknown activity upstream. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--27 years (1965-91), 19.0 ft³/s (0.538 m³/s), 29.25 in/yr (743 mm/yr), 13,760 acre-ft/yr (17.0 hm³/yr); median of yearly mean discharges, 18.8 ft³/s (0.53 m³/s), 13,600 acre-ft/yr (17 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,000 ft³/s (595 m³/s), Oct. 7, 1985, gage height, 20.2 ft (6.157 m), from floodmarks at downstream side of bridge, from rating curve extended above 150 ft³/s (4.25 m³/s) on basis of slope-area measurement of peak flow; minimum discharge, 1.0 ft³/s (0.028 m³/s), May 29, 1973.

EXTREMES FOR CURRENT YEAR. -- Feak discharges greater than base discharge of 800 ft3/s (22.6 m3/s) and maximum (*):

DISCHARGE, CURIC FERT PRE SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | Discharge | | Gage | height | | | Disc | harge | Gage | height | |
|-------------------|--------------|----------------|---------------------|--------------|----------------|---------|------|---------|--------|--------|-------|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 2 Oct. 14 | 1540 1600 | 1,330 1,040 | 37.7 29.4 | 6.96 6.30 | 2.121 1.920 | Oct. 25 | 1945 | *1,920 | 54.4 | *8.01 | 2.441 |

Minimum discharge, 2.5 ft3/s (0.071 m3/s), Apr. 27-30.

| | DAILY MEAN VALUES | | | | | | | | | | | | |
|--------|-------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| DAY | OCT | NOV | DEC | JAN | PEB | MAR | APR | MAY | JUN | JUL | DUA | SRP | |
| 1 | 61 | e86 | 15 | 8.6 | 5.0 | 4.7 | 3.7 | 5.5 | 5.3 | 7.3 | 12 | 7.1 | |
| 2 | 146 | e74 | 15 | 7.5 | 4.6 | 4.6 | 6.4 | 2.8 | 4.5 | 4.4 | 6.2 | 6.7 | |
| 3 4 | 69 | e 60 | 15 | 7.4 | 5.1 | 4.6 | 12 | 2.6 | 4.5 | 19 | 5.8 | 6.4 | |
| 4 | 35 | e52 | 13 | 7.4 | 7.4 | 4.7 | 4.9 | 21 | 4.0 | 15 | 5.0 | 5.9 | |
| 5 | 25 | e48 | 13 | 7.1 | 14 | 5.2 | 5.6 | 22 | 3.9 | 6.0 | 53 | 5.4 | |
| 6 | 21 | e55 | 12 | 6.9 | 7.7 | 5.0 | 17 | 14 | 3.8 | 4.7 | 30 | 5.2 | |
| 7 | 36 | e4 8 | 12 | 7.1 | 8.2 | 4.6 | 15 | 6.5 | 3.9 | 16 | 11 | 5.4 | |
| 8 | 43 | e43 | 11 | 6.9 | 5.5 | 4.2 | 6.3 | 23 | 3.7 | 13 | 8.3 | 5.2 | |
| 9 | 68 | e37 | 11 | 6.8 | 5.3 | 4.3 | 4.9 | 40 | 3.6 | 6.3 | 6.6 | 5.7 | |
| 10 | 67 | e34 | 11 | 6.8 | 5.9 | 4.2 | 4.3 | 26 | 3.4 | 5.2 | 5.9 | 5.4 | |
| 11 | 76 | e31 | 11 | 6.7 | 7.4 | 4.2 | 4.3 | 13 | 3.3 | 4.4 | 5.4 | 4.8 | |
| 12 | 101 | e 28 | 10 | 6.4 | 16 | 4.6 | 4.0 | 16 | 4.8 | 4.3 | 5.2 | 4.6 | |
| 13 | 198 | e 26 | 11 | 6.4 | 19 | 4.2 | 4.0 | 8.8 | 4.1 | 4.2 | 5.2 | 4.4 | |
| 14 | 216 | 23 | 12 | 6.2 | 10 | 4.2 | 3.7 | 6.6 | 4.6 | 3.9 | 9.0 | 4.2 | |
| 15 | 86 | 21 | 24 | 6.2 | 7.2 | 4.2 | 3.6 | 5.4 | 6.0 | 4.8 | 7.2 | 4.5 | |
| 16 | 119 | 22 | 14 | 6.2 | 7.2 | 4.0 | 3.7 | 5.1 | 3.5 | 46 | 5.4 | 9.1 | |
| 17 | 114 | 20 | 11 | 5.9 | 7.1 | 3.8 | 3.2 | 4.7 | 3.4 | 20 | 25 | 14 | |
| 18 | 83 | 19 | 10 | 6.1 | 5.7 | 3.9 | 3.2 | 12 | 5.8 | 35 | 15 | 6.1 | |
| 19 | 82 | 19 | 9.4 | 5.9 | 5.6 | 3.9 | 3.3 | 12 | 7.3 | 25 | 7.4 | 11 | |
| 20 | 83 | 58 | 9.7 | 5.9 | 5.4 | 3.8 | 3.1 | 8.3 | 4.5 | 12 | 36 | 15 | |
| 21 | 315 | 35 | 9.5 | 5.9 | 5.2 | 3.8 | 3.0 | 7.3 | 10 | 7.8 | 36 | 13 | |
| 22 | 112 | 31 | 8.9 | 5.9 | 5.1 | 4.4 | 3.0 | 9.2 | 7.6 | 8.2 | 75 | 10 | |
| 23 | 78 | 23 | 8.9 | 5.9 | 5.1 | 5.0 | 2.8 | 6.5 | 4.3 | 7.8 | 48 | 8.8 | |
| 24 | 118 | 22 | 8.9 | 5.8 | 5.3 | 3.9 | 2.8 | 5.3 | 3.9 | 5.7 | 34 | 7.2 | |
| 25 | 313 | 35 | 8.4 | 5.3 | 5.1 | 3.8 | 3.2 | 5.1 | 3.6 | 5.0 | 39 | 6.3 | |
| 26 | 236 | 30 | 8.1 | 5.1 | 5.0 | 60 | 2.8 | 5.8 | 3.5 | 4.8 | 25 | 6.4 | |
| 27 | e170 | 22 | 8.3 | 5.1 | 4.6 | 21 | 2.6 | 5.8 | 3.7 | 4.6 | 15 | 5.9 | |
| 28 | e 160 | 19 | 8.1 | 5.2 | 4.8 | 6.8 | 2.5 | 4.6 | 4.7 | 8.1 | 12 | 8.3 | |
| 29 | e150 | 17 | 8.1 | 4.9 | | 4.9, | 2.5 | 4.2 | 4.2 | 8.1 | 9.9 | 8.5 | |
| 30 | e120 | 16 | 8.0 | 4.9 | | 4.1 | 3.0 | 4.2 | 9.0 | 5.2 | 8.8 | 6.2 | |
| 31 | e100 | | 10 | 4.8 | | 3.8 | | 4.7 | | 12 | 7.8 | | |
| TOTAL | 3601 | 1054 | 345.3 | 193.2 | 199.5 | 208.4 | 144.4 | 318.0 | 142.4 | 333.8 | 575.1 | 216.7 | |
| MRAN | 116 | 35.1 | 11.1 | 6.23 | 7.12 | 6.72 | 4.81 | 10.3 | 4.75 | 10.8 | 18.6 | 7.22 | |
| MAX | 315 | 86 | 24 | 8.6 | - 19 | 60 | 17 | 40 | 10 | 46 | 75 | 15 | |
| MIM | 21 | 16 | 8.0 | 4.8 | 4.6 | 3.8 | 2.5 | 2.6 | 3.3 | 3.9 | 5.0 | 4.2 | |
| AC-FT | 7140 | 2090 | 685 | 383 | 396 | 413 | 286 | 631 | 282 | 662 | 1140 | 430 | |
| CFSM | 13.2 | 3.98 | 1.26 | .71 | .81 | .76 | .55 | 1.16 | .54 | 1.22 | 2.10 | . 82 | |
| IN. | 15.19 | 4.45 | 1.46 | .81 | .84 | .88 | .61 | 1.34 | .60 | 1.41 | 2.43 | . 91 | |

CAL YR 1990 TOTAL 7326.9 MEAN 20.1 MAX 315 MIN 1.5 AC-FT 14530 CFSM 2.28 IN. 30.90 WTR YR 1991 TOTAL 7331.8 MEAN 20.1 MAX 315 MIN 2.5 AC-FT 14540 CFSM 2.28 IN. 30.92

e Estimated

RIO PORTUGUES BASIN

50115000 RIO PORTUGUES NEAR PONCE, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1964 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEBT PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | SOLVED | | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|---|---|---|--|--|--|--|-----------------------------------|---|---|---|
| OCT 1990 19 | 0940 | 81 | 233 | 8.3 | 22.0 | 80 | 8.5 | 99 | 12 | K910 | 2600 |
| DEC | | | | | 22.0 | 80 | | | | | |
| 12 FKB 1991 | 1005 | 11 | 326 | 8.2 | 21.5 | 1.3 | 3 9.1 | 102 | <10 | 4900 | 240 |
| 06 APR | 1035 | 16 | 313 | 8.2 | 21.0 | 1. | 5 8.9 | 100 | 13 | 4000 | 3100 |
| 10 | 0855 | 4.1 | 305 | 8.4 | 21.5 | 2.3 | 9.0 | 100 | <10 | 490 | K260 |
| JUN 05 | 1040 | 4.2 | 310 | 8.6 | 25.0 | 1.0 | 10.5 | 127 | 12 | 280 | 260 |
| AUG 29 | 1345 | 10 | 260 | 7.9 | 27.0 | 18 | 6.3 | 79 | 34 | 82 | 240 |
| | | | | | | | | | - | | |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- MESS NONCARB WH WAT TOT FLD 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) | SODIC AD- SORP- TION RATIO | - SIUM, - DIS- N SOLVED | WAT WH TOT PET | SULFIDE TOTAL (MG/L AS 8) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 | | | | | | | | | | | |
| 19 DRC | 100 | 0 | 32 | 5.3 | 7.9 | 0. | .3 1.0 | 100 | <0.5 | 7.5 | 8.6 |
| 12 FEB 1991 | | | | | | | | 150 | | | |
| 06 | | | | | | | | 140 | | | |
| APR 10 | 140 | 0 | 46 | 7.3 | 11 | 0. | 4 1.3 | 140 | <0.5 | 7.4 | 9.2 |
| JUN 05 | | | | | | | | 140 | | | |
| AUG 29 | 87 | 0 | 27 | 4.8 | 7.7 | 0. | .4 1.4 | 70 | | 7.0 | 6.5 |
| | | | | | | | | | | | |
| DA | RI E SC TE (M | DE, DI DIS- SC DLVED (N NG/L A | ICA, SUM SS- CON OLVED TUE IG/L D SS SO | BTI- D NTS, SC IS- (T LVED P | IDS, TOTO IS- AT IVED DEC ONS SU ER PER | 105 | GEN, NITRATE NI TOTAL T (MG/L (| GEN, () TRITE NO: OTAL TO MG/L () | SEN, G S+NO3 AMM STAL TO 4G/L (M | EN, G ONIA ORG TAL TO G/L (M | TRO- EN, ANIC TAL G/L N) |
| OCT 19 | | | | | | | | | | | |
| 19 Dec | | 0.10 2 | 12 | 144 3 | 1.5 | 37 | 1.39 | | | | 0.47 |
| 12 FEB 19 | | | | | | <1 | 0.980 | 0.020 | L.00 0 | . 070 | 0.43 |
| 06 APR | • | | | | | 6 | 1.39 | 0.010 | L.40 <0 | .010 | |
| 10 JUN | . < | 0.10 1 | .9 | 185 | 2.07 | 1 | < | 0.010 | 0.810 <0 | .010 | |
| 05 | | | | | | <1 | < | 0.010 | 0.350 0 | . 020 | 0.28 |
| AUG 29 | . < | 0.10 2 | 0 | 125 | 3.38 | 10 | 0.620 | 0.020 | 0.640 0 | . 050 | 0.35 |
| | n-ideal c | ount | | | | | | | | | |

50115000 RIO PORTUGUES NEAR PONCE, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 19 Dec | 0.50 | 1.9 | 8.4 | 0.040 | <1 | <100 | <10 | <1 | 2 | 20 |
| 12 | 0.50 | 1.5 | 6.6 | 0.060 | | | | | | |
| FRB 1991 06 APR | 0.60 | 2.0 | 8.9 | 0.040 | | | | | | |
| 10 | 0.20 | 1.0 | 4.5 | 0.040 | <1 | <100 | 40 | <1 | <1 | 10 |
| 05 | 0.30 | 0.65 | 2.9 | 0.030 | | | | | | |
| AUG 29 | 0.40 | 1.0 | 4.6 | 0.080 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | MRTHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 DEC | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| OCT 1990 19 DEC 12 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 DEC 12 FRB 1991 06 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 DEC 12 FEB 1991 06 APR 10 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 19 DEC 12 FEB 1991 06 | TOTAL RECOV- ERABLE (UG/L AS FE) 1300 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- BRABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) <1 | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.04 |

RIO PORTUGUES BASIN

50116200 RIO PORTUGUES AT PONCE, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'20", long 66°36'28", 1,300 ft (400 m) south of Las Americas Avenue Bridge, 1.2 mi (1.9 km) south of CSC 50115900, 0.8 mi (1.3 km) west of Highways 1 and 2 junction, and 0.7 mi (1.1 km) southeast of Ponce.

DRAINAGE AREA. -- 18.9 mi2 (49.0 km2).

PERIOD OF RECORD. -- Water years 1979 to current year.

WATER-OUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | WATE | ER-QUALITY | DATA, W | ATER YEAR | OCTOBI | ZR 1990 T | O SEPTEME | BER 1991 | | | |
|-----------------------|---|---|---|--|--|-------------------------------------|------------------------------------|---------------------------------------|--|---|---|---|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUI BII IT? (NT) | 0- D1 r s 01 | SOI IEN, (PE IS- CE IVED SAI | S- DE LVED C IR- I INT (IUR- LE | YGEN MAND, HEM- CAL HIGH (VEL) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| NOV 1990 | | | | | | | | | | | | |
| 06 | 0920 | 61 | 384 | 8.5 | 24.5 | 20 | 9 | .1 | 108 | 13 | 6400 | 3200 |
| DEC 13 FEB 1991 | 0810 | 8.9 | 583 | 7.7 | 22.0 | 4. | .2 6 | 3 | 71 | <10 | K1700 | 280 |
| 19 | 1000 | 1.7 | 600 | 7.9 | 25.0 | 3 | .5 5 | .0 | 60 | 21 | K630 | K130 |
| APR 24 | 1040 | 0.48 | 564 | 8.0 | 28.0 | 2 | .0 7 | . 0 | 88 | 50 | 2700 | 420 |
| JUN 19 | 0940 | 7.1 | 400 | 7.9 | 25.0 | 6 | . 6 5 | 5.4 | 64 | 17 | 34000 | 9400 |
| AUG 21 | 1140 | 21 | 257 | 7.9 | 25.5 | 41 | • | i. 9 | 83 | 23 | 60000 | 21000 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVRD (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SOD: Al SOR! TIC RAT: | D- 81 P- D1 DN SOI | | TY WH FET SU ILD T AS (| LPIDE OTAL MG/L S S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 06 | 150 | 0 | 47 | 8.7 | 18 | | 0.6 1 | 4 | 140 | <0.5 | 23 | 18 |
| 13 | | | | | | | | | 190 | | | |
| FRB 1991 19 | | | | | | | | | 160 | | | |
| APR 24 | 140 | 0 | 40 | 40 | | | | | | | 40 | |
| JUN | 140 | U | 40 | 10 | 54 | | • • | 1.4 | 140 | <0.5 | 49 | 34 |
| 19 AUG | | | | | | | | · - | 140 | | | |
| 21 | 96 | 0 | 30 | 5.1 | 15 | (| 0.7 1 | 8 | 87 | | 21 | 13 |
| | r: I Se | IDE, DI DIS- SC OLVED (1 | LICA, SUM IS- CON OLVED TUE MG/L D | STI- : NTS, g IS- (' | LIDS, TO DIS- AT OLVED DE TONS S | SIDUE TAL 105 G. C, US- | NITRO- GEN, NITRATE TOTAL | NITRO- GEN, NITRITE TOTAL | NI TRO GEN , NO2 + NO TOTAL | , G. 3 AMM TO | EN, G ONIA ORG TAL TO | TRO- EN, ANIC TAL |
| | | | | | | NDED MG/L) | (MG/L As N) | (MG/L As N) | (MG/L As N) | | | ig/L n) |
| Nov | 1990 | | | | | | | | | | | |
| DEC 06 | ••• | <0.10 | 21 | 221 | 36.4 | 24 | 1.18 | 0.020 | 1.20 | 0 | .030 | 0.37 |
| 13 FRB | 1991 | | | | | 4 | 1.06 | 0.040 | 1.10 | 0 | .110 | 0.29 |
| 19 | ••• | | | | | 7 | 0.330 | 0.070 | 0.40 | 0 0 | . 490 | 0.71 |
| APR 24 JUN | ••• | 0.10 | 20 | 293 | 0.38 | 17 | 0.090 | 0.040 | 0.13 | 0 0 | .490 | 1.5 |
| 19 AUG | ••• | ~- | | | | 10 | 0.120 | 0.020 | 0.14 | 0 0 | .090 | 0.51 |
| 21 | ••• | <0.10 | 17 | 155 | 8.96 | 7 | 0.720 | 0.040 | 0.76 | 0 0 | .180 | 0.52 |
| K = 1 | non-ideal | count | | | | | | | | | | |

357 RIO PORTUGUES BASIN

50116200 RIO PORTUGUES AT PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DA7 | 1 | NITRO- SEN, AM- MONIA + ORGANIC TOTAL (MG/L, AS N) | NITRO- GEN, TOTAL (MG/L AS N) | MITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------------|--------------------------|--|---|---|---|--|---|---|---|--|--|
| NOV 195 | 0 | | | | | | | | | | |
| 06 | • | 0.40 | 1.6 | 7.1 | 0.070 | <1 | <100 | 30 | <1 | 2 | 10 |
| DEC 13 | _ | 0.40 | 1.5 | 6.6 | 0.050 | | | | | | |
| FRB 199 | | 0.10 | 1.5 | 0.0 | 0.030 | | | | | | |
| 19 | • | 1.2 | 1.6 | 7.1 | 0.090 | | | | | | |
| APR 24 | | 2.0 | 2.1 | 9.4 | 0.420 | <1 | <100 | 90 | <1 | 2 | 10 |
| JUN | | | | | | | | | | | |
| 19 | • | 0.60 | 0.74 | 3.3 | 0.050 | | | | | | |
| 21 | • | 0.70 | 1.5 | 6.5 | 0.110 | | | | | | |
| DA ⁷ | re | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 199 | | | _ | | | | | | | | |
| OG | • | 1200 | 3 | 60 | <0.10 | <1 | <1 | <10 | <0.010 | 4 | 0.02 |
| 13 | | | | | | | | | | | |
| FEB 199 | _ | | | | | | | | | | |
| APR | | | | | | | | | | | |
| 24 JUN | • | 670 | 5 | 340 | 0.10 | <1 | <1 | 10 | <0.010 | 1 | 0.22 |
| 19 | | | | | | | | | | | |
| AUG 21 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | Pestici | DE ANALYS | RS | | | | |
| DATE | TIM | PCB TOTA | AL TO | RIN, DAN | AL TOT | AL TO | | AL TOT | RIN SULF | AN, ENDR | AL TOTAL |
| | | (0-7) | -, (-, | , , , , , , , | _, (0. | , _, | , _, (| , _, (| , _, (| (| (=, (=, =, |
| JUN 1991 19 | 094 | D < | 0.1 <0 | .010 | 0.1 <0. | 010 <0. | 010 <0. | 010 <0. | 010 <0. | 010 <0. | 010 <0.010 |
| DATE | HEPTA CHLOI EPOXII | R DE LIND | ANE CHI | CY- COR, MIE | LEN POI | ia- ies, iy- pi .or. Tha | NE APHE | | -D, 2,4, | | |

(UG/L)

<1

<0.01

2,4-D, 2,4,5-T 2,4-DP SILVEX,
TOTAL TOTAL TOTAL TOTAL
(UG/L) (UG/L) (UG/L) (UG/L)

<0.01

<0.01

<0.01-

(UG/L)

<0.1

TOTAL (UG/L)

<0.01

TOTAL (UG/L)

<0.01

TOTAL (UG/L)

<0.10

EPOXIDE TOTAL (UG/L)

JUN 1991 19...

TOTAL (UG/L)

<0.010 <0.010

RIO GUAYANILLA BASIN

50124200 RIO GUAYANILLA NEAR GUAYANILLA, PR

LOCATION.--Lat 18°02'40", long 66°47'53", Hydrologic Unit 21010004, on left bank, 0.7 mi (1.1 km) north of junction of Highways 2 and 132, 0.6 mi (1.0 km) downstream from Quebrada Consejo, 1.8 mi (2.9 km) north-northwest from Plaza de Guayanilla.

DRAINAGE AREA . -- 18.9 mi2 (49.0 km2).

WATER-DISCHARGE RECORDS

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

GAGE .-- Water-stage recorder. Elevation of gage is 80 ft (24 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--10 years (1982-91), 27.3 ft³/s (0.773 m³/s), 17.17 in/yr (436 mm/yr), 17,316 acre-ft/yr (21.4 hm³/yr); median of yearly mean discharges, 24 ft³/s (0.68 m³/s), 17,400 acre-ft/yr (21.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,700 ft³/s (416 m³/s), Sept. 12, 1982, gage height, 20.4 ft (6.218 m), from floodmarks, from rating curve extended above 100 ft³/s (2.83 m³/s) on basis of step-backwater analysis and indirect measurement of peak flow; minimum daily discharge, 0.97 ft³/s (0.027 m³/s), Aug. 21, 1990.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 800 ft³/s (22.6 m³/s) and maximum (*):

| | | Disc | harge | Gage 1 | height | | | Disc | harge | Gage 1 | height |
|---------|------|---------|---------------------|--------|--------|---------|------|---------|---------------------|--------|--------|
| Date | Time | (ft³/=) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) |
| Oct. 9 | 1745 | *2,697 | 76.4 | *12.42 | 3.786 | Oct. 24 | 1930 | 1,550 | 43.9 | 10.79 | 3.289 |
| Oct. 11 | 1445 | 1,726 | 48.9 | 11.08 | 3.377 | Oct. 25 | 1930 | 1,770 | 50.1 | 11.15 | 3.398 |
| Oct. 14 | 1515 | 1,500 | 42.8 | 10.71 | 3.264 | Oct. 27 | 1900 | 864 | 24.5 | 9.43 | 2.874 |
| Oct. 21 | 0120 | 905 | 25.6 | 9.53 | 2.905 | Mar. 26 | 1615 | 922 | 26.1 | 9.57 | 2.917 |

Minimum daily discharge, 2.0 ft3/s (0.057 m3/s), May 26, 27.

| DISCHARGE, CUBIC FERT PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES | | | | | | | | | | | | | |
|---|------|------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|--|
| DAY | OCT | MOA | DEC | Jan | FEB | MAR | APR | MAY | JUN | JUL | AUG | SRP | |
| 1 | 77 | 83 | 25 | 9.9 | 7.1 | 4.5 | 6.0 | 2.2 | 3.3 | 6.0 | 14 | 6.6 | |
| 2 | 99 | 73 | 23 | 9.1 | 6.9 | 3.9 | 5.6 | 23 | 3.3 | 5.3 | 5.1 | 5.8 | |
| 2 3 | 83 | 67 | 23 | 9.0 | 8.5 | 3.6 | 12 | 17 | 3.1 | 30 | 4.9 | 5.5 | |
| 4 | 54 | 60 | 21 | 8.7 | 8.1 | 4.5 | 5.9 | 5.8 | 3.3 | 51 | 3.6 | 5.1 | |
| 5 | 54 | 105 | 20 | 8.9 | 13 | 6.5 | 14 | 7.8 | 3.3 | 10 | 69 | 5.6 | |
| 6 | 41 | 84 | 19 | 9.2 | 25 | 5.9 | 57 | 30 | 2.8 | 7.0 | 59 | 9.3 | |
| 7 | 39 | 63 | 18 | 9.3 | 9.0 | 4.1 | 34 | 72 | 2.6 | 17 | 21 | 17 | |
| 8 | 37 | 54 | 18 | 9.3 | 5.7 | 3.7 | 10 | 83 | 2.4 | 32 | 12 | 9.5 | |
| 9 | 286 | 53 | 17 | 8.8 | 4.7 | 3.7 | 6.0 | 71 | 2.5 | 11 | 9.1 | 7.6 | |
| 10 | 142 | 51 | 17 | 8.1 | 11 | 3.4 | 4.6 | 43 | 2.5 | 6.3 | 8.5 | 6.3 | |
| 11 | 193 | 48 | 16 | 6.7 | 13 | 3.6 | 5.3 | 75 | 2.5 | 4.7 | 8.2 | 6.1 | |
| 12 | 141 | 46 | 17 | 5.5 | 9.7 | 3.4 | 5.3 | 98 | 2.9 | 4.2 | 7.2 | 7.0 | |
| 13 | 239 | 42 | 16 | 7.1 | 26 | 3.6 | 4.7 | 87 | 2.9 | 3.9 | 7.5 | 14 | |
| 14 | 286 | 39 | 20 | 4.7 | 12 | 3.3 | 4.7 | 49 | 2.5 | 3.3 | 8.6 | 6.3 | |
| 15 | 128 | 36 | 40 | 4.0 | 5.7 | 3.1 | 4.2 | 29 | 7.0 | 10 | 7.5 | 42 | |
| 16 | 110 | 42 | 33 | 4.6 | 12 | 2.9 | 4.2 | 21 | 2.8 | 24 | 7.4 | 26 | |
| 17 | 94 | 39 | 21 | 5.0 | 6.9 | 3.0 | 3.7 | 16 | 2.2 | 16 | 6.6 | 107 | |
| 18 | 163 | 36 | 15 | 5.5 | 4.7 | 3.1 | 3.3 | 19 | 2.5 | 11 | 6.6 | 38 | |
| 19 | 131 | 30 | 13 | 5.8 | 5.7 | 3.1 | 3.3 | 18 | 2.9 | 21 | 4.5 | 18 | |
| 20 | 96 | 52 | 13 | 6.2 | 4.7 | 2.9 | 2.9 | 13 | 2.9 | 11 | 4.7 | 20 | |
| 21 | 369 | 42 | 12 | 6.7 | 3.7 | 3.9 | 2.9 | 11 | 2.9 | 7.0 | 8.0 | 24 | |
| 22 | 130 | 33 | 12 | 7.1 | 2.9 | 7.3 | 2.9 | 9.2 | 5.9 | 6.5 | 22 | 28 | |
| 23 | 129 | 33 | 12 | 6.9 | 3.0 | 7.3 | 3.3 | 8.3 | 2.8 | 9.4 | 22 | 17 | |
| 24 | 293 | 36 | 13 | 6.9 | 3.1 | 4.6 | 2.9 | 7.1 | 2.5 | 4.9 | 9.1 | 12 | |
| 25 | 396 | 41 | 13 | 6.3 | 3.3 | 4.0 | 2.2 | 8.1 | 2.5 | 3.9 | 24 | 7.6 | |
| 26 | 221 | 43 | 12 | 6.3 | 3.4 | 99 | 2.2 | 7.6 | 2.0 | 9.5 | 17 | 11 | |
| 27 | 228 | 36 | 12 | 6.3 | 3.1 | 37 | 2.2 | 7.4 | 2.0 | 4.1 | 11 | 18 | |
| 28 | 179 | 30 | 8.9 | 5.8 | 4.0 | 12 | 2.2 | 5.6 | 5.3 | 4.8 | 12 | 20 | |
| 29 | 120 | 25 | 9.3 | 5.7 | | 7.8 | 2.5 | 5.3 | 2.8 | 12 | 9.3 | 30 | |
| 30 | 103 | 26 | 9.3 | 6.2 | | 5.9 | 2.5 | 5.0 | 9.6 | 4.9 | 8.0 | 19 | |
| 31 | 93 | | 12 | 6.4 | | 5.1 | | 3.9 | | 11 | 7.3 | | |
| TOTAL | 4754 | 1448 | 530.5 | 216.0 | 225.9 | 269.7 | 222.5 | 858.3 | 98.5 | 362.7 | 424.7 | 549.3 | |
| MEYN | 153 | 48.3 | 17.1 | 6.97 | 8.07 | 8.70 | 7.42 | 27.7 | 3.28 | 11.7 | 13.7 | 18.3 | |
| MAX | 396 | 105 | 40 | 9.9 | 26 | 99 | 57 | 98 | 9.6 | 51 | 69 | 107 | |
| MIN | 37 | 25 | 8.9 | 4.0 | 2.9 | 2.9 | 2.2 | 2.2 | 2.0 | 3.3 | 3.6 | 5.1 | |
| AC-PT | 9430 | 2870 | 1050 | 428 | 448 | 535 | 441 | 1700 | 195 | 719 | 842 | 1090 | |
| CFSM | 8.11 | 2.55 | .91 | . 37 | .43 | .46 | .39 | 1.46 | .17 | . 62 | .72 | . 97 | |
| IN. | 9.36 | 2.85 | 1.04 | . 43 | .44 | . 53 | .44 | 1.69 | .19 | .71 | . 84 | 1.08 | |

CAL YR 1990 TOTAL 10191.67 MEAN 27.9 MAX 396 MIN .97 AC-FT 20220 CFSM 1.48 IN. 20.06 WTR YR 1991 TOTAL 9960.1 MEAN 27.3 MAX 396 MIN 2.0 AC-FT 19760 CFSM 1.44 IN. 19.60

RIO GUAYANILLA BASIN

50124700 RIO GUAYANILLA AT CENTRAL RUFINA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'40", long 66°46'49", at dirt road bridge, 0.7 mi (1.1 km) from mouth, 0.9 mi (1.4 km) east of Central Rufina and 0.9 mi (1.4 km) southeast of Guayanilla.

DRAINAGE AREA. -- 22.8 mi2 (59.1 km2).

PERIOD OF RECORD. -- Water years 1960-65, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TI | CHAI IN: CUI F: CE P: | IS- RGE, ST. BIC BET ER COND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | WAT | re er | TUR- BID- ITY (NTU) | OXYGEN DIS- SOLVE (MG/L | CE D SAT | s- i Ved R- NT UR- 1 | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAI 0.45 UM-MI (COLS. | STREP- L, TOCOCCI FECAL, CCOLS. |
|----------------|--|--|--|---|--|--|--|---|--|---|--------------------------------------|---|--|---|
| OCT 1990 16 | 094 | 15 2: | a | 430 | 8.0 | 2 | 5.0 | 10 | 5.1 | | 61 | 10 | 540 | 00 2200 |
| DEC | | - | _ | | | | | | | | | | | |
| 05 FRB 1991 | 091 | | | 525 | 7.7 | _ | 2.5 | 1.4 | 9.0 | | 102 | 10 | | 30 K30 |
| 11 APR | 090 |)5 | 9.4 | 469 | 7.8 | 2 | 4.0 | 7.6 | 8.5 | i | 100 | 14 | K700 | 00 K1500 |
| 29 Jun | 104 | 15 | 9.3 | 819 | 7.4 | 3 | 0.0 | 1.6 | 7.5 | | 98 | 25 | K: | 10 K10 |
| 10 | 084 | 15 | 1.1 | 800 | 7.5 | 2 | 7.5 | 1.6 | 5.1 | | 63 | 16 | K: | LO K73 |
| 09 | 115 | 50 | 4.0 | 578 | 8.0 | 3 | 0.5 | 4.0 | 6.7 | | 87 | 22 | : | 10 10 |
| DATE | HARI NESS TOTA (MG/ AS CACC | D- NE B NON AL WH ' 'L TOT MG/ | CARB | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVEI (MG/L AS MG) | SODI DIS SOLV (MG | OM, - : RD /L : | SODIUM AD- SORP- TION RATIO | POTAS SIUM DIS- SOLVE (MG/L AS K) | TOT D FIR | TY WH FRT : LD AS | SULFIDE TOTAL (MG/L AS S) | SULFA! DIS- SOLVI (MG/I | DIS- RD SOLVED L (MG/L |
| OCT 1990 16 | 1 | L 9 0 | 0 | 51 | 15 | 14 | | 0.4 | 1.9 | | 160 | <0.5 | 30 | 15 |
| DEC 05 | | | | | | _ | _ | | | | 190 | | | |
| FEB 1991 11 | | | | | | _ | _ | | | | 170 | | | |
| APR 29 | 2 | 70 | 0 | 77 | 20 | 68 | | 2 | 6.3 | | 213 | <0.5 | 93 | 77 |
| JUN 10 | | | _ | | | _ | _ | | | | 230 | | | |
| AUG 09 | • | 100 | 0 | 53 | 16 | 32 | | 1 | 3.4 | | 190 | | 54 | 35 |
| 03 | 4 | .00 | • | 93 | 10 | 34 | | 1 | 3.4 | | 190 | | 34 | 33 |
| | DATE • | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | | CA, SUN 3- CON LVED TUE 3/L I 3 SC | sti- nts, 1 | DLIDS, DIS- SOLVED (TONS PER DAY) | RESID TOTAL AT 10 DEG. SUS- PENDE (MG/ | NI 5 G C, NIT TC D (M | JEN, PRATE N PTAL IG/L | NITRO- GEN, ITRITE TOTAL (MG/L AS N) | NITI GEI NO2+1 TOTI (MG, | N, (NO3 AMB AL TO /L (1 | ITRO- GEN, MONIA (OTAL MG/L S N) | NITRO- GEN, GEN, TOTAL (MG/L AS N) |
| OCT | | | | | | | | | | | | | | |
| 16 Dec | ••• | <0.10 | 21 | L | 242 | 19.1 | | 19 1 | . 69 | 0.010 | 1. | 70 (| 0.050 | 0.25 |
| 05 FRB | 1991 | | - | - | | | | <1 1 | .28 | 0.020 | 1.3 | 30 (| 0.130 | 0.27 |
| | ••• | | - | | | | | 4 1 | .28 | 0.020 | 1.3 | 30 (| 0.100 | 0.80 |
| | ••• | 0.30 | 25 | 5 | 494 | 12.5 | | 3 1 | .86 | 0.140 | 2. | 00 | 0.140 | 0.56 |
| | ••• | | - | | | | | 9 3 | .16 | 0.340 | 3. | 50 : | 2.00 | 1.0 |
| | ••• | 0.20 | 22 | 1 | 330 | 3.57 | | <1 0 | .400 | 0.260 | 0.0 | 660 : | 2.50 | 0.70 |
| K = : | non-idea | l count | | | | | | | | | | | | |

RIO GUAYANILLA BASIN

50124700 RIO GUAYANILLA AT CENTRAL RUFINA, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625) | MITRO- GEN, TOTAL (MG/L AS N) (00600) | NITRO- GEN, TOTAL (MG/L AS NO3) (71887) | PHOS- PHORUS TOTAL (MG/L AS P) (00665) | ARSENIC TOTAL (UG/L AS AS) (01002) | BARIUM, TOTAL RECOV- RRABLE (UG/L AS BA) (01007) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) (01022) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042) |
|------------------|--|--|--|--|---|--|--|--|---|---|
| OCT 1990 16 | 0.30 | 2.0 | 8.9 | 0.120 | <1 | <100 | <10 | <1 | 2 | 40 |
| DEC | 0.40 | 1.7 | 7.5 | 0.180 | | | | | | |
| FEB 1991 11 | 0.90 | 2.2 | 9.7 | 0.370 | | | | | | |
| APR 29 JUN | 0.70 | 2.7 | 12 | 1.00 | 1 | <100 | 150 | <1 | <1 | 10 |
| 10 AUG | 3.0 | 6.5 | 29 | 2.10 | | | | | | |
| 09 | 3.2 | 3.9 | 17 | 1.40 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900) | SELE- NIUM, TOTAL (UG/L AS SE) (01147) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092) | CYANIDE TOTAL (MG/L AS CN) (00720) | PHENOLS TOTAL (UG/L) (32730) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260) |
| OCT 1990 16 | 1000 | 15 | 40 | <0.10 | <1 | <1 | <10 | <0.010 | <1 | 0.03 |
| DEC | | | | | | | | | | |
| FRB 1991 11 | | | | | | | | | | |
| APR 29 | 140 | 3 | 110 | 0.20 | <1 | <1 | <10 | <0.010 | <1 | 0.16 |
| JUN 10 | | | | | | | | | | |
| AUG 09 | | | .== | | | | | | | |
| | | | | DEGMINT | DE ANALYS | T O | | | | |
| | | | | CHLOR- | DE AMALIS | 68 | | DI- | DI- | ENDO- |
| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | AZINON, TOTAL (UG/L) | ELDRIN TOTAL (UG/L) | SULFAN, TOTAL (UG/L) |
| JUN 1991 10 | 0845 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | 0.06 | <0.010 | <0.010 |
| DATE | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | METHYL TRI- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
| JUN 1991 | | | | | | | | _ | | |
| 10 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| | nan | LEN | RS, | n =0 | w Bom | | | | | |
| DAT | PAR THI TOT. (UG | ON, CHI AL TOT | OR. THA 'AL TOT | NE APHE AL TOT | AL THI | I- 2,4 ON TOT | al tot | 5-T 2, 4 FAL TOT 5/L) (UG/ | AL TOT | |
| JUN 199 10 | | .01 <0 | .10 < | 0.1 < | 1 <0 | .01 <0 | .01 <0 | .01 <0 | .01 <0 | .01 |

RIO YAUCO BASIN

50125780 LAGO LUCCHETTI AT DAMSITE, PR

LOCATION.--Lat 18°05'37", long 66°51'54", Hydrologic Unit 21010004, at Antonio Lucchetti Dam on Río Yauco, 3.9 mi (6.3 km) north of Yauco.

DRAINAGE AREA. -- 17.4 mi 2 (45.1 km2).

ELEVATION RECORDS

PERIOD OF RECORD. -- December 1989 to current year.

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

REMARKS.--Lago Lucchetti was completed in 1952. The dam is on Río Yauco and is a unit of the Southwestern Puerto Rico Project. It provides 16,500 acre-feet (20.3 hm²) of usable storage for power generation and irrigation. The dam is a concrete gravity structure with a total length of 591 ft (180 m), a maximum height of 178 ft (54 m), and a maximum width at the base of 150 ft (46 m). An ungated, overflow type spillway with a clear length of 171 ft (52 m) and a crest elevation of 570 ft (174 m), occupies the central portion of the dam. The spillway was designed for a maximum capacity of 62,800 ft³/s (1,778 m²/s) at a design head of 20 ft (6 m). The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation setellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD. --Maximum elevation, 571.54 ft (174.21 m), Oct. 25; minimum elevation, 527.50 ft (160.78 m), Aug. 20, but may have been less during period of no gage-height record.

EXTREMES OBSERVED FOR CURRENT YEAR. -- Maximum elevation, 571.54 ft (171.21 m), Oct. 25; minimum elevation, 527.50 ft (160.78 m), Aug. 20, but may have been less during period of no gage-height record.

Capacity Table (based on data from Puerto Rico Water Resources Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 525 | 2,965 | 550 | 7,020 |
| 527 | 3,255 | 561 | 9,600 |
| 530 | 3,695 | 563 | 10,125 |
| 532 | 3,975 | 571 | 12, 125 |
| 540 | 5,165 | 573 | 12,645 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 | 544.56 | 568.36 | 556.93 | 567.56 | 569.69 | 566.83 | 567.95 | λ | 561.13 | 549.07 | 540.46 | 530.87 |
| 2 | 546.22 | 567.56 | 556.99 | 568.86 | 569.56 | 566.28 | 568.86 | À | 561.10 | 547.21 | 537.43 | 530.90 |
| 3 | 547.10 | 567.77 | 556.02 | 569.17 | 569.53 | 566.15 | 568.55 | Ä | 561.07 | 547.40 | 534.45 | 530.85 |
| 4 | 547.38 | 566.92 | 556.05 | 569.20 | 568.88 | 566.15 | 569.32 | Ä | 561.16 | 547.42 | 533.22 | 530.99 |
| 5 | 547.62 | 565.75 | 556.07 | 569.21 | 568.47 | 565.68 | 568.27 | Ä | 561.23 | 546.63 | 532.82 | 531.14 |
| _ | | | | | | 55555 | | | | | | |
| 6 | 548.12 | 563.49 | 556.09 | 569.19 | 568.20 | 565.22 | 568.56 | A | 561.38 | 546.66 | 531.24 | 530.88 |
| 7 | 548.47 | 562.22 | 556.11 | 569.19 | 567.70 | 564.65 | 568,60 | 560.18 | 561.40 | 546.86 | 529.32 | 530.71 |
| 8 | 548.54 | 560.60 | 556.12 | 569.56 | 567.71 | 563.98 | 567.78 | 561.36 | 561.34 | 544.82 | 529.26 | 530.53 |
| 9 | 554.28 | 559.72 | 556.17 | 569.70 | 567.73 | 563.97 | 566.98 | 562.06 | 561.02 | 544.80 | 529.26 | 530.44 |
| 10 | 555.69 | 559.56 | 556.21 | 570.20 | 567.79 | 563.96 | 566.32 | 561.53 | 560.18 | 543.61 | 529.18 | 529.99 |
| | | | | | | | | | | | | |
| 11 | λ | 559.45 | 556.24 | 570.44 | 567.52 | 563.35 | 565.93 | λ | 560.11 | 542.68 | 529.52 | 530.18 |
| 12 | A | 559.64 | 556.75 | 570.29 | 567.24 | 562.62 | 565.44 | λ | 559.57 | 541.84 | 529.48 | 530.35 |
| 13 | λ | 558.26 | 557.95 | 569.84 | 567.54 | 561.71 | 565.60 | A | 559.14 | 541.80 | 529.28 | 530.52 |
| 14 | λ | 557.76 | 560.81 | 568.79 | 567.16 | 561.01 | 565.61 | A | 558.61 | 542.16 | 529.29 | 530.69 |
| 15 | 563,22 | 556.10 | 561.37 | 568.69 | 567.17 | 560.09 | 566.38 | À | 558.11 | 542.17 | 529.18 | 530.33 |
| | | | | | | | | | | | | |
| 16 | 563.77 | 555.22 | 561.91 | 568.17 | 567.45 | 559.69 | 567.18 | 562.83 | 558.04 | 542.18 | 528.06 | 529.95 |
| 17 | 564.42 | 555.02 | 563.17 | 567.23 | 567.63 | 559.69 | 567.98 | 562.05 | 557.96 | 542.56 | 527.90 | 530.12 |
| 18 | 565.90 | 555.14 | 564.24 | 566.77 | 567.93 | 560.13 | 567.61 | 562.26 | 556.80 | 542.42 | 528.03 | 530.30 |
| 19 | 565.82 | 555.30 | 564.59 | 567.03 | 568.57 | 560.63 | 566.20 | 562.41 | 555.78 | 541.96 | 528.05 | A |
| 20 | 566.11 | 555.64 | 564.86 | 567.82 | 568.03 | 561.07 | λ | 562.53 | 555.45 | 541.85 | 527.50 | 531.22 |
| | | | | | | | | | | | | |
| 21 | 568.82 | 555.82 | 565.30 | 568.66 | 567.66 | 561.78 | A | 562.81 | 554.45 | 541.90 | 527.92 | 532.02 |
| 22 | 568.65 | 556.02 | 565.21 | 569.22 | 567.34 | 562.09 | 563.08 | 562.81 | 554.43 | 543.21 | 528.10 | 532.70 |
| 23 | 568.34 | 556.12 | 565.95 | 568.69 | 567.53 | 562.06 | λ | 562.12 | 554.37 | 543.96 | 528.36 | 532.87 |
| 24 | 569.16 | 556.24 | 565.92 | 569.21 | 567.52 | 562.38 | λ | λ | 553.27 | 544.32 | 529.48 | 533.02 |
| 25 | 571.51 | 556.48 | 565.94 | 569.67 | 567.52 | 562.66 | λ | 562.08 | 552.92 | 544.30 | 530.72 | 533.14 |
| | | | | | | | | | | | | |
| 26 | 570.43 | 556.61 | 566.11 | 569.21 | 567.27 | 563.22 | λ | 562.06 | 551.27 | 543.36 | 530.82 | 533.14 |
| 27 | 570.50 | 556.69 | 566.13 | 569.45 | 566.77 | 564.47 | λ | 562.06 | 551.02 | 542.86 | 531.75 | 533.32 |
| 28 | 570.44 | 556.75 | 566.47 | 569.49 | 566.83 | 564.95 | λ | 562.40 | 549.62 | 544.29 | 531.90 | 533.33 |
| 29 | 570.37 | 556.80 | 566.88 | 570.32 | | 565.40 | λ | 562.37 | 549.21 | 544.68 | 531.98 | 532.98 |
| 30 | 570.06 | 556.85 | 567.58 | 570.19 | | 566.20 | À | 561.51 | 549.15 | 543.74 | 531.40 | 533.08 |
| 31 | 569.05 | | 567.65 | 570.24 | | 567.16 | | 561.05 | | 543.20 | 531.10 | |
| | | | | | | | | | | | | |
| MRAN | | 559.13 | 561.41 | 569.07 | 567.85 | 563.39 | | | 557.01 | 544.06 | 530.53 | |
| MAX | | 568.36 | 567.65 | 570.44 | 569.69 | 567.16 | | | 561.40 | 549.07 | 540.46 | |
| MIN | | 555.02 | 556.02 | 566.77 | 566.77 | 559.69 | | | 549.15 | 541.80 | 527.50 | |

A No gage-height record.

RIO LOCO BASIN

50129700 RIO LOCO AT GUANICA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 17°58'33", long 66°54'52", 0.6 mi (1.0 km) northwest of Guánica and 1.2 mi (1.9 km) northeast of Ensenada.

DRAINAGE AREA. -- Indeterminate.

PERIOD OF RECORD. -- Water years 1975 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | , | PINOR | DIS- CHARGE INST. CUBIC FEET PER SECO | CIE CON DUC ANO | TC - P T- (ST E A | H AND- RD ITS) | TEMPI ATU WAT (DEG | re Br | TU BI IT (NT | D- Y | OXYGEI DIS SOLVI (MG/I | I 80 N, (I - C | GEN, DIS- DER- ENT TUR- TON) | OXYGE DEMAN CHEM ICAL (HIG LEVEL (MG/L | D, - H) (| COLI- FORM, FECAL, 0.45 UM-MF COLS./ | | |
|----------------|----------------|--|---|--|---|---|---|--|------------------------------|---------------------------------------|---|--|---|--|---|---|--|--|
| OCT 1990 18 | : | 1245 | E500 | 35 | 9 7. | 4 | 26. | 5 | 15 | | 4.2 | | 52 | 49 | | 2000 | 5100 | |
| DEC 07 | ; | 1115 | | 1200 | 0 7. | 5 | 25. | 0 | 10 | | 3.6 | | 43 | 140 | | 310 | 610 | |
| FEB 1991 11 | | 1010 | | 2600 | 0 7. | 5 | 28. | 5 | | . 0 | 3.6 | | 46 | 180 | | 1700 | 670 | |
| MAY 02 | | 1000 | | 1160 | | _ | 31. | | - | .0 | 2.8 | | 37 | 230 | | 280 | | |
| JUN 10 | | 0950 | | 2640 | | | 31. | | | .4 | 2.6 | | 34 | 190 | | K990 | | |
| AUG 07 | | 0940 | | 517 | | | 28. | | 23 | | 1.6 | | 20 | 22 | | 340 | | |
| 0/ | • | U 3 4 U | | . 31/ | · . | • | 20. | v | 23 | | 1.6 | | 20 | | | 340 | 290 | |
| DATE | NI TC (1 | ARD- ESS OTAL MG/L AS ACO3) | HARD- NESS NONCAR WH WAFI TOT FI MG/L A CACO3 | B CALC DIS D SOL | TUM S - D VED SO /L (M | GNE - IUM, IS - LVRD 3/L MG) | SODIU DIS SOLVI (MG, | ED /L | SOD A SOR TI RAT | D- P- ON | POTA: SIUI DIS- SOLVI (MG/I | F- LIN I, WAT - TOT ED FI L MG/ | KA- ITY WH ELD L AS CO3 | SULFI TOTA (MG/: AS S | DE L L | ULFATE DIS- SOLVED (MG/L S SO4) | DIS- | |
| OCT 1990 18 | | 140 | 0 | 30 | 1! | ξ. | 19 | | | 0.7 | 5.1 | 1 | 140 | 0 | . 6 | 9.5 | 17 | |
| DEC 07 | | | | - | _ | | | _ | _ | | | - | 280 | | | | | |
| FEB 1991 11 | | | | | _ | | | _ | _ | _ | | | 230 | | | | | |
| MAY 02 | | 1400 | 0 | 110 | 27 | 0 | 1900 | | 2 | 2 | 74 | | 250 | <0 | . 5 | 620 | 3600 | |
| JUN 10 | | | | | | - | | - | _ | | | | 270 | | - | | | |
| AUG 07 | | 160 | 1 | 37 | 1 | 5 | 41 | | | 1 | 3.1 | L | 170 | | | 21 | 61 | |
| | | | | | | | | | | | | | | | | | | |
| | DATE | RI D SO (M | | ILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | D: 80: (T: P: | IDS, IS- LVED ONS ER AY) | RESI TOTA AT 1 DEG. SUS PEND (MG | L .05 C, | NIT GE NITE TOT (MG AS | N, ATE 1 AL :/L | NITRO- GEN, VITRITE TOTAL (MG/L AS N) | G NO2 TO (M | TRO- EN, +NO3 / TAL G/L | NITR GEN MMON TOTA (MG/ AS N | , IA OR L T L (| ITRO- GEN, GANIC OTAL MG/L S N) | |
| | 1990 8 | _ | 0.10 | 28 | 208 | | | | 37 | • | 160 | 0.040 | | .200 | 0.0 | E0 | 1.2 | |
| DEC | 7 | | | | 208 | | | | 15 | | 160 570 | 0.030 | | .600 | 0.1 | | 0.10 | |
| Peb | , 1991 1 | | | | | | | | 17 | | 370 280 | 0.030 | | .300 | 0.1 | | 0.46 | |
| MAY | 2 | | 0.70 | 25 | 6750 | | | | 20 | ٠. | | <0.010 | | .100 | 0.1 | | 0.53 | |
| JUN | D | | | 23 | 6/50 | | | | 13 | - | | <0.010 | | .150 | 0.0 | | 0.36 | |
| AUG | 7 | | 0.10 | 21 | 302 | | | | 10 | | - 100 | 0.010 | | .110 | 0.0 | | 0.66 | |
| • | | | V.10 | | 302 | | | | 10 | ٧. | -40 | 0.010 | · | | ٠.٠ | | 00 | |

B = estimate
K = non-ideal count

RIO LOCO HASIN

50129700 RIO LOCO AT GUANICA, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------------|---|---|--|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 18 | 1.3 | 1.5 | 6.6 | 0.730 | <1 | <100 | 30 | <1 | 10 | 30 |
| DRC 07 | 0.20 | 0.80 | 3.5 | 0.140 | | | | | | |
| FEB 1991 | | | | | | | | | | |
| 11 May | 0.60 | 0.90 | 4.0 | 0.090 | | | | | | |
| 02 JUN | 0.60 | 0.70 | 3.1 | 0.090 | 1 | 200 | 1000 | <2 | 9 | 10 |
| 10 | 0.40 | 0.55 | 2.4 | 0.080 | | | | | | |
| AUG 07 | 0.70 | 0.81 | 3.6 | 0.120 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA - NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 18 | 2300 | 5 | 410 | <0.10 | <1 | <1 | <10 | <0.010 | 3 | 0.04 |
| DEC 07 | | | | | | | | | | |
| FEB 1991 11 | | | | | | | | | | |
| MAY | | | | | | | | | | |
| 02 Jun | 1000 | <2 | 200 | <0.10 | <2 | <1 | 10 | <0.010 | <1 | 0.35 |
| 10 | | | | | | | | | | |
| 07 | | | | | | | | | | |
| | | | | | | - | | | | |
| | | | | PESTICI | DE ANALYS | ES | | | | |
| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
| JUN 1991 | | | | | | | | | | |
| 10 | 0950 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| DATE | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA - CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | MRTHYL PARA- THION, TOTAL (UG/L) | METHYL TRI- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
| JUN 1991 | | | | | | | | | | |
| 10 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| DA? | | LEN A- POI ON, CHI | IA- IES, IY- PE OR. THA IAL TOT | NE APHE | AL THI | I- 2,4 | AL TOI | | AL TOT | |
| JUN 199 10 | | .01 <0 | .10 < | 0.1 | 1 <0 | .01 <0 | .01 <0 | .01 <0 | .01 <0 | .01 |

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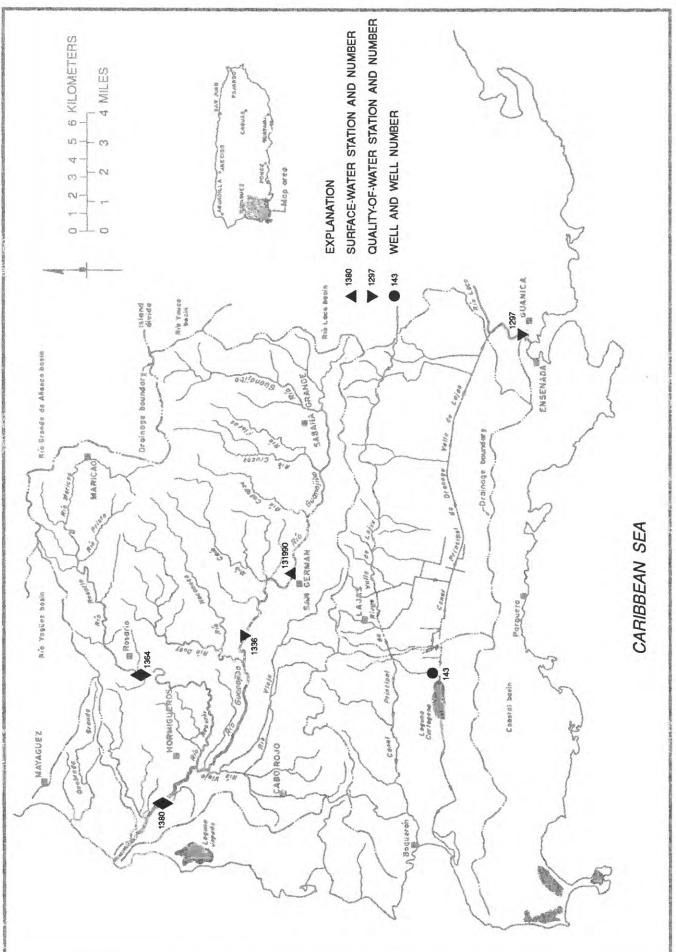


Figure 24.--Río Guanajibo basin.

50131990 RIO GUANAJIBO AT HWY 119 AT SAN GERMAN, PR

LOCATION.--Lat 18°05'06", long 67°02'02", Hydrologic Unit 21010003, on right bank, at bridge on Hwy 119, 0.6 mi (1.0 km) southwest of junction of Highways 119 and 2, 0.22 mi (0.35 km) northeast of junction of Highways 119 and 102, 0.74 mi (1.19 km) east from public Plaza of San Germán.

DRAINAGE AREA . -- 34.6 mi * (89.6 km *) .

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- April to September 1991.

GAGE. -- Water-stage recorder. Elevation of gage is 148 ft (45.0 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR CURRENT PERIOD. -- Peak discharges greater than base discharge of 300 ft3/s (8.50 m3/s) and maximum (*):

| | | Discharge | | Gage height | | | | | harge | Gage height | |
|--------|------|-----------|---------------------|-------------|-------|--------|------|---------|--------|-------------|-------|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| May 11 | 1930 | 375 | 10.6 | 6.41 | 1.954 | Aug. 1 | 1915 | *901 | 25.5 | *7.40 | 2.256 |

Minimum daily discharge, 4.2 ft3/s (0.119 m3/s), June 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES NOV DBC JAN FEB MAR APR MAY JUN JUI

| DAY | OCT | Nov | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-----------------------|-----|-----|-----|-----|-----|-----|------------|--------|-------|-------|-------|-----------|
| 1 | | | | | | | | 18 | 6.4 | 5.7 | 8.4 | 14 |
| 2 | | | | | | | | 31 | 6.4 | 5.3 | 8.2 | 13 |
| 3 | | | | | | | | 22 | 5.9 | 24 | 7.5 | 42 |
| 4 | | | | | | | | 20 | 5.6 | 29 | 7.1 | 11 |
| 1 2 3 4 5 | | | | | | | | 28 | 5.3 | 11 | 7.2 | 11 9.6 |
| 6 | | | | | | | | 62 | 5.2 | 8.4 | e13 | 11 |
| 7 | | | | | | | | 94 | 5.1 | 12 | 8.1 | 13 |
| 7 8 9 | | | | | | | | 67 | 5.1 | 30 | 6.3 | 12 |
| 9 | | | | | | | | 97 | 4.6 | 13 | 5.9 | 10 |
| 10 | | | | | | | | 60 | 4.4 | 9.1 | 5.9 | 9.1 |
| 11 | | | | | | | | 81 | 5.2 | 7.5 | 6.1 | 8.6 |
| 12 | | | | | | | | 85 | 5.8 | 6.6 | 6.0 | 8.5 |
| 13 | | | | | | | | 49 | 5.3 | 6.3 | 29 | 10 |
| 14 | | | | | | | | 33 | 4.6 | 6.1 | 129 | 8.8 |
| 15 | | | | | | | | 25 | 4.7 | 7.2 | 47 | 7.8 |
| 16 | | | | | | | | 20 | 5.6 | 30 | 22 | 21 |
| 17 | | | | | | | e12 | 17 | 5.2 | 37 | 21 | 27 |
| 18 | | | | | | | 12 | 21 | 4.9 | 25 | 30 | 18 |
| 19 | | | | | | | 11 | 32 | 4.5 | 22 | 17 | 14 |
| 20 | | | | | | | 12 | 27 | 4.5 | 15 | 14 | 14 |
| 21 | | | | | | | 12 | 20 | 4.6 | 13 | 13 | 17 |
| 22 | | | | | | | 11 | 15 | 4.9 | 12 | 20 | 22 |
| 23 | | | | | | | 11 | 13 | 5.1 | 17 | 23 | 16 |
| 24 | | | | | | | 9.6 | 12 | 4.4 | 13 | 22 | 13 |
| 25 | | | | | | | 10 | 14 | 4.4 | 10 | 55 | 11 |
| 26 | | | | | | | 10 | 12 | 4.5 | 8.5 | 41 | 10 9.8 |
| 27 | | | | | | | 10 | 10 | 4.2 | 8.0 | 27 | 9.8 |
| 28 | | | | | | | 10 | 9.2 | 4.6 | 13 | 22 | 13 |
| 29 | | | | | | | 10 | 8.1 | 4.5 | 23 | 19 | 12 |
| 30 | | | | | | | 12 | 7.7 | 4.8 | 12 | 16 | 10 |
| 31 | | | | | | | | 7.0 | | 8.8 | 15 | |
| TOTAL | | | | | | | | 1017.0 | 150.3 | 448.5 | 671.7 | 386.2 |
| MRAN | | | | | | | | 32.8 | 5.01 | 14.5 | 21.7 | 12.9 |
| MAX | | | | | | | | 97 | 6.4 | 37 | 129 | 27 |
| MIN | | | | | | | | 7.0 | 4.2 | 5.3 | 5.9 | 7.8 |
| AC-FT | | | | | | | | 2020 | 298 | 890 | 1330 | 766 |
| CFSM | | | | | | | | . 95 | .14 | .42 | .63 | .37 |
| IN. | | | | | | | | 1.09 | .16 | .48 | .72 | .41 |
| | | | | | | | | | | | | |

e Estimated

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR

WATER-QUALITY RECORDS

LOCATION.--Lat $18^{\circ}07'18^{\circ}$, long $67^{\circ}03'56^{\circ}$, at bridge on Highway 347, 2.2 mi (3.5 km) northwest of San Germán. DRAINAGE AREA.--45.5 mi² (117.8 km²).

PERIOD OF RECORD .-- Water years 1979 to current year.

WATER QUALITY DATA, WATER YEARS OCTOBER 1990 TO SEPTEMBER 1991

| | | WAT | ER QUALITY | DATA, W | TER YEAR | S OCTOE | ER 1990 1 | ro septem | BER 1991 | 1 | | |
|------------------|--|--|--|--|---|---|--|--|--|-------------------------------|---|---|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FERT PER SECOND | SPE- CIFIC CON- DUCT- ANCE O (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR BII ITY (MTC | D- DIA | en, (Pe 5- ce ved sat | S- DEI VED CI R- IC NT (I UR- LEV | YGEN MAND, HEM- CAL HIGH G/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 | | | | | | | | | | | | |
| 16 DEC | 1200 | 232 | 426 | 8.0 | 26.0 | 25 | 7 | . 3 | 89 | 56 | 3900 | 3700 |
| 07 FEB 1991 | 1015 | 37 | 636 | 8.0 | 22.0 | 6. | .3 7 | . 3 | 82 | <10 | K10 | K 60 |
| 13 | 0940 | 36 | 515 | 7.8 | 23.5 | 10 | 6 | . 8 | 79 | 21 | 22000 | 600 |
| APR 30 Jun | 1020 | 6.6 | 760 | 7.5 | 27.5 | 2. | .3 4 | . 3 | 54 | 13 | 3500 | 340 |
| 11 | 1025 | 7.0 | 705 | 7.8 | 28.0 | 1. | .7 4 | . 3 | 55 | 14 | K140 | K82 |
| DUG 09 | 0935 | 4.6 | 855 | 7.9 | 27.5 | 2. | .5 3 | .3 | 42 | 18 | K1200 | K36 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3 | TOT FLE | DIS- SOLVED | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODI AI SORE TIC RATI |)- SIN P- DIS | UM, WAT 8- TOT VED FIE /L MG/L | TY WH PET SUI LD TO AS (1 | LFIDE OTAL MG/L S S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 16 | 21 | 0 0 | 22 | 37 | 11 | C | 1 | .4 | 120 | <0.5 | 12 | 11 |
| DEC 07 | | | | | | | | - | 250 | | | |
| FRB 1991 13 | | | | | | | . <u>-</u> . | _ | 220 | | | |
| APR | | | | | | | | | | | | |
| 30 Jun | 27 | 0 0 | 30 | 48 | 51 | 1 | L 3 | . 5 | 246 | <0.5 | 64 | 62 |
| 11 | | | | | | | | - | 240 | | | |
| AUG 09 | 26 | 0 1 | 29 | 45 | 72 | 2 | 3 | .1 | 260 | | 100 | 73 |
| | | | | | | | | | | | | |
| | DATE | RIDE, I DIS- S SOLVED ((MG/L | ILICA, SUI DIS- COI SOLVED TUI (MG/L I AS SO | NSTI- I ENTS, SC DIS- (' | LIDS, TO DIS- AT DLVED DE TONS S PER PE | TAL 105 G. C. US- NDED MG/L) | NITRO- GEN, MITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | G <u>AMM</u> TO (M) | EN, GONIA ORG TAL TO | TRO- IEN, IANIC TAL IG/L |
| 10 | 1990 5 | <0.10 | 37 | 203 13 | 27 | 61 | 0.870 | 0.030 | 0.90 | 0 0 | .110 | 0.39 |
| DEC | 7 | | | | | 2 | 0.800 | 0.100 | 0.90 | 0 0 | .180 | 0.12 |
| 13 | 1991 3 | | | | | 9 | 1.08 | 0.120 | 1.20 | 0 | . 320 | 0.28 |
| | o | 0.20 | 35 | 441 | 7.81 | 4 | 6.67 | 0.130 | 6.80 | 1 | . 20 | 1.1 |
| | ı | | | | | <1 | 1.92 | 0.180 | 2.10 | 0 | .380 | 0.62 |
| DUA 20 |) <i>.</i> | 0.20 | 35 | 513 | 6.30 | <1 | 2.52 | 0.180 | 2.70 | 0 | .370 | 0.63 |
| | non-ideal | | | | - | _ | | | | | | |

K = non-ideal count

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR--Continued WATER QUALITY DATA, WATER YEARS OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|--|---|--|---|---|---|--|--|
| OCT 1990 16 | 0.50 | 1.4 | 6.2 | 0.180 | <1 | <100 | 20 | <1 | 46 | 20 |
| DBC | 0.50 | 1.4 | 0.2 | 0.100 | 41 | 4100 | 20 | ** | | 20 |
| 07 FEB 1991 | 0.30 | 1.2 | 5.3 | 0.260 | | | | | | |
| 13 APR | 0.60 | 1.8 | 8.0 | 0.450 | | | | | | |
| 30 Jun | 2.3 | 9.1 | 40 | 3.10 | <1 | <100 | 220 | ∢1 | 1 | 20 |
| 11 | 1.0 | 3.1 | 14 | 1.10 | | | | | | |
| 09 | 1.0 | 3.7 | 16 | 1.10 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA - NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| DATE OCT 1990 16 DEC | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| ОСТ 1990 16 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 16 DEC 07 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 16 DBC 07 FEB 1991 13 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 16 DBC 07 FBB 1991 13 APR 30 | TOTAL RECOV- ERABLE (UG/L AS FE) 3600 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS EG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- REABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.03 |

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR

LOCATION.--Lat 18°09'36", long 67°05'08", Hydrologic Unit 21010003 at bridge on Highway 348, 0.5 mi (0.8 km) southwest of Rosario plaza.

DRAINAGE AREA. -- 18.3 mi 2 (47.4 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- October 1985 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 50.0 ft (15.2 m), from topographic map.

REMARKS .-- Records fair. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--6 years (1986-91), 51.4 ft³/s (1.456 m³/s), 38.14 in/yr (969 mm/yr), 37,240 acre-ft/yr (45.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,480 ft³/s (212 m³/s), Aug.24, 1988, gage height, 13.64 ft (4.157 m) from rating curve extended above 900 ft³/s (25.5 m³/s) on basis of step-backwater analysis; minimum discharge 6.5 ft³/s (0.184 m³/s), Apr. 30, 1991.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 1,500 ft3/s (42.5 m3/s) and maximum (*):

| | | Disch | arge | Gage | height | | | | | charge | Gage | height |
|-------------------|--------------|----------------|---------------------|--------------|----------------|----------------|----|--------|--------------|---------------------|----------------|----------------|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Ti | me (ft | ·3/s) | (m ³ /s) | (ft) | (m) |
| Oct. 1 Oct. 17 | 1415 1715 | 1,700 2,390 | 48.1 67.7 | 8.21 9.27 | 2.502 2.825 | May Sept. 2 | | | ,870 ,710 | 53.0 133 | 8.51 *11.77 | 2.594 3.587 |

Minimum discharge, 6.5 ft3/s (0.184 m3/s), Apr. 30.

| | | DI SCHARGE | , CUBIC | PERT PER | SECOND, DAIL | WATER YE Y MEAN VA | AR OCTOBER LUES | 1990 TO | September | 1991 | | |
|-------|------|------------|---------|----------|-----------------|-----------------------|--------------------|---------|-----------|------|------|------|
| DAY | OCT | MOA | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 368 | 72 | 26 | 19 | 16 | 10 | 10 | 25 | 22 | 35 | 58 | 18 |
| 2 | 209 | 66 | 25 | 18 | 14 | 9.8 | 10 | 21 | 19 | 19 | 38 | 17 |
| 2 | 129 | 63 | 25 | 18 | 15 | 9.8 | 13 | 14 | 17 | 40 | 32 | 16 |
| ă | 95 | 60 | 25 | 18 | 26 | 10 | 11 | 21 | 16 | 34 | 32 | 15 |
| 5 | 82 | 114 | 26 | 18 | 33 | 10 | 41 | 17 | 15 | 22 | 32 | 15 |
| 6 | 74 | 75 | 26 | 18 | 20 | 10 | 26 | 45 | 15 | 18 | 30 | 15 |
| 7 | 67 | 61 | 25 | 18 | 16 | 11 | 16 | 200 | 14 | 36 | 26 | 21 |
| 8 | 79 | 57 | 24 | 17 | 15 | 12 | 12 | 139 | 13 | 32 | 26 | 24 |
| 9 | 62 | 54 | 24 | 17 | 15 | 10 | 10 | 99 | 13 | 20 | 24 | 17 |
| 10 | 67 | 51 | 24 | 17 | 21 | 10 | 9.6 | 72 | 12 | 17 | 22 | 15 |
| 11 | 88 | 48 | 23 | 17 | 24 | 10 | 12 | 62 | 12 | 16 | 22 | 15 |
| 12 | 73 | 47 | 24 | 16 | 19 | 10 | 12 | 57 | 12 | 15 | 20 | 95 |
| 13 | 214 | 45 | 25 | 16 | 25 | 9.9 | 11 | 45 | 12 | 14 | 23 | 48 |
| 14 | 198 | 44 | 26 | 16 | 18 | 10 | 9.7 | 46 | 11 | 18 | 22 | 32 |
| 15 | 178 | 42 | 27 | 15 | 15 | 10 | 21 | 37 | 12 | 64 | 25 | 55 |
| 16 | 233 | 42 | 23 | 16 | 13 | 10 | 16 | 29 | 11 | 53 | 20 | 73 |
| 17 | 377 | 41 | 22 | 16 | 12 | 10 | 11 | 23 | 11 | 80 | 19 | 54 |
| 18 | 210 | 39 | 22 | 16 | 12 | 10 | 9.7 | 66 | 13 | 151 | 18 | 32 |
| 19 | 200 | 39 | 21 | 16 | 19 | 10 | 9.5 | 114 | 14 | 80 | 17 | 35 |
| 20 | 146 | 38 | 21 | 15 | 14 | 11 | 8.9 | 100 | 49 | 46 | 16 | 122 |
| 21 | 207 | 38 | 21 | 15 | 13 | 10 | 8.7 | 51 | 34 | 36 | 17 | 362 |
| 22 | 135 | 36 | 21 | 15 | 13 | 11 | 7.9 | 36 | 23 | 85 | 18 | 123 |
| 23 | 103 | 35 | 21 | 15 | 11 | 11 | 7.8 | 29 | 16 | 83 | 21 | 58 |
| 24 | 96 | 34 | 21 | 14 | 11 | 11 | 7.8 | 25 | 13 | 42 | 17 | 61 |
| 25 | 211 | 68 | 20 | 14 | 11 | 10 | 7.4 | 23 | 14 | 34 | 22 | 50 |
| 26 | 207 | 42 | 20 | 14 | 10 | 11 | 8.3 | 24 | 18 | 30 | 45 | 37 |
| 27 | 130 | 31 | 20 | 14 | 9.6 | 16 | 7.3 | 52 | 13 | 27 | 33 | 58 |
| 28 | 112 | 28 | 21 | 14 | 9.5 | 11 | 7.4 | 45 | 14 | 31 | 25 | 75 |
| 29 | 102 | 28 | 20 | 14 | | 10 | 6.8 | 31 | 16 | 29 | 21 | 47 |
| 30 | 88 | 27 | 19 | 14 | | 10 | 7.2 | 24 | 64 | 34 | 19 | 92 |
| 31 | 80 | | 19 | 14 | | 9.9 | | 22 | | 133 | 18 | |
| TOTAL | 4620 | 1465 | 707 | 494 | 450.1 | 324.4 | 356.0 | 1594 | 538 | 1374 | 778 | 1697 |
| MRAN | 149 | | 22.8 | 15.9 | 16.1 | 10.5 | 11.9 | 51.4 | 17.9 | 44.3 | 25.1 | 56.6 |
| MAX | 377 | 116 | 27 | 19 | 33 | 16 | 41 | 200 | 64 | 151 | 58 | 362 |
| MIN | 62 | 27 | 19 | 14 | 9.5 | 9.8 | 6.8 | 14 | 11 | 14 | 16 | 15 |
| AC-FT | 9160 | | 1400 | 980 | 893 | 643 | 706 | 3160 | 1070 | 2730 | 1540 | 3370 |
| CFSM | 8.14 | | 1.25 | . 87 | .88 | . 57 | . 65 | 2.81 | .98 | 2.42 | 1.37 | 3.09 |
| IN. | 9.39 | 2.98 | 1.44 | 1.00 | .91 | . 66 | .72 | 3.24 | 1.09 | 2.79 | 1.58 | 3.45 |

CAL YR 1990 TOTAL 16102.7 MEAN 44.1 MAX 377 MIN 9.7 AC-FT 31940 CFSM 2.41 IN. 32.73 WTR YR 1991 TOTAL 14397.5 MEAN 39.4 MAX 377 MIN 6.8 AC-FT 28560 CFSM 2.16 IN. 29.27

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD .-- WATER YEARS 1979 TO CURRENT YEAR.

PERIOD OF DAILY RECORD. --

SUSPENDED-SEDIMENT DISCHARGE: October 1985 to September 1986.

INSTRUMENTATION. -- US D-49 Sediment sampler since October 1985. Automatic sediment sampler since 1986

REMARKS.--Sediment samples were collected by a local observer once daily during low flow and more than once daily during high flow events for concentration and particle size analyses. Sediment samples are collected periodically by survey staff. Automatic sediment sampler set to collect samples above 200 cfs.

EXTREMES FOR PERIOD OF DAILY RECORD.-SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,150 mg/L October 7, 1985; Minimum daily mean, 1 mg/L

January 28, 1990.
SEDIMENT LOADS: Maximum daily, 74,700 tons (67,800 tonnes) October 7, 1985; Minimum daily, 0.05 ton (0.04 Tonne) several days.

EXTREMES FOR CURRENT YEAR . --

SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,440 mg/L June 7, 1990; Minimum daily mean, 1.0 mg/L

January 28, 1990.
SEDIMENT LOADS: Maximum daily, 3,920 tons (3,600 tonnes) September 24, 1990; Minimum daily 0.09 ton (0.08 tonne) few days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|-----------------------|---|---|---|--|--|---|---|---|---|---|---|
| OCT 1990 | | | | | | | | | | | |
| 18 | 1020 | 204 | 624 | 8.0 | 23.0 | 25 | 8.5 | 99 | 13 | K6000 | K1600 |
| DEC 06 FRB 1991 | 0910 | 56 | 283 | 8.2 | 20.5 | 1.5 | 9.1 | 104 | <10 | K11000 | 2000 |
| 12 APR | 0900 | 17 | 263 | 8.3 | 22.5 | 4.4 | 9.1 | 104 | <10 | 260 | 220 |
| 30 JUN | 0845 | 6.1 | 303 | 7.9 | 24.5 | 4.3 | 8.2 | 98 | <10 | K80 | 480 |
| 11 | 0850 | 12 | 283 | 8.1 | 24.5 | 2.5 | 8.3 | 98 | <10 | K140 | K120 |
| 08 | 1245 | 25 | 264 | 8.1 | 27.0 | 3.4 | 9.1 | 110 | 24 | 10 | 80 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 18 DEC | 96 | | 17 | 13 | 5.3 | 0.2 | 1.3 | 94 | . <0.5 | 6.9 | 6.6 |
| 06 | | | | | | | | 130 | | | |
| FEB 1991 12 | | | | | | | | 120 | | | |
| APR 30 | 140 | | 27 | 17 | 11 | 0.4 | 1.3 | 136 | <0.5 | 6.4 | 11 |
| JUN 11 | | | | | | | | 130 | | | |
| AUG 08 | 120 | | 25 | 15 | 8.2 | 0.3 | 1.2 | 72 | | 6.9 | 9.6 |

K = non-ideal count

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

WATER QUALITY DATA, WATER YEARS OCTOBER 1990 TO SEPTEMBER 1991

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------------|---|---|---|---|---|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 18 | 0.30 | 29 | 136 | 75 | 32 | 0.980 | 0.020 | 1.00 | 0.030 | 0.57 |
| 06 | | | | | <1 | 0.890 | 0.010 | 0.900 | 0.020 | |
| FEB 1991 12 | | | | | 6 | 0.690 | 0.010 | 0.700 | 0.030 | 0.47 |
| APR | | | | | - | | | | | |
| 30 Jun | 0.10 | 30 | 185 | 3.05 | 12 | 0.220 | 0.010 | 0.230 | 0.030 | 0.37 |
| 11 AUG | | | | | <1 | 0.270 | 0.010 | 0.280 | 0.010 | 0.19 |
| 08 | <0.10 | 26 | 135 | 9.01 | <1 | 0.510 | 0.010 | 0.520 | . 0.030 | 0.27 |
| DATE | NITRO- GRN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
| OCT 1990 | | | | | | | | | | |
| 18 | 0.60 | 1.6 | 7.1 | 0.040 | <1 | 200 | <10 | <1 | 18 | 20 |
| DEC 06 | <0.20 | | | 0.020 | | | | | | |
| FEB 1991 | 0.50 | | | 0.050 | | | | | | |
| 12 APR | 0.50 | 1.2 | 5.3 | 0.050 | | | | | | |
| 30 Jun | 0.40 | 0.63 | 2.8 | 0.060 | <1 | <100 | <10 | <1 | 1 | 10 |
| 11 | 0.20 | 0.48 | 2.1 | 0.030 | | | | | | |
| AUG 08 | 0.30 | 0.82 | 3.6 | 0.030 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | | | | | | | | | | |
| 18 | 3200 | 12 | 80 | <0.10 | <1 | <1 | <10 | <0.010 | 1 | 0.02 |
| 06 | | | | | | | | | | |
| FEB 1991 12 | | | | | | | | | | |
| APR | 20.0 | | ** | 0.00 | . • | | .40 | -0.010 | .4 | 0.01 |
| 30 Jun | 320 | 4 | 20 | 0.20 | <1 | <1 | <10 | <0.010 | <1 | 0.01 |
| 11 | | | | | | | | | | |
| 08 | | | | | | | | | | |

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- WATER YEARS 1979 TO CURRENT YEAR.

PERIOD OF DAILY RECORD. --SUSPENDED-SEDIMENT DISCHARGE: OCTOBER 1990 TO SEPTEMBER 1991

INSTRUMENTATION. -- US D-49 SEDIMENT SAMPLER SINCE OCTOBER 1985. AUTOMATIC SEDIMENT SAMPLER SINCE 1986

REMARKS.--sediment samples were collected by a local observer once daily during low flow and more than once daily during high flow events for concentration and particle size analyses. Sediment samples are collected periodically by survey staff. Automatic sediment sampler set to collect samples above 200 cfs.

EXTREMES FOR PERIOD OF DAILY RECORD. --

SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,150 mg/L October 7, 1985; Minimum daily mean, 1 mg/L January 28, 1990.
SEDIMENT LOADS: Maximum daily, 74,700 tons (67,800 tonnes) October 7, 1985; Minimum daily, 0.05 ton

(0.04 Tonne) several days.

EXTREMES FOR CURRENT YEAR . --

SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,150 mg/L October 1, 1990; Minimum daily mean,

2.0 mg/L several days.
SEDIMENT LOADS: Maximum daily, 4,420 tons (4,000 tonnes) September 21, 1991; Minimum daily 0.8 ton (0.72 tonne) several days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|--|---|---|---|--|--|---|---|---|---|---|---|
| OCT 1990 | | | | | | | | | | | |
| 18 DEC | 1020 | 204 | 624 | 8.0 | 23.0 | 25 | 8.5 | 99 | 13 | K6000 | K1600 |
| 06 FEB 1991 | 0910 | 56 | 283 | 8.2 | 20.5 | 1.5 | 9.1 | 104 | <10 | K11000 | 2000 |
| 12 | 0900 | 17 | 263 | 8.3 | 22.5 | 4.4 | 9.1 | 104 | <10 | 260 | 220 |
| APR 30 | 0845 | 6.1 | 303 | 7.9 | 24.5 | 4.3 | 8.2 | 98 | <10 | K80 | 480 |
| JUN 11 | 0850 | 12 | 283 | 8.1 | 24.5 | 2.5 | 8.3 | 98 | <10 | K140 | K120 |
| AUG 08 | 1245 | 25 | 264 | 8.1 | 27.0 | 3.4 | 9.1 | 110 | 24 | 10 | 80 |
| | | | | | | | | | | | |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 18 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 18 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 18 DEC 06 FEB 1991 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 18 DEC 06 FEB 1991 12 APR 30 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS NA) | AD- SORP- TION RATIO | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 94 130 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) | RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 18 DEC 06 FEB 1991 12 | NESS TOTAL (MG/L AS CACO3) | NESS NONCARB NONCARB WAT TOT FLD MG/L AS CACO3 | DIS- SOLVED (MG/L AS CA) | SIUM, DIS- SOLVED (MG/L AS MG) | DIS- SOLVED (MG/L AS MA) 5.3 | AD- SORP- TION RATIO 0.2 | SIUM, DIS- SOLVED (MG/L AS K) | LINITY WAT WH TOT FET FIELD MG/L AS CACO3 94 130 120 | TOTAL (MG/L AS S) | DIS- SOLVED (MG/L AS SO4) 6.9 | RIDE, DIS- SOLVED (MG/L AS CL) 6.6 |

K = non-ideal count

RIO GUANAJIBO BASIN 50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued WATER QUALITY DATA, WATER YEARS OCTOBER 1990 TO SEPTEMBER 1991

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|------------------|---|---|---|---|---|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 18 Dec | 0.30 | 29 | 136 | 75 | 32 | 0.980 | 0.020 | 1.00 | 0.030 | 0.57 |
| 06 FRB 1991 | | | | | <1 | 0.890 | 0.010 | 0.900 | 0.020 | |
| 12 APR | | | | | 6 | 0.690 | 0.010 | 0.700 | 0.030 | 0.47 |
| 30 | 0.10 | 30 | 185 | 3.05 | 12 | 0.220 | 0.010 | 0.230 | 0.030 | 0.37 |
| 11 | | | | | <1 | 0.270 | 0.010 | 0.280 | 0.010 | 0.19 |
| 08 | <0.10 | 26 | 135 | 9.01 | <1 | 0.510 | 0.010 | 0.520 | 0.030 | 0.27 |
| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | MITRO- GEN, TOTAL (MG/L AS N) | MITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
| OCT 1990 | | | | | | | | | | |
| 18 Dec | 0.60 | 1.6 | 7.1 | 0.040 | <1 | 200 | <10 | <1 | 18 | 20 |
| 06 FEB 1991 | <0.20 | | | 0.020 | | | | | | |
| 12 APR | 0.50 | 1.2 | 5.3 | 0.050 | | | | | | |
| 30 Jun | 0.40 | 0.63 | 2.8 | 0.060 | <1 | <100 | <10 | <1 | 1 | 10 |
| 11 | 0.20 | 0.48 | 2.1 | 0.030 | | | | | | |
| 08 | 0.30 | 0.82 | 3.6 | 0.030 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- MIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | | | | | _ | _ | | | _ | |
| 18 Dec | 3200 | 12 | 80 | <0.10 | <1 | <1 | <10 | <0.010 | 1 | 0.02 |
| 06 FRB 1991 | | | | | | | | | | |
| 12 | | | | | | | | | | |
| APR 30 JUN | 320 | 4 | 20 | 0.20 | <1 | <1 | <10 | <0.010 | <1 | 0.01 |
| 11 | | | | | | | | | | |
| AUG 08 | | | | | | | | | | |

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | MRAN | | | MRAN | | | MEAN | |
|-------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|
| DAY | MEAN Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mran Discharge (CFS) | CONCEN- TRATION (MG/L) | Sediment Discharge (Tons/Day) | MRAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | OCTOBER | | 1 | NOVEMBER | | 1 | DECEMBER | |
| 1 | 20 | 1150 | 3.0 | 72 | 8 | 1.6 | 26 | 16 | 1.1 |
| 2 | 209 | 540 | 475 | 66 | 5 | .88 | 25 | 14 | . 91 |
| 3 | 129 | 78 | 30 | 63 | 4 | .75 | 25 | 10 | . 66 |
| 4 | 95 | 17 | 4.4 | 60 | 8 | 1.3 | 25 | 7 | .48 |
| 5 | 82 | 11 | 2.4 | 114 | 147 | 55 | 26 | 4 | .30 |
| 6 | 74 | 10 | 2.1 | 75 | 28 | 6.5 | 26 | 3 | .21 |
| 7 | 67 | 11 | 2.0 | 61 | 13 | 2.1 | 25 | 4 | .26 |
| 8 | 79 | 80 | 23 · | 57 | 8 | 1.3 | 24 | 5 | .32 |
| 9 | 62 | 30 | 5.3 | 54 | 6 | .86 | 24 | 5 | .32 |
| 10 | 67 | 45 | 11 | 51 | 6 | .80 | 24 | 4 | .28 |
| 11 | 88 | 118 | 46 | 48 | 6 | . 85 | 23 | 4 | .24 |
| 12 | 73 | | 5.8 | 47 | 5 | . 64 | 24 | 6 | .41 |
| 13 | 214 | 537 | 597 | 45 | 7 | . 89 | 25 | 6 | .40 |
| 14 | 198 | 608 | 704 | 44 | 11 | 1.3 | 26 | 7 | . 48 |
| 15 | 178 | 464 | 272 | 42 | 7 | .81 | 27 | 13 | 1.2 |
| 16 | 233 | 674 | 894 | 42 | 2 | .28 | 23 | 13 | . 82 |
| 17 | 377 | 1140 | 3120 | 41 | 4 | .43 | 22 | 7 | . 46 |
| 18 | 210 | 369 | 284 | 39 | 5 | .58 | 22 | 4 | . 25 |
| 19 | 200 | 229 | 162 | 39 | 6 | . 68 | 21 | 3 | . 18 |
| 20 | 146 | 34 | 15 | 38 | 8 | . 84 | 21 | 5 | .31 |
| 21 | 207 | 341 | 209 | 38 | 6 | .67 | 21 | 9 | .49 |
| 22 | 135 | 21 | 8.1 | 36 | 4 | .44 | 21 | 6 | . 35 |
| 23 | 103 | 13 | 3.8 | 35 | 6 | .55 | 21 | 3 | .16 |
| 24 | 96 | 20 | 5.9 | 34 | 9 | . 82 | 21 | 3 | .16 |
| 25 | 211 | 574 | 805 | 68 | 121 | 52 | 20 | 4 | .20 |
| 26 | 207 | 258 | 196 | 42 | 52 | 6.3 | 20 | 4 | .20 |
| 27 | 130 | 21 | 7.5 | 31 | 28 | 2.4 | 20 | 3 | . 16 |
| 28 | 112 | 15 | 4.6 | 28 | 18 | 1.4 | 21 | 3 | . 16 |
| 29 | 102 | 13 | 3.7 | 28 | 16 | 1.1 | 20 | 3 | . 15 |
| 30 | 88 | 14 | 3.2 | 27 | 14 | .98 | 19 | 3 | . 14 |
| 31 | 80 | 14 | 3.0 | | | | 19 | 3 | . 15 |
| TOTAL | 4272 | | 7907.8 | 1465 | | 145.05 | 707 | | 11.91 |

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | MRAN | | | mban | | MRAN | | | |
|----------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------|------------------------------|-------------------------------------|--|
| DAY | mran Discharge (CFS) | CONCRN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mran Discharge (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | |
| | | JANUARY | | 1 | FEBRUARY | | | MARCH | | |
| 1 | 19 | 3 | . 15 | 16 | 7 | .30 | 10 | 6 | .16 | |
| 2 | 18 | 3 | . 14 | 14 | 'n | .30 | 9.8 | Ă | .12 | |
| 3 | 18 | 3 | .14 | 15 | 8 | .34 | 9.8 | 5 | .14 | |
| 4 | 18 | 2 | .12 | 26 | 27 | 3.2 | 10 | 5 | .14 | |
| 5 | 18 | 2 | .10 | 33 | 39 | 3.9 | 10 | 5 | .14 | |
| 6 | 18 | 2 | .10 | 20 | 23 | 1.3 | 10 | 5 | .14 | |
| 7 | 18 | 2 | .10 | 16 | 11 | .47 | 11 | 7 | .22 | |
| 8 | 17 | 2 | .10 | 15 | 4 | .16 | 12 | 11 | . 35 | |
| 9 | 17 | 2 | .10 | 15 | 4 | .16 | 10 | 8 | . 23 | |
| 10 | 17 | 2 | .10 | 21 | 12 | .97 | 10 | 5 | .14 | |
| 11 | 17 | 2 | . 09 | 24 | 25 | 1.8 | 10 | 5 | .14 | |
| 12 | 16 | 2 | . 08 | 19 | 16 | .84 | 10 | 5 | .14 | |
| 13 | 16 | 2 | .08 | 25 | 13 | . 83 | 9.9 | 5 | .14 | |
| 14 | 16 | 2 | . 08 | 18 | 10 | .49 | 10 | 6 | .16 | |
| 15 | 15 | 2 | .08 | 15 | 9 | .34 | 10 | 7 | .20 | |
| 16 | 16 | 2 | .08 | 13 | 13 | .43 | 10 | 10 | .27 | |
| 17 | 16 | 2 | .08 | 12 | 12 | .39 | 10 | 10 | . 27 | |
| 18 | 16 | 2 | .08 | 12 | 9 | .30 | 10 | 12 | . 31 | |
| 19 | 16 | 6 | .27 | 19 | 9 | .46 | 10 | 13 | . 35 | |
| 20 | 15 | 7 | .28 | 14 | 4 | .15 | 11 | 8 | .23 | |
| 21 | 15 | 7 | .28 | 13 | 6 | .22 | 10 | 5 5 | .14 | |
| 22 | 15 | 5 | .22 | 13 | 11 | .38 | 11 | 5 | .14 | |
| 23 | 15 | 3 | .14 | 11 | 11 | .33 | 11 | 5 | .14 | |
| 24 | 14 | • | .15 | 11 | 8 | .25 | 11 | 5 | .14 | |
| 25 | 14 | • | .17 | 11 | 6 | .17 | 10 | 5 | .14 | |
| 26 27 | 14 14 | 6 | .24 | 10 | 4 | .12 | 11 | 6 | .18 | |
| 28 | 14 | 8 | .31 | 9.6 | • | .10 | 16 | 10 | .42 | |
| 28 | 14 | 7 8 | .28 | 9.5 | 6 | .16 | 11 | 11 | .33 | |
| 30 | 14 | 10 | .30 | | | | 10 | 17 | .46 | |
| 30 31 | 14 | 9 | .38 .35 | | | | 10 | 17 | .46 | |
| | | y | . 35 | | | | 9.9 | 8 | . 23 | |
| TOTAL | 494 | | 5.17 | 450.1 | | 18.86 | 324.4 | | 6.77 | |

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAY | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | Mean Discharge (CFS) | MRAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MRAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 10 | 4 | .11 | 25 | 26 | 6.6 | 22 | 9 | . 55 |
| 2 | 10 | 3 | .09 | 21 | 13 | 1.0 | 19 | 10 | . 50 |
| 3 | 13 | 5 | . 15 | 14 | 23 | 1.1 | 17 | 9 | .40 |
| 4 | 11 | 6 | . 17 | 21 | 26 | 1.6 | 16 | 8 | .35 |
| 5 | 41 | 62 | 18 | 17 | 13 | . 67 | 15 | 11 | .42 |
| 6 | 26 | 106 | 9.0 | 45 | 88 | 24 | 15 | 11 | .44 |
| 7 | 16 | 45 | 2.3 | 200 | 701 | 1520 | 14 | 7 | . 29 |
| 8 | 12 | 18 | . 58 | 139 | 248 | 147 | 13 | 5 | .18 |
| 9 | 10 | 10 | .28 | 99 | 111 | 38 | 13 | 5 | .20 |
| 10 | 9.6 | 9 | .25 | 72 | 71 | 29 | 12 | 10 | . 32 |
| 11 | 12 | 11 | . 34 | 62 | 141 | 27 | 12 | 17 | . 53 |
| 12 | 12 | 11 | . 34 | 57 | 84 | 14 | 12 | 13 | .40 |
| 13 | 11 | 9 | .26 | 45 | 85 | 12 | 12 | 5 | . 15 |
| 14 | 9.7 | 8 | .21 | 46 | 80 | 10 | 11 | 5 | . 17 |
| 15 | 21 | 46 | 4.8 | 37 | 26 | 2.9 | 12 | 6 | .20 |
| 16 | 16 | 42 | 2.0 | 29 | 16 | 1.3 | 11 | 6 | . 19 |
| 17 | 11 | 19 | . 58 | 23 | 15 | .96 | 11 | 5 | .16 |
| 18 | 9.7 | 16 | .40 | 66 | 184 | 90 | 13 | 6 | .23 |
| 19 | 9.5 | 13 | .30 | 114 | 313 | 271 | 14 | 6 | .24 |
| 20 | 8.9 | 7 | .18 | 100 | 135 | 44 | 49 | 105 | 51 |
| 21 | 8.7 | 8 | . 19 | 51 | 58 | 8.4 | 34 | 89 | 14 |
| 22 | 7.9 | 10 | . 19 | 36 | 25 | 2.6 | 23 | 81 | 5.5 |
| 23 | 7.8 | 15 | .32 | 29 | 11 | .85 | 16 | 65 | 2.8 |
| 24 | 7.8 | 14 | .30 | 25 | 8 | .57 | 13 | 40 | 1.5 |
| 25 | 7.4 | 8 | . 17 | 23 | 6 | .38 | 14 | 28 | 1.4 |
| 26 | 8.3 | 6 | . 14 | 24 | 5 | .34 | 18 | 73 | 3.8 |
| 27 | 7.3 | 5 | .10 | 52 | 57 | 23 | 13 | 30 | 1.0 |
| 28 | 7.4 | 6 | .12 | 45 | 62 | 8.4 | 14 | 17 | . 63 |
| 29 | 6.8 | 7 | . 12 | 31 | 33 | 3.1 | 16 | 22 | 1.0 |
| 30 | 7.2 | 8 | . 18 | 24 | 14 | .94 | 64 | 110 | 57 |
| 31 | | | | 22 | 10 | .60 | | | |
| TOTAL | 356.0 | | 42.17 | 1594 | | 2291.31 | 538 | | 145.55 |

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAY | MRAN Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN Discharge (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | | JULY | | | AUGUST | | S | eptember | |
| 1 | 35 | 79 | 8.1 | 58 | 70 | 12 | 18 | 10 | . 45 |
| 2 | 19 | 43 | 2.3 | 38 | 22 | 2.6 | 17 | 10 | . 45 |
| 3 | 40 | 89 | 25 | 32 | 16 | 1.3 | 16 | 9 | .38 |
| 4 | 34 | 91 | 9.1 | 32 | 22 | 1.9 | 15 | 6 | .26 |
| 5 | 22 | 40 | 2.0 | 32 | 16 | 1.6 | 15 | 8 | .34 |
| 6 | 18 | 39 | 2.0 | 30 | 10 | .86 | 15 | 12 | .48 |
| 7 | 36 | 49 | 9.8 | 26 | 22 | 1.5 | 21 | 23 | 1.5 |
| 8 | 32 | 83 | 8.4 | 26 | 46 | 3.2 | 24 | 14 | .90 |
| 9 | 20 | 43 | 2.4 | 24 | 34 | 2.3 | 17 | 12 | . 55 |
| 10 | 17 | 23 | 1.0 | 22 | 9 | .54 | 15 | 11 | . 44 |
| 11 | 16 | 16 | . 67 | 22 | 6 | .35 | 15 | 13 | .50 |
| 12 | 15 | 12 | . 47 | 20 | 5 | .28 | 95 | 426 | 540 |
| 13 | 14 | 13 | . 48 | 23 | 13 | 1.1 | 48 | 80 | 14 |
| 14 | 18 | 17 | 1.3 | 22 | 8 | .53 | 32 | 47 | 5.6 |
| 15 | 64 | 108 | 44 | 25 | 5 | .37 | 55 | 99 | 39 |
| 16 | 53 | 112 | 19 | 20 | 4 | .24 | 73 | 91 | 29 |
| 17 | 80 | 466 | 306 | 19 | 7 | .39 | 54 | 70 | 12 |
| 18 | 151 | 641 | 821 | 18 | 11 | .50 | 32 | 18 | 1.6 |
| 19 | 80 | 89 | 23 | 17 | 13 | .56 | 35 | 25 | 3.3 |
| 20 | 46 | 25 | 3.3 | 16 | 11 | .47 | 122 | 430 | 549 |
| 21 | 36 | 20 | 1.9 | 17 | 9 | .38 | 362 | 1050 | 4420 |
| 22 | 85 | 170 | 138 | 18 | 9 | .46 | 123 | 209 | 89 |
| 23 | 83 | 105 | 33 | 21 | 8 | .49 | 58 | 30 | 5.4 |
| 24 | 42 | 28 | 3.3 | 17 | 6 | .28 | 61 | 92 | 27 |
| 25 | 34 | 17 | 1.5 | 22 | 5 | .31 | 50 | 40 | 6.9 |
| 26 | 30 | 14 | 1.1 | 45 | 58 | 26 | 37 | 16 | 1.6 |
| 27 | 27 | 11 | .80 | 33 | 56 | 5.1 | 58 | 55 | 15 |
| 28 | 31 | 20 | 2.4 | 25 | 66 | 4.2 | 75 | 83 | 22 |
| 29 | 29 | 20 | 1.6 | 21 | 67 | 3.7 | 47 | 43 | 6.5 |
| 30 | 34 | 29 | 3.7 | 19 | 37 | 2.0 | 92 | 165 | 106 |
| 31 | 133 | 570 | 759 | 18 | 11 | .51 | | | |
| TOTAL | 1374 | | 2235.62 | 778 | | 76.02 | 1697 | | 5899.15 |
| YEAR | 14049.5 | | 18785.38 | | | | | | |

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FERT PER SECOND | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|-----------|--|---|--|--|--|--|--|
| MAY 1991 | | | | | | | |
| 19 JUN | 0648 | 52 | 3250 | 456 | 28 | 43 | 62 |
| 30 JUL | 1616 | 216 | 4210 | 2460 | 26 | 36 | 54 |
| 17 | 1900 | 304 | 3200 | 2630 | 30 | 40 | 56 |
| 18 | 1630 | 766 | 3460 | 7160 | 10 | 17 | 34 |
| 20 | 1624 | 347 | 7850 | 7360 | 18 | 30 | 54 |
| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| MAY 1991 | | | | | | | |
| 19 JUN | 73 | 83 | 99 | 99 | 100 | 100 | 100 |
| 30 JUL | 66 | 80 | 94 | 96 | 98 | 98 | 100 |
| 17 | 68 | 80 | 97 | 99 | 100 | 100 | 100 |
| 18 SEP | 50 | 70 | 84 | 94 | 98 | 99 | 100 |
| 20 | 54 | 70 | 85 | 94 | 98 | 99 | 100 |

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|---|
| OCT 1990 | | | | | |
| 17 | 1605 | 1600 | 4840 | 20900 | 68 |
| 17 | 1654 | 1695 | 7780 | 35600 | 78 |
| FEB 1991 | | | | | |
| 04 | 1800 | 24 | 98 | 6.4 | 88 |
| APR | | | | | |
| 06 | 1750 | 17 | 90 | 4.1 | 98 |
| 15 | 1905 | 51 | 271 | 37 | 98 |
| JUN | • | | | | |
| 20 | 1753 | 225 | 979 | 595 | 90 |
| JUL | | | | | |
| 18 | 1915 | 285 | 8890 | 684 | 75 |
| 18 | 1600 | 685 | 4640 | 8580 | 89 |
| 18 | 1515 | 573 | 4870 | 7540 | 83 |
| 18 | 1755 | 447 | 4650 | 5610 | 96 |
| 31 | 1920 | 250 | 2240 | 1510 | 97 |
| SEP | | | | | |
| 21 | 1608 | 2677 | 5580 | 40300 | 65 |

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR

LOCATION.--Lat 18°08'36", long 67°08'57", Hydrologic Unit 21010003, at bridge on Highway 100, 1.4 mi (2.3 km) west of Hormigueros, and 2.0 mi (3.2 km) downstream from Río Rosario.

DRAINAGE AREA. -- 120 mi 2 (311 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- Annual low-flow measurements 1959, monthly measurements April 1959 to November 1967, January 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Previous to Nov. 7, 1980, at site 0.3 mi (0.5 km) upstream at datum 7.36 ft (2.243 m) higher.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--18 years (1974-91), 210 ft³/s (5.947 m³/s), 23.76 in/yr (604 mm/yr), 152,100 acre-ft/yr (188 hm²/yr); median of yearly mean discharges, 194 ft³/s (5.49 m²/s), 140,000 acre-ft/yr (172 hm²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 128,000 ft³/s (3,620 m³/s), Sept. 16, 1975, gage height, 28.50 ft (8.687 m), site and datum then in use, from rating curve extended above 100 ft³/s (2.832 m³/s) on basis of contracted-opening measurement of peak flow, minimum discharge, 4.6 ft³/s (0.130 m³/s), June 22, 1977.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 2,000 ft3/s (56.6 m3/s) and maximum (*):

| | | Discharge | | Gage height | | | | Discharge | | Gage height | |
|---------|------|-----------|---------------------|-------------|-------|---------|------|------------|--------|-------------|-------|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft^3/s) | (m³/s) | (ft) | (m) |
| Oct. 13 | 2000 | 2,330 | 66.0 | 19.81 | 6.038 | Oct. 19 | 1700 | 2,140 | 60.6 | 19.62 | 5.980 |
| Oct. 17 | 0300 | 2,640 | 74.8 | 20.04 | 6.108 | Oct. 21 | 1805 | 2,160 | 61.2 | 19.64 | 5.986 |
| Oct. 18 | 0400 | 4,450 | 126 | 21.36 | 6.510 | Oct. 26 | 0800 | *4,720 | 134 | *21.52 | 6.559 |

Minimum daily discharge, 14 ft³/s (0.396 m³/s), April 24, 25, 30.

| | | DISCHAR | SE, CUBIC | PERT PRI | SECOND, DAIL | Water ye Y mean va | ar octobri Lues | R 1990 TO | SEPTEMBE | R 1991 | | |
|-------|-------|---------|-----------|----------|-----------------|-----------------------|--------------------|-----------|----------|--------|------|------|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 622 | 313 | 141 | 80 | 37 | 37 | e16 | 20 | 60 | 86 | 119 | 42 |
| 2 | 681 | 280 | 117 | 106 | 35 | 35 | e17 | 55 | 57 | 53 | 79 | 40 |
| 3 | 461 | 257 | 118 | 73 | 37 | 32 | e20 | 39 | 53 | 69 | 67 | 37 |
| 4 | 294 | 227 | 107 | 69 | 44 | 31 | 22 | 41 | 48 | 152 | 60 | 32 |
| 5 | 250 | 450 | 102 | 65 | 64 | 33 | 32 | 44 | 45 | 75 | 63 | 29 |
| 6 | 276 | 305 | 98 | 63 | 57 | 30 | 108 | 273 | 41 | 63 | 61 | 29 |
| 7 | 227 | 254 | 94 | 61 | 47 | 30 | 67 | 480 | 38 | 74 | 52 | 38 |
| 8 | 293 | 221 | 92 | 56 | 44 | 37 | 41 | 572 | 35 | 185 | 45 | 52 |
| 9 | 264 | 202 | 90 | 53 | 42 | 29 | 31 | 415 | 33 | 129 | 44 | 35 |
| 10 | 428 | 183 | 87 | 52 | 54 | 26 | 26 | 312 | 32 | 69 | 40 | 27 |
| 11 | 661 | 169 | 85 | 51 | 79 | 26 | 30 | 250 | 28 | 58 | 38 | 25 |
| 12 | 897 | 165 | 83 | 48 | 72 | 26 | 29 | 317 | 28 | 54 | 36 | 55 |
| 13 | 1620 | 162 | 85 | 45 | 92 | 23 | 28 | 214 | 24 | 49 | 34 | 110 |
| 14 | 1350 | 158 | 86 | 43 | 85 | 23 | 28 | 198 | 22 | 44 | 84 | 47 |
| 15 | 1440 | 157 | 147 | 41 | 59 | 20 | 29 | 135 | 22 | 65 | 168 | 54 |
| 16 | 1120 | 168 | 150 | 40 | 52 | 19 | 44 | 112 | 23 | 117 | 59 | 111 |
| 17 | 2070 | 156 | 103 | 39 | 49 | 19 | 28 | 98 | 23 | 114 | 51 | 117 |
| 18 | 2650 | 143 | 95 | 38 | 47 | 18 | 24 | 109 | 39 | 193 | 59 | 76 |
| 19 | 1870 | 135 | 89 | 38 | 62 | 20 | 21 | 161 | 35 | 162 | 48 | 69 |
| 20 | 1020 | 232 | 84 | 38 | 59 | 19 | 19 | 230 | 118 | 90 | 43 | 167 |
| 21 | 1640 | 191 | 80 | 37 | 55 | 18 | 19 | 181 | 127 | 71 | 46 | 309 |
| 22 | 1080 | 169 | 76 | 39 | 50 | 22 | 17 | 131 | 98 | 81 | 45 | 362 |
| 23 | 618 | 143 | 73 | 37 | 44 | 28 | 15 | 109 | 64 | 196 | 62 | 127 |
| 24 | 498 | 137 | 71 | 36 | 42 | 18 | 14 | 95 | 54 | 93 | 45 | 105 |
| 25 | 869 | 149 | 70 | 35 | 41 | 16 | 14 | 87 | 49 | 75 | 79 | 118 |
| 26 | 3330 | 192 | 67 | 36 | 39 | 69 | 17 | 79 | 55 | 66 | 94 | 96 |
| 27 | 1190 | 132 | 75 | 36 | 37 | 79 | 15 | 79 | 46 | 61 | 88 | e138 |
| 28 | 659 | 118 | 74 | 35 | 36 | e24 | 15 | 106 | 52 | 56 | 64 | e146 |
| 29 | 516 | 110 | 86 | 33 | | e19 | 15 | 80 | 52 | 80 | 54 | e111 |
| 30 | 425 | 144 | 82 | 33 | | e18 | 14 | 69 | 74 | 69 | 49 | 158 |
| 31 | 359 | | 73 | 33 | | e17 | | 62 | | 136 | 44 | |
| TOTAL | 29678 | 5822 | 2880 | 1489 | 1461 | 861 | 815 | 5153 | 1475 | 2885 | 1920 | 2862 |
| MEAN | 957 | 194 | 92.9 | 48.0 | 52.2 | 27.8 | 27.2 | 166 | 49.2 | 93.1 | 61.9 | 95.4 |
| MAX | 3330 | 450 | 150 | 106 | 92 | 79 | 108 | 572 | 127 | 196 | 168 | 362 |
| MIN | 227 | 110 | 67 | 33 | 35 | 16 | 14 | 20 | 22 | 44 | 34 | 25 |
| AC-FT | 58870 | 11550 | 5710 | 2950 | 2900 | 1710 | 1620 | 10220 | 2930 | 5720 | 3810 | 5680 |
| CFSM | 7.98 | 1.62 | .77 | .40 | .43 | . 23 | .23 | 1.39 | .41 | . 78 | .52 | .79 |
| IN. | 9.20 | 1.80 | .89 | .46 | .45 | . 27 | .25 | 1.60 | .46 | . 89 | .60 | . 89 |

CAL YR 1990 TOTAL 62460 MEAN 171 MAX 3330 MIN 17 AC-FT 123900 CFSM 1.43 IN. 19.36 WTR YR 1991 TOTAL 57301 MEAN 157 MAX 3330 MIN 14 AC-FT 113700 CFSM 1.31 IN. 17.76

e Estimated

RIO GUANAJIBO BASIN 381

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | ₩. | ATEK-QUALIT | ri Data, W | ATER IEAR | COCTOB | BER 1990 | TO SEPTE | EDEK 1 | 331 | | |
|----------------|--|--|---|--|--|--|--|---|--|---|---|---|
| DATE | TIME | DIS CHARG INST CUBI FER PER SECO | E, SPE CIFIC C CON- T DUCT ANCE | PH (STAND- ARD UNITS) | WATER | BI IT | D- D Y 80 | GEN, () IS- () LVED S | YGEN, DIS- DLVED PER- CENT ATUR- TION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| OCT 1990 | | | | | | | | | | | | |
| 22 DEC | 1105 | 11 | 28 | 8 7.5 | 24.5 | 33 | | 4.7 | 56 | 25 | K930 | 2200 |
| 07 FEB 1991 | 0 82 0 | 99 | 49 | 7.9 | 22.5 | 5 7 | . 5 | 7.2 | 82 | <10 | K70 | K82 |
| 13 | 0800 | 77 | 43: | 8.0 | 23.5 | 12 | | 7.5 | 88 | 10 | 2800 | 490 |
| 30 | 0700 | 14 | 51 | 7.8 | 25.5 | 3 | . 3 | 5.8 | 70 | 19 | 240 | 790 |
| 11 AUG | 0655 | 30 | 479 | 5 7.9 | 25.5 | 3 | .0 | 5.9 | 77 | <10 | 440 | 420 |
| 08 | 0950 | 49 | 38 | 8 7.9 | 26.5 | 5 28 | | 6.5 | 79 | 10 | 140 | 240 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3 | NONCA WH WA TOT F MG/L | RB CALCIUM T DIS- LD SOLVEN AS (MG/L | DIS- SOLVED (MG/L | SODIUM, DIS- | SOR TI RAT | D- S P- D ON SO IO (M | TAS- LII IUM, WA' IS- TO' LVED FI G/L MG | LKA- NITY F WH F PRT IRLD /L AS ACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 22 | 14 | 0 0 | 22 | 20 | 7.7 | | 0.3 | 2.2 | 130 | <0.5 | 15 | 8.7 |
| DEC 07 | | | | | | - | | | 220 | | | |
| FEB 1991 13 | | | | | | - | - | | 180 | | | |
| APR 30 | 23 | 0 0 | 34 | 36 | 27 | | 0.8 | 2.2 | 210 | <0.5 | 38 | 35 |
| JUN 11 | | | | | | _ | _ | | 210 | | | |
| AUG 08 | 17 | 0 0 | 28 | 24 | 15 | | 0.5 | 1.6 | 170 | | 15 | 16 |
| | | | • | • | 13 | | 0.3 | 1.0 | 1,0 | | 23 | |
| 1 | DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, SI DIS- CO SOLVED TO (MG/L AS S | ONSTI- UENTS, S DIS- (BOLVED | LIDS, TO DIS- AT COLVED DE TONS S PER PE | ESIDUE PTAL 1 105 EG. C, EUS- ENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITI TOTAL (MG/L AS N) | G: NO2: TO: (M: | EN, G +NO3 AMM TAL TO G/L (M | EN, C ONIA ORC TAL TO G/L () | ITRO- BEN, BANIC PFAL G/L B N) |
| OCT 1 | | 0.10 | 27 | 181 | 0.53 | 60 | 0.470 | 0.03 | 0 0 | .500 0 | .070 | 0.53 |
| DEC | | | | | | | | | | | | |
| 07. FRB 1 | 1991 | | | | | 8 | 0.690 | | | | 0.030 | 0.17 |
| 13. APR | | | | | | 13 | 0.980 | | | | .040 | 0.36 |
| 30. Jun | ••• | 0.20 | 33 | 331 | 12.9 | 3 | 0.680 | 0.01 | 0 0 | .690 0 | .030 | 0.37 |
| 11. AUG | •• | | | | | <1 | 0.510 | 0.01 | 0 0 | .520 0 | .030 | 0.27 |
| 08. | •• | <0.10 | 28 | 230 | 30.2 | 14 | 0.510 | 0.02 | 0 | .530 0 | .050 | 0.35 |

K = non-ideal count

DATE

JUN 1991

11...

TOTAL.

(UG/L)

<0.01

TOTAT.

<0.10

(UG/L)

TOTAL

(UG/L)

<0.1

TOTAL

(UG/L)

<1

THION

(UG/L)

<0.01

TOTAL

(UG/L)

0.02

TOTAL

(UG/L)

<0.01

TOTAL.

<0.01

(UG/L)

TOTAL

(UG/L)

<0.01

RIO GUANAJIBO BASIN

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

NITRO-CHRO-BORON. CADMITUM COPPER. GEN, AM-BARTUM. NTUM. MONIA + TOTAL TOTAL TOTAL NITRO-NITRO-PHOS-TOTAL TOTAL GEN, TOTAL ORGANIC GEN, PHORUS ARSENIC RECOV-RECOV-RECOV-RECOV-RRCOV-BRARLE TOTAL TOTAL TOTAL TOTAL BRABLE BRABLE BRABLE RRART.R DATE (UG/L (UG/L (UG/L (MG/L (MG/L (MG/L (MG/T (DG/L (UG/L (UG/L AS NO3) AS B) AS CD) AS CU) AS P) AS AS) OCT 1990 22... 20 31 20 0.60 1.1 4.9 0.270 <1 <100 <1 DRC 07.. 0.20 0.90 4.0 0.140 FEB 1991 13... 0.40 6.2 0.300 APR 30... 10 0.40 1.1 4.8 0.410 <1 <100 80 <1 1 JUN ĭ1... 0.30 0.82 3.6 0.240 AUG 08... 0.40 0.93 0.220 4.1 MANGA-MRTHY-SILVER, NESE, TOTAL LRNR TRON. LRAD. MERCURY ZINC. TOTAL TOTAL TOTAL SELE-TOTAL TOTAL BLUE RECOV-RECOV-RECOV-RECOV-NIUM, RECOV-RECOV-CYANIDE ACTIVE RRABILE ERABLE BRABLE RRABILE TOTAL RRARIE RRART.R TOTAL PHENOLS SUB-DATE STANCE (UG/L (UG/L (UG/L (UG/L (UG/L (MG/L TOTAL (UG/L (UG/L AS ZN) (UG/L) AS PB) AS MN) AS HG) AS SE) AS AG) AS CN) (MG/L) OCT 1990 22... 4300 3 160 <10 <0.010 13 0.02 <0.10 <1 <1 DEC 07... FEB 1991 13... __ APR 30... 350 0.03 2 50 <0.10 ∢1 <10 <0.010 <1 <1 JUN 11... __ __ __ AUG 08... PESTICIDE ANALYSES CHLOR-DI-DT-RNDO-PCB, ALDRIN, AZINON, ELDRIN SULFAN, DDT. DANE, TOTAL DDD. DDR. DATE TIME TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL (UG/L) (UG/L) (UG/L) (UG/L) (UG/L) (UG/L) (UG/L) (UG/L) (VG/L) JUN 1991 11... 0655 <0.1 <0.010 <0.1 <0.010 <0.010 <0.010 0.01 <0.010 <0.010 METHYL HEPTA-METH-METHYL HEPTA-CHLOR MALA-OXY-PARA-TRI-ENDRIN, ETHION, CHLOR. I.TNDANE THION. CHLOR. THION. THION. MIREX. RPOXIDE DATE TOTAL (UG/L) JUN 1991 <0.010 <0.01 <0.010 <0.010 <0.010 <0.01 <0.01 <0.01 <0.01 <0.01 NAPH-THA-LENES. PARA-POLY-PER-TOTAL TOX-THION, CHLOR. THANE APHENE, TRI-2,4-D, 2,4,5-T 2, 4-DP SILVEX,

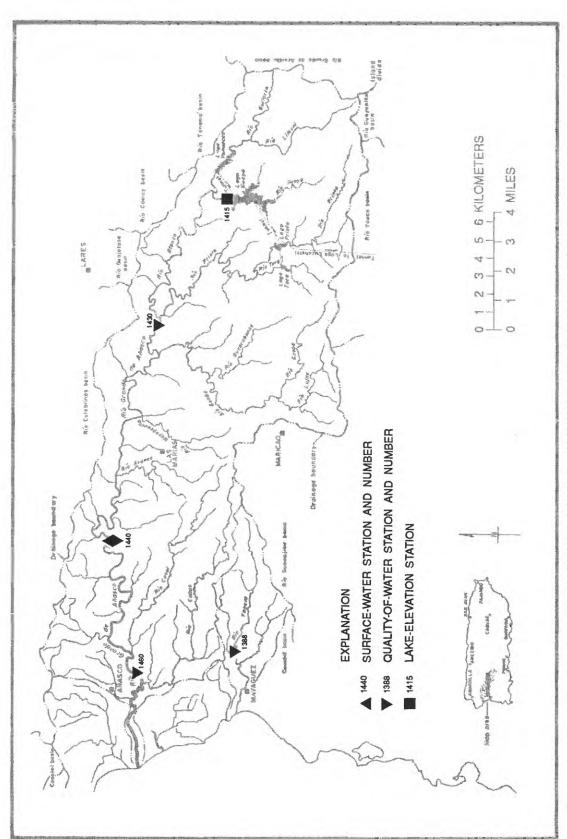


Figure 25.--Río Yagüez and Río Grande de Añasco basins.

RIO YAGÜEZ BASIN

50138800 RIO YAGÜEZ NEAR MAYAGÜEZ, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°12'31", long 67°07'07", at steel-truss bridge on unnumbered paved road about 800 ft (244 m) south of Highway 106, 1.8 mi (2.9 km) west of Highways 106 and 352 junction, and 1.4 mi (2.3 km) east-northeast from Mayagües plasa.

DRAINAGE AREA. -- 6.7 mi2 (17.3 km2).

PERIOD OF RECORD .-- Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | DIS- | | Constant in | | | | OXYGEN, | OXYGEN | COLI- | |
|----------------|--------|------------------|---------|-------------|---------|--------|---------|----------------|------------------|-----------------|-------------------|
| | | CHARGE, INST. | SPE- | | | | | DIS- SOLVED | DEMAND, CHEM- | FORM, FECAL, | STREP- TOCOCCI |
| | | CUBIC | CON- | PH | TEMPER- | TUR- | OXYGEN, | (PER- | ICAL | 0.45 | FECAL, |
| | 500 | FERT | DUCT- | (STAND- | ATURE | BID- | DIS- | CENT | (HIGH | UM-MP | (COLS. |
| DATE | TIME | PER | ANCE | ARD | WATER | ITY | SOLVED | SATUR- | TEART) | (COLS./ | PER |
| | | SECOND | (US/CM) | UNITS) | (DEG C) | (NTU) | (MG/L) | ATION) | (MG/L) | 100 ML) | 100 ML) |
| OCT 1990 | | | | | | | | | | | |
| 16 | 1345 | 26 | 242 | 8.0 | 24.5 | 17 | 7.9 | 94 | 12 | K1400 | 3200 |
| DEC | | | | | | | | 17.00 | 100 | 1000 | 1000 |
| 06 | 1155 | 11 | 318 | 8.3 | 22.0 | 0.90 | 8.6 | 98 | <10 | 360 | 340 |
| FEB 1991 12 | 1040 | 4.2 | 294 | 8.0 | 22.5 | 3.1 | 8.1 | 93 | 11 | 650 | 750 |
| APR | 1040 | 4.2 | 234 | 8.0 | 22.5 | 3.1 | 8.1 | 33 | 11 | 030 | 750 |
| 29 | 1250 | 11 | 311 | 7.8 | 28.5 | 16 | 8.2 | 105 | <10 | K170 | 410 |
| 10 | 1110 | 2.4 | 318 | 8.0 | 26.0 | 1.8 | 8.1 | 99 | <10 | 380 | 800 |
| AUG | | 100 | | | | | 10000 | | | 0.2002 | 13.22 |
| 09 | 0745 | 6.5 | 275 | 8.0 | 24.0 | 4.5 | 7.2 | 84 | <10 | X6300 | 4100 |
| | | HARD- | | | | | | ALKA- | | | |
| | HARD- | NESS | | MAGNE- | | SODIUM | POTAS- | LINITY | | | CHLO- |
| | NESS | NONCARB | CALCIUM | SIUM, | SODIUM, | AD- | SIUM, | WAT WH | | SULFATE | RIDE, |
| | TOTAL | WH WAT | DIS- | DIS- | DIS- | SORP- | DIS- | TOT FET | SULFIDE | DIS- | DIS- |
| | (MG/L | TOT FLD | SOLVED | SOLVED | SOLVED | TION | SOLVED | FIELD | TOTAL | SOLVED | SOLVED |
| DATE | AS | MG/L AS | (MG/L | (MG/L | (MG/L | RATIO | (MG/L | MG/L AS | (MG/L | (MG/L | (MG/L |
| | CACO3) | CACO3 | AS CA) | AS MG) | AS NA) | | AS K) | CYCO3 | AS 8) | AS SO4) | AS CL) |
| OCT 1990 | | | | | | | | | | | |
| 16 | 110 | 0 | 27 | 10 | 9.0 | 0.4 | 1.9 | 110 | <0.5 | 6.2 | 9.1 |
| DEC | | | | | | | | 140 | | | |
| 06 FEB 1991 | | | | | | | | 140 | | | |
| 12 | | | | | | | | 140 | | | |
| APR | | | | | | | | 200 | | | |
| 29 | 140 | 0 | 38 | 11 | 14 | 0.5 | 2.1 | 130 | <0.5 | 13 | 15 |
| JUN | | | | | | | | | | | |
| | | | | | | | | 140 | | | |
| 10 | | | | | | | | | | | |
| | 120 | 1 | 33 | 10 | 12 | 0.5 | 2.4 | 130 | | 6.0 | 8.6 |

| | | | SOLIDS, | | RESIDUE | | | | | |
|----------|---|--|--|---|--|---|---|---|---|---|
| DATE | FLUO- RIDE, DIS- SOLVED (MG/L | SILICA, DIS- SOLVED (MG/L AS | SUM OF CONSTI- TUENTS, DIS- SOLVED | SOLIDS, DIS- SOLVED (TONS PER | TOTAL AT 105 DEG. C, SUS- PENDED | NITRO- GEN, NITRATE TOTAL (MG/L | NITRO- GEN, NITRITE TOTAL (MG/L | NITRO- GEN, NO2+NO3 TOTAL (MG/L | NITRO- GEN, AMMONIA TOTAL (MG/L | NITRO- GEN, ORGANIC TOTAL (MG/L |
| OCT 1990 | | | | | | | | | | |
| 16 | <0.10 | 28 | 155 | 10.8 | 29 | 0.980 | 0.020 | 1.00 | 0.030 | |
| DEC | | | | | | | | | | |
| 06 | | | | | 1 | 0.790 | 0.010 | 0.800 | 0.020 | |
| FRB 1991 | | | | | | | | | | |
| 12 | | | | | 15 | 0.890 | 0.010 | 0.900 | 0.040 | 0.46 |
| APR | | | | | | | | | | |
| 29 | 0.20 | 31 | 210 | 2.39 | 8 | | <0.010 | 0.410 | 0.040 | 0.46 |
| JUN | | | | | | | | | | |
| 10 | | | | | <1 | | <0.010 | 0.550 | <0.010 | |
| AUG | | | | | | | | | | |
| 09 | <0.10 | 32 | 178 | 3.12 | <1 | 0.680 | 0.010 | 0.690 | 0.020 | 0.38 |
| | | | | | | | | | | |

K = non-ideal count

RIO YAGÜEZ BASIN 50138800 RIO YAGÜEZ MEAR MAYAGÜEZ, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | MITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L | NITRO- GEN, TOTAL (MG/L | NITRO- GEN, TOTAL (MG/L | PHOS- PHORUS TOTAL (MG/L | ARSENIC TOTAL (UG/L | BARIUM, TOTAL RECOV- ERABLE (UG/L | BORON, TOTAL RECOV- ERABLE (UG/L | CADMIUM TOTAL RECOV- ERABLE (UG/L | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L | COPPER, TOTAL RECOV- ERABLE (UG/L |
|---|--|---|--|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 16 DRC | <0.20 | | | 0.080 | <1 | <100 | <10 | <1 | 5 | 30 |
| 06 | <0.20 | | | 0.040 | | | | | | |
| FEB 1991 12 | 0.50 | 1.4 | 6.2 | 0.080 | | | | | | |
| APR | | | _ | | - | | | | | |
| 29 JUN | 0.50 | 0.91 | 4.0 | 0.070 | <1 | 200 | <10 | <1 | <1 | 20 |
| 10 | <0.20 | | | 0.050 | | | | | | |
| AUG 09 | 0.40 | 1.1 | 4.8 | 0.060 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA - NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| | TOTAL RECOV- BRABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | nese, Total Recov- Erable (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | Lene Blue Active Sub- Stance |
| OCT 1990 16 DEC 06 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 16 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 16 DEC 06 FEB 1991 12 | TOTAL RECOV- BRABLE (UG/L AS FE) 1600 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- REABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.02 |
| OCT 1990 16 DBC 06 FEB 1991 12 APR 29 JUN | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- REABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 16 DEC 06 FEB 1991 12 APR 29 | TOTAL RECOV- BRABLE (UG/L AS FE) 1600 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- REABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.02 |

50141500 LAGO GUAYO NEAR CASTANER, PR

LOCATION.--Lat 18°12'46", long 66°50'06", Hydrologic Unit 21010003, at Guayo Dam on Río Guayo, 1.1 mi (1.8 km) southwest of Lago Yahuecas, 2.6 mi (4.2 km) southwest of Lago Prieto, 2.1 mi (3.4 km) morth of Castafier, and 6.0 mi (9.6 km) west of Adjuntas.

DRAINAGE AREA. -- 9.60 mi 2 (24.86 km2).

RLEVATION RECORDS

PERIOD OF RECORD. -- April 1980 to January 1985, June 1989 to current year.

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

REMARKS.--Lago Guayo was completed in 1956. The dam is on Río Guayo and is the largest in the southwestern Puerto Rico project. The maximum storage is 17,400 ac-ft (21.5 hm²) for power and irrigation. The dam is a concrete gravity structure with a total length of 555 ft (169 m), a maximum structural height of 190 ft (58 m), and a maximum width at the base of 145 ft (44 m). The ungated overflow spillway with a crest elevation of 60.00 ft (18.29 m) and a crest length of 220 ft (67 m) was designed to pass a maximum flood of 30,200 ft³/s (855 m³/s) at a reservoir elevation of 70.00 ft (21.34 m). Timber flashboards that were added to increase storage capacity were subsequently removed and their use discontinued. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD. --Maximum elevation, 1462.43 ft (445.75 m), May 27, 1980; minimum elevation recorded, 1415.43 ft (431.42 m), June 2, 1990, but may have been less during period of no gage-height record June 2-5, 1990.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 1460.94 ft (445.29 m), Oct. 26; minimum elevation recorded 1419.47 ft (432.65 m), Apr.17.

Capacity Table (based on data from Puerto Rico Water Resources Authority)

| Rlevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 1415 | 3,960 | 1460 | 13,550 |
| 1449 | 10,660 | 1465 | 15,000 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|---------|
| 1 | 1448.82 | 1460.27 | 1460.15 | λ | 1438.08 | A | λ | λ | 1434.76 | 1437.77 | 1443.42 | 1439.46 |
| 2 | 1449.37 | 1460.27 | 1460.15 | λ | 1438.15 | A | λ | A | 1434.67 | 1437.96 | 1443.96 | 1439.68 |
| 3 | 1449.22 | 1460.26 | 1460.15 | λ | 1438.41 | λ | λ | λ | 1434.61 | 1439.00 | 1444.32 | 1438.45 |
| 4 | 1448.61 | 1460.26 | 1460.15 | λ | 1438.53 | λ | A | A | 1434.24 | 1439.68 | 1444.69 | 1438.14 |
| 5 | 1447.68 | 1460.26 | 1460.12 | A | 1438.57 | λ | A | À | 1433.48 | 1439.92 | 1445.05 | 1438.36 |
| 6 | 1447.35 | 1460.26 | 1460.10 | A | 1438.79 | 1438.71 | A | À | 1432.77 | 1440.10 | 1445.38 | 1437.91 |
| 7 | 1448.32 | 1460.26 | 1460.17 | A | 1438.65 | 1438.93 | A | 1423.87 | 1432.50 | 1441.03 | 1445.31 | 1438.41 |
| 8 | 1448.79 | 1460.26 | 1460.17 | λ | 1438.55 | 1439.06 | A | 1425.05 | 1432.40 | 1441.61 | 1444.44 | 1438.76 |
| 9 | 1451.00 | 1460.26 | 1460.17 | λ | 1438.64 | 1439.18 | A | 1426.30 | 1432.30 | 1441.93 | 1443.34 | 1438.09 |
| 10 | 1451.81 | 1460.26 | 1460.17 | A | 1439.02 | 1439.33 | A | 1426.96 | 1431.98 | 1442.16 | 1442.87 | 1437.70 |
| 11 | 1451.83 | 1460.37 | 1460.17 | A | 1438.89 | 1439.45 | A | 1428.51 | 1431.84 | 1442.42 | 1442.90 | 1437.53 |
| 12 | 1452.83 | 1460.37 | 1459.93 | À | 1439.18 | 1439.53 | À | 1429.93 | 1433.65 | 1442.66 | 1441.94 | 1436.99 |
| 13 | 1454.49 | 1460.37 | 1460.35 | λ | 1439.10 | 1439.59 | Ä | 1430.84 | 1433.74 | 1442.87 | 1441.21 | 1436.89 |
| 14 | 1455.88 | 1460.20 | 1459.89 | À | 1439.31 | 1439.57 | A | 1431.56 | 1433.75 | 1442.82 | 1440.58 | 1437.17 |
| 15 | 1456.69 | 1460.20 | 1459.89 | λ | 1439.48 | 1439.58 | A | 1432.07 | 1433.98 | 1442.15 | 1439.74 | 1436.66 |
| 16 | 1456.70 | 1460.19 | 1459.86 | A | 1438.78 | 1439.34 | 1420.67 | 1431.71 | 1434.25 | 1442.26 | 1439.46 | 1437.17 |
| 17 | 1456.69 | 1460.19 | A | A | 1438.62 | 1439.37 | 1419.61 | 1432.13 | 1434.63 | 1443.21 | 1439.61 | 1437.59 |
| 18 | 1458.37 | 1460.18 | A | λ | 1438.46 | 1438.51 | 1419.93 | 1432.61 | 1434.97 | 1444.16 | 1439.31 | 1438.10 |
| 19 | 1459.45 | 1460.19 | A | A | 1437.53 | 1437.36 | 1420.37 | 1433.15 | 1435.23 | 1444.21 | 1438.82 | 1437.26 |
| 20 | 1458.51 | 1460.47 | A | A | 1437.71 | 1436.33 | 1420.86 | 1433.47 | 1434.94 | 1444.55 | 1439.16 | 1437.96 |
| 21 | 1459.22 | 1460.27 | A | A | 1437.80 | 1434.71 | 1421.14 | 1433.47 | 1435.32 | 1444.56 | 1439.70 | 1437.63 |
| 22 | 1459.89 | 1460.26 | λ | A | 1437.84 | 1434.25 | 1420.97 | 1433.82 | 1435.54 | 1443.12 | 1440.01 | 1438.30 |
| 23 | 1459.90 | 1460.19 | A | A | 1437.54 | 1434.32 | 1421.39 | 1434.16 | 1435.78 | 1442.08 | 1440.78 | 1437.80 |
| 24 | 1460.53 | 1460.18 | λ | 1442.16 | 1437.63 | 1433.96 | 1421.78 | 1434.50 | 1436.04 | 1442.24 | 1441.29 | 1436.77 |
| 25 | 1460.76 | 1460.19 | λ | 1440.89 | 1437.75 | 1433.26 | 1422.27 | 1434.86 | 1436.27 | 1442.49 | 1441.92 | 1435.98 |
| 26 | 1460.93 | 1460.16 | A | 1440.75 | 1437.89 | 1432.56 | 14,22.74 | 1435.20 | 1436.52 | 1442.60 | 1441.31 | 1434.74 |
| 27 | 1460.72 | 1460.16 | A | 1440.31 | 1437.97 | 1431.75 | 1422.35 | 1435.50 | 1436.74 | 1442.61 | 1440.77 | 1434.78 |
| 28 | 1460.72 | 1460.16 | A | 1440.31 | 1437.98 | 1430.57 | 1422.84 | 1434.56 | 1436.99 | 1442.61 | 1440.16 | 1435.25 |
| 29 | 1460.60 | 1460.16 | A | 1438.79 | | 1430.11 | 1423.27 | 1434.82 | 1437.22 | 1441.92 | 1439.74 | 1435.42 |
| 30 | 1460.28 | 1460.15 | À | 1438.24 | | 1429.07 | 1423.72 | 1434.94 | 1437.44 | 1441.19 | 1438.97 | 1435.78 |
| 31 | 1460.27 | | λ | 1437.94 | | 1427.12 | | 1434.89 | | 1440.72 | 1438.91 | |
| MBAN | 1455.36 | 1460.24 | | | 1438.39 | | | | 1434.62 | 1441.89 | 1441.58 | 1437.36 |
| MAX | 1460.93 | 1460.47 | | | 1439.48 | | | | 1437.44 | 1444.56 | 1445.38 | 1439.68 |
| MIN | 1447.35 | 1460.15 | | | 1437.53 | | | | 1431.84 | 1437.77 | 1438.82 | 1434.74 |

A No gage-height record.

50143000 RIO GRANDE DE AÑASCO NEAR LARES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'26", long 66°55'00", at bridge on Highway 124, 0.7 mi (1.1 km) downstream from confluence of Río Blanco and Río Prieto, and 3.7 mi (6.0 km) southwest of Lares plaza.

DRAINAGE AREA.--26.3 mi² (68.1 km²) this does not include 36.2 mi² (93.8 km²) which contributes only during high floods, and 3.5 mi² (9.1 km²) which contributes only part of its storm runoff.

PERIOD OF RECORD. -- Water years 1959-68, 1970 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIM | DIS- CHARGE, INST. CUBIC FRET PER SECONI | CIFIC CON- DUCT- ANCE | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|--|--|--|--|---|--|---|--|---|---|---|
| OCT 1990 30 | 1330 | 461 | 218 | 8.3 | 25.5 | 14 | 7.3 | 92 | 13 | 810 | 510 |
| DEC 27 | 0830 | | 278 | 8.1 | 19.5 | 3.0 | | 110 | 10 | 310 | 480 |
| FRB 1991 | | | | | | | | | | | |
| 20 APR | 0845 | | 270 | 8.0 | 21.0 | 4.0 | | 100 | 10 | 260 | 870 |
| 18 Jun | 1355 | | 276 | 8.4 | 26.5 | 4.0 | 8.0 | 98 | 14 | K91 | K73 |
| 11 AUG | 1345 | 38 | 264 | 8.5 | 29.5 | 1.7 | 9.2 | 120 | 12 | K40 | K10 |
| 09 | 1200 | 55 | 301 | 8.2 | 26.5 | 4.5 | 7.8 | 96 | 18 | 280 | 500 |
| DATE | HARD- NESS TOTAI (MG/I AS CACO3 | NONCARE WH WAT TOT FLE MG/L AS | DIS- SOLVED | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIU AD- SORP- TION RATIO | SIUM, DIS- SOLVED | WAT WH TOT FET | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1990 30 | • | 15 0 | 23 | 6.7 | 9.0 | 0. | 4 2.0 | 80 | <0.5 | 10 | 11 |
| DEC 27 | ` | | | | | | | 110 | | | |
| FRB 1991 20 | | | | | | | | | | | |
| APR | 12 | | 31 | | | | | 110 110 | <0.5 | 17 | 12 |
| 18 Jun | | | | 9.2 | 12 | 0. | | | <0.5 | - | |
| 11 AUG | | | | | | | | 100 | | | |
| 09 | 11 | .0 0 | 31 | 8.4 | 11 | 0. | 5 1.5 | 100 | | 17 | 9.6 |
| | DATE 1990 | RIDE, I DIS- S SOLVED ((MG/L AS F) S | ILICA, SUM DIS- CON BOLVED TUE (MG/L D AS SC SIO2) (M | ISTI- D INTS, SO DIS- (T DLVED P IG/L) D | IDS, TOT IS- AT ILVED DEG ONS SU PER PEN IAY) (M | 105 . C, N s- DED G/L) | GEN, ITRATE NI TOTAL T (MG/L (I AS N) A | GEN, G TRITE NO2 OTAL TO MG/L (M S N) AS | EEN, G +NO3 AMM TAL TO G/L (M | EN, GONIA ORG TAL TO G/L (M | TRO- EN, ANIC TAL G/L N) |
| DEC | | <0.10 | 25 | 140 17 | | 26 | | | | | 0.48 |
| PEB | 7 1991 | | | | | <1 | | | | . 010 | |
| APR | D | | | | | <1 | | | | | 0.18 |
| JUN | B | 0.10 | 28 | 177 1 | .0.7 | 13 | 0.210 | | | | 0.28 |
| λŪG | 1 | | | | | 5 | 0.380 | 0.010 | | | 0.19 |
| 0: | 9 | <0.10 | 33 | 171 2 | 5.3 | 6 | 1.390 | 0.010 1 | 40 0 | .020 | 0.18 |
| K = | non-ideal | count | | | | | | | | | |

RIO GRANDE DE AÑASCO BASIN

50143000 RIO GRANDE DE AÑASCO NEAR LARES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 30 | 0.50 | 1.3 | 5.8 | 0.050 | ∢1 | <100 | <10 | <1 | <1 | 10 |
| 27 FEB 1991 | <0.20 | | | 0.010 | | | | | | |
| 20 APR | 0.20 | 0.90 | 4.0 | 0.030 | | | | | | |
| 18 JUN | 0.30 | 0.53 | 2.3 | 0.040 | <1 | <100 | <10 | <1 | <1 | <10 |
| 11 AUG | 0.20 | 0.59 | 2.6 | 0.050 | | | | | | |
| 09 | 0.20 | 1.6 | 7.1 | 0.030 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 30 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | LENE BLUE ACTIVE SUB- STANCE |
| OCT 1990 30 DEC 27 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 30 DEC 27 FEB 1991 20 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 30 DEC 27 FRB 1991 20 APR 18 | TOTAL RECOV- ERABLE (UG/L AS FE) 1300 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 30 DEC 27 FEB 1991 20 | TOTAL RECOV- ERABLE (UG/L AS FE) 1300 | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL ROCOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- REABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) | TOTAL (UG/L) 5 | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.02 |

50144000 RIO GRANDE DE ANASCO NEAR SAN SEBASTIAN, PR

LOCATION.--Lat 18°17'85", long 67°03'05", Hydrologic Unit 21010003, on right bank, at downstream side of bridge on Highway 108, 0.4 mi (0.6 km) downstream from Quebrada La Zumbadora, 4.4 mi (7.1 km) northwest of Las Marías, 5.4 mi (8.7 km) southwest of San Sebastián.

DRAINAGE AREA.--94.3 mi² (244.2 km²), does not include 36.2 mi² (93.8 km²) which contributes only during high floods, and 3.5 mi² (9.1 km²) which contributes only part of its storm runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- March 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 103.72 ft (31.614 m) above mean sea level (Puerto Rico Department of Public Works bench mark). Previous to Oct. 30, 1975, at site 600 ft (180 m) upstream at same datum.

REMARKS.--Records fair. Transbasin diversion (except during floods) to Río Yauco basin for hydroelectric power and irrigation above Lago Guayo, Yahuecas, and Prieto, combined useable storage 17,300 acre-ft (21.3 hm²). Limited storar runoff is contributed to basin by 3.5 mi² (9.1 km²) above Río Toro Diversion dam. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--28 years (1964-91), 310 ft³/s (8.779 m³/s), 44.64 in/yr (1,134 mm/yr), 224,600 acre-ft/yr (277 hm³/yr); median of yearly mean discharges, 304 ft³/s (8.61 m³/s), 220,000 acre-ft/yr (271 hm³/yr).

EXTREMES FOR PERIOD OF RECORD. --Maximum discharge, 140,000 ft³/s (3,960 m³/s), Sept. 16, 1975, gage height, 33.9 ft (10.333 m), from rating curve extended above 4,000 ft³/s (113 m³/s) on basis of slope-area measurement, minimum discharge, 31 ft³/s (0.878 m³/s), Apr. 19, 20, 1965.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 6,000 ft³/s (170 m³/s) and maximum (*):

| | | Disc | harge | Gage 1 | height | | | Die | charge | Gage h | eight |
|----------|------|---------|---------------------|--------|--------|---------|------|---------|--------|--------|-------|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 17 | 1745 | 8,570 | 243 | 8.65 | 2.636 | Aug. 5 | 1700 | *13,800 | 391 | *10.93 | 3.331 |
| May 12 | 2200 | 6,930 | 196 | 7.79 | 2.374 | Aug. 21 | 1755 | 6,150 | 174 | 7.35 | 2.240 |
| สินโช 28 | 1715 | 6.220 | 176 | 7.39 | 2.252 | - | | | | | |

Minimum discharge, 60 ft3/s (1.699 m3/s), Apr. 22-25.

| | | DI SCHARGE | , CUBIC | FRRT PER | | | YEAR OCTOBER | 1990 TO | SEPTEMBER | 1991 | | |
|--------|-------------|------------|---------|----------|------|----------|--------------|---------|-----------|-------|-------|-------|
| | | | | | DAIL | A MBYN . | VALUES | | | | | |
| DAY | OCT | NOV | DEC | JAN | PEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 1210 | 496 | 246 | 156 | 101 | 84 | | 266 | 169 | 390 | 1010 | 455 |
| 2 | 1420 | 449 | 238 | 149 | 99 | 81 | | 330 | 159 | 239 | 574 | 339 |
| 3 | 962 | 421 | 242 | 144 | 113 | 77 | | 384 | 150 | 190 | 405 | 267 |
| 4 | 530 | 432 | 240 | 144 | 143 | 76 | | 509 | 144 | 286 | 746 | 241 |
| 5 | 439 | 599 | 231 | 139 | 181 | 74 | 253 | 919 | 141 | 188 | 2690 | 225 |
| 6 | 408 | 578 | 226 | 138 | 156 | 76 | | 753 | 137 | 159 | 1010 | 217 |
| 7 8 | 577 | 410 | 220 | 133 | 113 | 76 | | 277 | 133 | 170 | 464 | 701 |
| | 896 | 370 | 215 | 129 | 106 | 81 | | 252 | 124 | 728 | 368 | 480 |
| 9 | 584 | 349 | 213 | 131 | 98 | 79 | | 468 | 132 | 390 | 313 | 283 |
| 10 | 932 | 333 | 213 | 128 | 132 | 73 | 72 | 914 | 128 | 211 | 279 | 247 |
| 11 | 842 | 331 | 210 | 126 | 182 | 74 | 74 | 1650 | 115 | 173 | 257 | 310 |
| 12 | 67 8 | 360 | 207 | 125 | 132 | 83 | | 2030 | 112 | 156 | 249 | 466 |
| 13 | 733 | 352 | 232 | 127 | 159 | 78 | | 1170 | 110 | 149 | 250 | 518 |
| 14 | 972 | 337 | 491 | 123 | 135 | 74 | | 661 | 113 | 141 | 354 | 282 |
| 15 | 1520 | 331 | 229 | 121 | 110 | 71 | 70 | 362 | 212 | 168 | 382 | 254 |
| 16 | 1700 | 329 | 217 | 116 | 98 | 69 | | 293 | 149 | 305 | 368 | 418 |
| 17 | 2490 | 367 | 199 | 114 | 95 | 67 | | 413 | 157 | 317 | 283 | 334 |
| 18 | 1750 | 327 | 188 | 113 | 92 | 68 | | 396 | 744 | 357 | 235 | 274 |
| 19 | 2230 | 311 | 184 | 108 | 108 | 69 | | 474 | 258 | 340 | 211 | 260 |
| 20 | 1070 | 646 | 178 | 107 | 119 | 72 | 66 | 1010 | 182 | 222 | 480 | 605 |
| 21 | 1390 | 624 | 178 | 107 | 103 | 68 | | 526 | 192 | 183 | 867 | 1020 |
| 22 | 1030 | 338 | 176 | 107 | 93 | 74 | | 305 | 185 | 170 | 382 | 579 |
| 23 | 770 | 302 | 173 | 108 | 89 | 84 | | 257 | 175 | 341 | 404 | 319 |
| 24 | 697 | 285 | 169 | 107 | 88 | 75 | | 229 | 131 | 207 | 282 | 269 |
| 25 | 1230 | 315 | 167 | 103 | 97 | 67 | 95 | 211 | 116 | 176 | 729 | 321 |
| 26 | 1970 | 354 | 161 | 101 | 87 | 129 | | 262 | 161 | 159 | 469 | 243 |
| 27 | 1500 | 279 | 160 | 101 | 84 | 294 | | 234 | 164 | 250 | 525 | 887 |
| 28 | 1090 | 264 | 155 | 99 | 82 | 117 | | 194 | 401 | 1210 | 366 | 439 |
| 29 | 915 | 254 | 152 | 96 | | 82 | | 181 | 615 | 351 | 294 | 310 |
| 30 | 782 | 247 | 152 | 95 | | 75 | 69 | 174 | 1130 | 228 | 258 | 260 |
| 31 | 586 | | 149 | 92 | | 71 | | 167 | | 975 | 674 | |
| TOTAL | 33903 | | 6411 | 3687 | 3195 | 2638 | | 16271 | 6839 | 9529 | 16178 | 11823 |
| mran | 1094 | 380 | 207 | 119 | 114 | 85.1 | | 525 | 228 | 307 | 522 | 394 |
| MAX | 2490 | 646 | 491 | 156 | 182 | 294 | | 2030 | 1130 | 1210 | 2690 | 1020 |
| MIN | 408 | 247 | 149 | 92 | 82 | 67 | | 167 | 110 | 141 | 211 | 217 |
| AC-FT | 67250 | | 2720 | 7310 | 6340 | 5230 | | 32270 | 13570 | 18900 | 32090 | 23450 |
| CFSM | 11.6 | | 2.19 | 1.26 | 1.21 | . 90 | | 5.57 | 2.42 | 3.26 | 5.53 | 4.18 |
| IN. | 13.37 | 4.49 | 2.53 | 1.45 | 1.26 | 1.04 | 1.17 | 6.42 | 2.70 | 3.76 | 6.38 | 4.66 |

CAL YR 1990 TOTAL 102607 MEAN 281 MAX 2490 MIN 44 AC-FT 203500 CFSM 2.98 IN. 40.48 WTR YR 1991 TOTAL 124840 MEAN 342 MAX 2690 MIN 58 AC-FT 247600 CFSM 3.63 IN. 49.25

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR--Continued (National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD. -- Water years 1963 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | ****** | IV Acimaria D | , | , ******* , | 001000 | | | | | |
|----------------|--|--|--|--|---|---|---|--|---|---|--|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FRET PER SECOND | ANCE | STAND- J ARD 1 | EMPER- ATURE VATER VEG C) | TUR BID ITY (NTU | - DIS- | CENT D SATUR- | COLI- FORM, FRCAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) | HARD- NESS TOTAL (MG/L AS CACO3) |
| OCT 1990 04 | 1230 | 519 | 208 | 7.4 | 25.5 | 17 | 7.8 | 95 | 20000 | 8600 | 86 |
| JAN 1991 10 | 1055 | 130 | 230 | 8.5 | 23.5 | 1. | | | 220 | K10 | 110 |
| APR | | | | _ | | | | | | | |
| 18 Jul | 1015 | 79 | 250 | 8.0 | 25.0 | 3. | 0 8.4 | 100 | 2200 | 250 | 110 |
| 23 | 1245 | 305 | 196 | 7.8 | 26.0 | 71 | 7.7 | 93 | K7100 | 2300 | 82 |
| DATE | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED | AD- SORP- TION S RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA LINIT WAT W TOT F FIRL MG/L CACO | Y H SULFAT BT DIS- D SOLVE AS (MG/L | DIS- D SOLVED (MG/L | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) |
| 04 | 22 | 7.6 | 8.1 | 0.4 | 1.5 | | 85 9.9 | 7.8 | <0.10 | 27 | 137 |
| JAN 1991 10 | 28 | 9.4 | 10 | 0.4 | 1.4 | 1 | 08 13 | 11 | <0.10 | 27 | 160 |
| APR 18 | 28 | 8.9 | 10 | 0.4 | | | 98 11 | 9.8 | 0.20 | 28 | 178 |
| JUL | | | | | 1.7 | | | | | | |
| 23 | 21 | 7.2 | 6.9 | 0.3 | 1.4 | | 76 8.4 | 7.4 | 0.30 | 23 | 103 |
| | SU CO TU DATE S | NSTI- I ENTS, SO DIS- ('OLVED | NITR LIDS, GEN DIS- NO2+N DLVED DIS FONS SOLV PER (MG/ DAY) AS N | , GEN, O3 AMMONI - DIS- ED SOLVI L (MG/I | , GI EA AMOM - D ED SO: L (M | ONIA | ORGANIC P TOTAL (MG/L | PHOS- PHO HORUS D TOTAL SO (MG/L (M | OS- PHO RUS OR IS- DI | RUS PH THO, OR S- D VED SO VL (M | OS- LATE, THO, IS- LVED G/L PO4) |
| 0 | 1990 4 1991 | 139 | 194 1. | 10 0.0 | 020 | 0.03 | 0.40 | 0.060 | 0.030 | 0.030 | 0.09 |
| | • • • | 169 | 59 0. | 500 0.0 | 020 | 0.03 | 0.50 | 0.030 | 0.040 < | 0.010 | |
| 18 | | 159 | 38.2 0. | 490 0.0 | 20 | 0.03 | 0.20 | 0.060 | 0.040 | 0.020 | 0.06 |
| JUL 23 | ••• | 126 | 84.8 0. | 900 0.0 | 040 | 0.05 | 0.50 | 0.110 | 0.040 | 0.030 | 0.09 |

K = non-ideal count

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR--CONTINUED (NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | ALUM- INUM, DIS- SOLVED (UG/L AS AL) | ARSENIC DIS- SOLVED (UG/L AS AS) | BARIUM, DIS- SOLVED (UG/L AS BA) | BERYL- LIUM, DIS- SOLVED (UG/L AS BE) | CADMIUM DIS- SOLVED (UG/L AS CD) | CHRO- MIUM, DIS- SOLVED (UG/L AS CR) | COBALT, DIS- SOLVED (UG/L AS CO) | COPPER, DIS- SOLVED (UG/L AS CU) | IRON, DIS- SOLVED (UG/L AS FE) | LEAD, DIS- SOLVED (UG/L AS PB) |
|----------------------------------|---|--|--|---|--|---|--|--|--|--|
| OCT 1990 | | | | | | | | | | |
| 04 JAN 1991 | 80 | <1 | 32 | <0.5 | <1.0 | 2 | <3 | 2 | 50 | 1 |
| 10 | 30 | <1 | 30 | <0.5 | <1.0 | 1 | <3 | 3 | 15 | 1 |
| APR 18 | 40 | <1 | 32 | <0.5 | <1.0 | <1 | <3 | 2 | 30 | 3 |
| JUL 23 | 110 | <1 | 33 | <0.5 | <1.0 | 2 | <3 | 5 | 200 | <1 |
| | | | | | | | | | | |
| DATE | LITHIUM DIS- SOLVED (UG/L AS LI) | MANGA- NESE, DIS- SOLVED (UG/L AS MN) | MERCURY DIS- SOLVED (UG/L AS HG) | MOLYB- DRNUM, DIS- SOLVED (UG/L AS MO) | NICKEL, DIS- SOLVED (UG/L AS NI) | SRLE- NIUM, DIS- SOLVED (UG/L AS SE) | SILVER, DIS- SOLVED (UG/L AS AG) | STRON- TIUM, DIS- SOLVED (UG/L AS SR) | VANA- DIUM, DIS- SOLVED (UG/L AS V) | ZINC, DIS- SOLVED (UG/L AS ZN) |
| OCT 1990 | DIS- SOLVED (UG/L AS LI) | NESE, DIS- SOLVED (UG/L AS MN) | DIS- SOLVED (UG/L AS HG) | DENUM, DIS- SOLVED (UG/L AS MO) | DIS- SOLVED (UG/L AS NI) | NIUM, DIS- SOLVED (UG/L AS SE) | DIS- SOLVED (UG/L AS AG) | TIUM, DIS- SOLVED (UG/L AS SR) | DIUM, DIS- SOLVED (UG/L AS V) | DIS- SOLVED (UG/L AS ZN) |
| | DIS- SOLVED (UG/L | NESE, DIS- SOLVED (UG/L | DIS- SOLVED (UG/L | DENUM, DIS- SOLVED (UG/L | DIS- SOLVED (UG/L | NIUM, DIS- SOLVED (UG/L | DIS- SOLVED (UG/L | TIUM, DIS- SOLVED (UG/L | DIUM, DIS- SOLVED (UG/L | DIS- SOLVED (UG/L |
| OCT 1990 04 JAN 1991 10 | DIS- SOLVED (UG/L AS LI) | NESE, DIS- SOLVED (UG/L AS MN) | DIS- SOLVED (UG/L AS HG) | DENUM, DIS- SOLVED (UG/L AS MO) | DIS- SOLVED (UG/L AS NI) | NIUM, DIS- SOLVED (UG/L AS SE) | DIS- SOLVED (UG/L AS AG) | TIUM, DIS- SOLVED (UG/L AS SR) | DIUM, DIS- SOLVED (UG/L AS V) | DIS- SOLVED (UG/L AS ZN) |
| OCT 1990 04 JAN 1991 | DIS- SOLVED (UG/L AS LI) | NESE, DIS- SOLVED (UG/L AS MN) | DIS- SOLVED (UG/L AS HG) | DENUM, DIS- SOLVED (UG/L AS MO) | DIS- SOLVED (UG/L AS NI) | NIUM, DIS- SOLVED (UG/L AS SE) | DIS- SOLVED (UG/L AS AG) | TIUM, DIS- SOLVED (UG/L AS SR) | DIUM, DIS- SOLVED (UG/L AS V) | DIS- SOLVED (UG/L AS ZN) |

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| | | STRRAM- FLOW, INSTAN- | SEDI- MENT, SUS- | SEDI- MENT, DIS- CHARGE, SUS- | SED. SUSP. SIEVE DIAM. PERCENT FINER |
|----------|------|-----------------------------|------------------------|---|---|
| DATE | TIME | TANEOUS (CFS) | PENDED (MG/L) | PENDED (T/DAY) | THAN .062 MM |
| OCT 1990 | | | | | |
| 04 | 1230 | 519 | 161 | 226 | 98 |
| JAN 1991 | | | | | |
| 10 | 1055 | 230 | | | |
| APR | | | | | |
| 18 | 1015 | 79 | 37 | 7.9 | 94 |
| JUL | | | | | |
| 23 | 1245 | 305 | 175 | 144 | 73 |

50146000 RIO GRANDE DE AÑASCO NEAR AÑASCO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°16'00", long 67°08'05", at bridge on Highway 430, 0.2 mi (0.3 km) south of Highway 109 at El Espino and 1.4 mi (2.3 km) east-southeast from Añasco plaza.

DRAINAGE AREA.--139 mi² (360 km²) this does not include 39.7 mi² (102.8 km²), flow is diverted to south

PERIOD OF RECORD. -- Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|----------------|---|---|---|--|--|---|---|---|---|--|--|
| NOV 1990 | | | | | | | | | | | |
| 05 JAN 1991 | 1330 | 1700 | 200 | 7.9 | 24.5 | 220 | 7.0 | 86 | 34 | K8000 | 6300 |
| 11 FRB 1991 | 0745 | 16 | 250 | 7.8 | 23.0 | 1.1 | 7.1 | 89 | <10 | K130 | 50 |
| 21 APR | 0730 | 143 | 245 | 7.8 | 23.5 | 15 | 7.1 | 89 | <10 | 2000 | 1100 |
| 17 | 0815 | 109 | 260 | 7.6 | 25.0 | 21 | 6.8 | 81 | 16 | 300 | 100 |
| JUN 12 | 0815 | 130 | 252 | 7.7 | 27.5 | 1.5 | 5.7 | 71 | <10 | 200 | 100 |
| AUG 08 | 0940 | R1200 | 278 | 7.5 | 27.0 | 29 | 5.1 | 63 | 26 | 6400 | 82 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 05 | 80 | | | | | | | | | | |
| JAN 1991 | 80 | 0 | 21 | 6.7 | 8.6 | 0.4 | 1.9 | 77 | <0.5 | 7.2 | 10 |
| 11 | | | | | | | | 110 | | | |
| FRB 1991 21 | | | | | | | | 100 | | | |
| APR 17 | 110 | 1 | 27 | 9.4 | 9.8 | 0.4 | 1.7 | 100 | <0.5 | 9.2 | 10 |
| JUN 12 | | | | | | | | 100 | | | |
| AUG 08 | 90 | 0 | 23 | 7.9 | 8.5 | 0.4 | 1.7 | 82 | | 7.2 | 8.1 |

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------------|--|---|---|---|---|--|--|--|--|--|
| NOV 1990 | | | | | | | | | | |
| 05 Jan 1991 | <0.10 | 27 | 132 | 608 | 302 | 1.08 | 0.020 | 1.10 | 0.090 | 1.0 |
| 11 FEB 1991 | | | | | <1 | 0.010 | 0.590 | 0.600 | 0.021 | 0.28 |
| 21 APR | | | | | 25 | 0.480 | 0.020 | 0.500 | 0.040 | |
| 17 JUN | 0.20 | 27 | 154 | 45.4 | 18 | 0.330 | 0.020 | 0.350 | 0.050 | 0.25 |
| 12 | | | | | <1 | 0.270 | 0.020 | 0.290 | 0.030 | 0.37 |
| 08 | <0.10 | 30 | 136 | | 43 | 0.970 | 0.010 | 0.980 | 0.050 | 0.45 |

K = non-ideal count
B = estimate

50146000 RIO GRANDE DE AÑASCO NEAR AÑASCO, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------------|--|---|---|---|--|---|---|---|--|--|
| NOV 1990 | | | | | | | | | | |
| 05 | 1.1 | 2.2 | 9.7 | 0.130 | <1 | <100 | <10 | 4 | 8 | 20 |
| JAN 1991 11 | 0.30 | 0.90 | | 0.030 | | | | | | |
| FRB 1991 | _ | | | | | | | | | |
| 21 APR | <0.20 | | | 0.060 | | | | | | |
| 17 JUN | 0.30 | 0.65 | 2.9 | 0.060 | <1 | <100 | <10 | <1 | <1 | 10 |
| 12 AUG | 0.40 | 0.69 | 3.1 | 0.060 | | | | | | |
| 08 | 0.50 | 1.5 | 6.6 | 0.070 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | MRTHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 05 | 7800 | 15 | 380 | 0.10 | <1 | <1 | 50 | <0.010 | 10 | 0.04 |
| JAN 1991 11 | | | | | | | | | | |
| FEB 1991 | | | | | | | | | | |
| 21 APR | | | | | | | | | | |
| 17 JUN | 1300 | 1 | 90 | <0.10 | <1 | <1 | <10 | <0.010 | 1 | 0.01 |
| 12 | | | | | | | | | | |
| AUG 08 | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | PESTICI | DE ANALYS | RS | | | | |
| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
| JUN 1991 12 | 0815 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| | 4413 | 10.1 | 40.010 | 40.1 | (0.010 | 40.010 | (0.010 | 40.01 | (0.010 | 40.010 |
| DATE | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTA - CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | METHYL TRI- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
| JUN 1991 | | | | | | | | | | |
| 12 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| DA? JUN 19: | (VG 91 | LEN A- POI ON, CHI AL TOT (/L) (UG/ | IA- IBS, IY- PE IOR. THA I'AL TOT I'L) (UG | NE APHE AL TOT (U) | 'AL THI S/L) (UG | II- 2,4 ON TOT I/L) (UG | AL TOT | I/L) (UG/ | AL TOT L) (UG | AL S/L) |
| 12 | . <0 | .01 <0 | .10 | 0.1 | :1 <0 | .01 <0 | .01 <0 | 0.01 <0 | .01 <0 | .01 |

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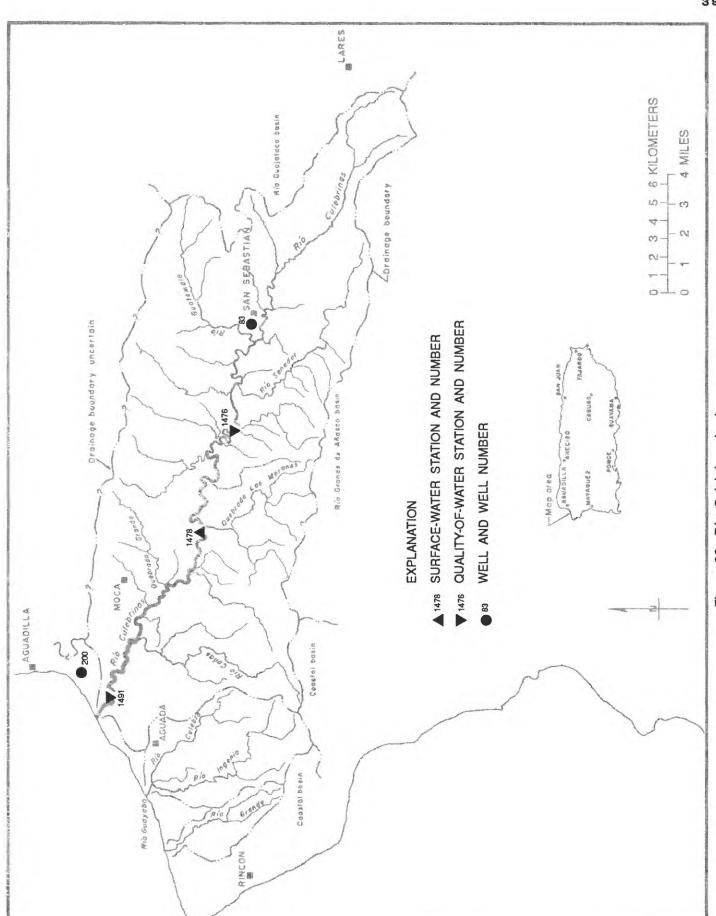


Figure 26.--Río Culebrinas basin.

50147600 RIO CULEBRINAS NEAR SAN SEBASTIAN, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'51", long 67°02'40", at bridge on Highway 423, 1.3 mi (2.1 km) south of Quebrada El Salto Bridge on Highway 111, and 2.1 mi (3.4 km) west of Central La Plata.

DRAINAGE AREA. -- 58.2 mi2 (150.7 km2).

PERIOD OF RECORD .-- Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | DATE | | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMP ATU WAT (DEG | re Er | TUR- BID- ITY (NTU) | OXYGI DII SOLV (MG, | 2N, (1 3- (7ED S | YGEN, DIS- OLVED PER- CENT ATUR- FION) | OXYGI DEMAN CHEN ICAN (HIC LEVEN (MG/I | (D, (- 3H (-) (| COLI- FORM, FECAL, 0.45 UM-MF COLS./ | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----|--------------|------|---|---|---|--|---|--|---|--|--|--|--|--|---|---|
| 00 | T 1990 | | | | | | | | | | | | | | | |
| DE | 29 C | | 1230 | 146 | 332 | 8.1 | 2 | 5.5 | 10 | 7. | .1 | 92 | | 13 | K1100 | 320 |
| PE | 28 | | 0945 | 74 | 276 | 8.0 | 2 | 2.0 | 4.6 | 8. | . 5 | 102 | | 11 | K460 | 510 |
| | 20 | | 1105 | 21 | 306 | 7.6 | 2 | 2.5 | 27 | 8 | . 6 | 104 | | :10 | 260 | 340 |
| AE | 17 | | 1415 | 21 | 306 | 7.9 | 2 | 6.5 | 4.0 | 8. | . 8 | 107 | | 13 | 380 | 560 |
| JU | N 12 | | 1330 | 51 | 318 | 8.0 | 2 | 7.5 | 15 | 8 | .0 | 99 | | 10 | 2000 | 410 |
| JA | 1G | | | | | | | | | | | | | | | - 155 |
| | 08 | | 1445 | 129 | 329 | 8.0 | 2 | 8.0 | 10 | 7 | . 6 | 95 | | 16 | K1600 | 550 |
| | DATE | | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARE WH WAT TOT FLD MG/L AS CACO3 | DIS- | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | (MG | ED, | SODIUM AD- SORP- TION RATIO | POTE SIL DIS SOLV (MG, AS I | AS- LII JM, WA' S- TO' /ED F: /L MG, | LKA- NITY F WH F FET IELD /L AS ACO3 | SULFI TOTA (MG, AS A | LDE | ULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| 00 | T 1990 29 | | 140 | 0 | 49 | 5.3 | 11 | | 0.4 | 1 | | 130 | -1 | 0.5 | 13 | 13 |
| DE | SC. | | | | | | | | | | | | | | | |
| 37 | 28 N 1991 | | | | | | | - | | | • | 130 | | • | | |
| A | 11 | | | | | | - | - | | | • | 110 | | - | | |
| | 17 | | 110 | 0 | 36 | 5.1 | 17 | | 0.7 | 2 | . 8 | 110 | <(| .5 | 14 | 15 |
| JU | 12 | | | | | | - | + | | | | 120 | | | | |
| AU | 08 | | 130 | 1 | 42 | 5.1 | 11 | | 0.4 | 2. | .3 | 110 | | | 11 | 11 |
| | | | | | - | 5,57 | | | | | | | | | | |
| | | DATE | RI D SO | DE, D IS- S LVED (IG/L | LICA, SUI DIS- COI OLVED TUI MG/L I AS SO | NSTI- ENTS, S DIS- (' | LIDS, DIS- OLVED TONS PER DAY) | RESID TOTAL AT 10 DEG. SUS- PENDE (MG/ | S C, NI D (| ITRO- GEN, TRATE OTAL MG/L 8 N) | NITRO- GEN, NITRITI TOTAL (MG/L AS N) | G NO2 TO (M | TRO- EN, +NO3 TAL G/L | NITR GEN AMMON TOTA (MG/ AS N | I, GIA ORG L TO L (M | TRO- SEN, SANIC TAL G/L S N) |
| | | 1990 | | | | | | | | | | | | | | |
| | DEC. | 9 | < | 0.10 | 26 | 202 | 80 | | 17 | 1.07 | 0.03 | 0 1 | .10 | 0.0 | 30 | 0.27 |
| | 21 | 1001 | | | | | | | <1 | 1.28 | 0.02 | 0 1 | .30 | 0.0 | 20 | 0.28 |
| | 1: | 1991 | | | | | | | 8 | 0.780 | 0.02 | 0 0 | .800 | 0.0 | 50 | 0.25 |
| | APR 1 | 7 | | 0.20 | 35 | 191 | 10.8 | | 6 | 1.25 | 0.05 | 0 1 | .30 | 0.0 | 40 | 0.36 |
| | JUN 1 | · | | | | | | | 8 | 1.05 | 0.05 | 0 1 | .10 | 0.0 | 50 | 0.65 |
| | AUG | B | | 0.10 | 27 | | | | | | 0.02 | | | 0.0 | | 0.36 |
| | 01 | | · · · · · | 0.10 | 41 | 1/5 | 61.1 | | 16 | 1.18 | 0.02 | J | .20 | 0.0 | -0 | U. 36 |

RIO CULEBRINAS BASIN

50147600 RIO CULEBRINAS MEAR SAN SEBASTIAN, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|--|---|---|---|---|--|---|---|---|--|--|
| OCT 1990 | | | | | | | | | | |
| 29 DEC | 0.30 | 1.4 | 6.2 | 0.050 | <1 | <100 | 20 | <1 | 1 | <10 |
| 28 JAN 1991 | 0.30 | 1.6 | 7.1 | 0.080 | | | | | | |
| 11 APR | 0.30 | 1.1 | 4.9 | 0.050 | | | | | | |
| 17 | 0.40 | 1.7 | 7.5 | 0.170 | 1 | <100 | 20 | <1 | <1 | <10 |
| JUN 12 | 0.70 | 1.8 | 8.0 | 0.110 | | | | | | |
| 98 | 0.40 | 1.6 | 7.1 | 0.090 | | | | | | |
| | | | | | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LRAD, TOTAL RECOV- RRABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RRCOV- RRABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| ост 1990 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- RRABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- RRABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 | TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- RRABLE (UG/L | NESE, TOTAL RECOV- ERABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | NIUM, TOTAL (UG/L | TOTAL RECOV- RRABLE (UG/L | TOTAL RECOV- ERABLE (UG/L | TOTAL (MG/L | TOTAL | LENE BLUE ACTIVE SUB- STANCE |
| OCT 1990 29 DEC 28 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- RRABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- RRABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 DEC 28 JAN 1991 11 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- RRABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- RRABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) | TOTAL (MG/L AS CN) | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 DEC 28 JAN 1991 11 APR 17 | TOTAL RECOV- ERABLE (UG/L AS FR) | TOTAL RECOV- RRABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- RRABLE (UG/L AS HG) <0.10 | NIUM, TOTAL (UG/L AS SE) | TOTAL RECOV- ERABLE (UG/L AS AG) | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| OCT 1990 29 DEC 28 JAN 1991 11 | TOTAL RECOV- ERABLE (UG/L AS FE) | TOTAL RECOV- ERABLE (UG/L AS PB) | NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | TOTAL RECOV- ERABLE (UG/L AS HG) | NIUM, TOTAL (UG/L AS SE) <1 | TOTAL RECOV- RRABLE (UG/L AS AG) <1 | TOTAL RECOV- ERABLE (UG/L AS ZN) <10 | TOTAL (MG/L AS CN) <0.010 | TOTAL (UG/L) | LENE BLUE ACTIVE SUB- STANCE (MG/L) 0.01 |

50147800 RIO CULEBRINAS AT HIGHWAY 404 NEAR MOCA, PR

LOCATION.--Lat 18°21'42", long 67°05'33", Hydrologic Unit 21010003, on right bank, at bridge on Highway 404, 0.3 mi (0.5 km) downstream from Quebrada Yagruma, and 2.8 mi (4.5 km) southeast of Moca.

DRAINAGE AREA. -- 71.2 mi 2 (184.4 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD .-- July 1967 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 45 ft (14 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--24 years (1968-91), 297 ft³/s (8.411 m³/s), 56.65 in/yr (1,439 mm/yr), 215,200 acre-ft/yr (265 hm³/yr); median of yearly mean discharges, 284 ft³/s (8.04 m³/s), 206,000 acre-ft/yr (254 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,000 ft²/s (1,950 m³/s), Sept. 16, 1975, gage height, 36.6 ft (11.156 m) from slope-area measurement, but may have been exceeded by flood of Oct. 23, 1974, from rating curve extended above 2,600 ft³/s (73.6 m³/s) on basis of slope-area and contracted-opening measurements of peak flow; minimum discharge, 16 ft³/s (0.453 m³/s), Apr. 17-19, 1979.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 11,300 ft³/s (320 m³/s) and maximum (*):

| | | Disc | harge | Gage | height | | | Discha | rge | Gage 1 | height |
|---------|------|---------|--------|--------|--------|----------|------|---------|--------|--------|--------|
| Date | Time | (ft³/s) | (m³/s) | (ft) | (m) | Date | Time | (ft³/s) | (m³/s) | (ft) | (m) |
| Oct. 16 | 1845 | 17,200 | 487 | 25.10 | 7.650 | Aug. 16 | 2000 | 16,100 | 456 | 24.71 | 7.532 |
| May 17 | 1900 | *20,500 | 580 | *26.28 | 8.010 | Sept. 8 | 2000 | 14,200 | 400 | 23.91 | 7.288 |
| May 20 | 2115 | 12,400 | 351 | 23.10 | 7.041 | Sept. 27 | 2200 | 15,200 | 430 | 24.32 | 7.413 |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Minimum discharge, 26 ft3/s (0.736 m3/s), Apr. 1, 2.

| | | DI DOLLING | L, CODIC | | DAILY | MEAN VA | LURS | JAN 1990 10 | | 2002 | | |
|--------|-------|-------------|----------|--------------|------------|----------|--------|-------------|--------------|--------------|--------------|--------------|
| DAY | OCT | MOA | DEC | JAN | PEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 466 | 652 | 129 | 100 | 43 | 37 | 27 | 51 | 103 | e 660 | e 500 | 847 |
| 2 | 222 | 247 | 124 | 75 | 42 | 35 | 28 | 77 | 102 | e 500 | e720 | 389 |
| 3 | 132 | 202 | 130 | 72 | 43 | 34 | 256 | 187 | 101 | e210 | e740 | 268 |
| 4 | 135 | 797 | 126 | 70 | 57 | 33 | 333 | 332 | 91 | e155 | e350 | 225 |
| 5 | 123 | 718 | 118 | 68 | 71 | 32 | 161 | 133 | 89 | e180 | e4 00 | 204 |
| 6 | 114 | 393 | 116 | 67 | 65 | 32 | 62 | 139 | 95 | e 170 | e1500 | 190 |
| 7 | 180 | 372 | 112 | 65 | 51 | 31 | 48 | 75 | 87 | e125 | e1000 | 757 |
| 8 | 326 | 384 | 109 | 64 | 46 | 33 | 43 | 65 | 83 | e123 | e450 | 2240 |
| ğ | 139 | 260 | 109 | 62 | 45 | 33 | 41 | 298 | 164 | e300 | e 300 | e224 |
| 10 | 166 | 211 | 107 | 63 | 55 | 30 | 39 | 259 | 197 | e4 50 | e250 | e181 |
| 11 | 145 | 194 | 105 | 61 | 79 | 31 | 39 | 115 | 106 | e 200 | e215 | e163 |
| 12 | 176 | 184 | 103 | | 7⋟ 58 | | | 167 | | e140 | e195 | e278 |
| 13 | 444 | 169 | 113 | 61 | | 32 | 39 | | 90 | e120 | e188 | e337 |
| | | | | 64 | 51 | 31 | 37 | 127 | 81 | | | e210 |
| 14 | 303 | 160 | 239 | 58 | 47 | 30 | 36 | 197 | 76 | e113 | e185 | |
| 15 | 600 | 152 | 129 | 57 | 45 | 30 | 35 | 438 | 99 | e1 06 | 247 | e180 |
| 16 | 3630 | 262 | 102 | 55 | 44 | 29 | 38 | 831 | 196 | e120 | 3110 | e1 60 |
| 17 | 1510 | 800 | 98 | 55 | 42 | 28 | 40 | 5060 | 154 | e1 80 | 912 | e270 |
| 18 | 657 | 281 | 94 | 52 | 42 | 29 | 71 | 677 | 109 | e232 | e270 | e21 0 |
| 19 | 837 | 260 | 91 | 49 | 44 | 29 | 62 | 377 | e 300 | e2 50 | e2 07 | e170 |
| 20 | 367 | 184 | 91 | 52 | 88 | 28 | 61 | 2070 | e4 00 | e255 | 898 | e160 |
| 21 | 680 | 178 | 91 | 49 | 61 | 29 | 42 | 1190 | e180 | e1 90 | 760 | e 390 |
| 22 | 382 | 153 | 90 | 49 | 50 | 31 | 39 | 484 | e132 | e145 | 948 | e620 |
| 23 | 316 | 141 | 88 | 46 | 45 | 35 | 39 | 236 | e1 30 | e130 | 459 | e190 |
| 24 | 263 | 136 | 87 | 46 | 40 | 30 | 39 | 189 | e125 | e2 00 | 269 | 162 |
| 25 | 288 | 1320 | 86 | 45 | 50 | 29 | 65 | 167 | e105 | e250 | 269 | 1190 |
| 26 | 580 | 262 | 82 | 46 | 41 | 30 | 142 | 181 | e84 | e135 | 378 | 467 |
| 27 | 254 | 167 | 80 | 44 | 38 | 47 | 64 | 150 | e 98 | e124 | 1410 | 2550 |
| 28 | 225 | 151 | 78 | 43 | 36 | 35- | 90 | 127 | e115 | e150 | 2110 | 1300 |
| 29 | 317 | 140 | 78 | 42 | | 29 | 84 | 117 | e2 30 | e 600 | 378 | 333 |
| 30 | 279 | 133 | 76 | 42 | | 28 | 57 | 111 | e4 00 | e4 50 | 501 | 237 |
| 31 | 247 | | 78 | 42 | | 28 | | 105 | | e 200 | 1070 | |
| TOTAL | 14503 | 9663 | 3259 | 1064 | | | 0455 | 14732 | 4322 | 7163 | 21189 | 15102 |
| MEAN | 468 | 322 | 105 | 1764 56.9 | 1419 | 978 | 2157 | 475 | 144 | 231 | 684 | 503 |
| | | | | | 50.7 | 31.5 | 71.9 | | | | | |
| MAX | 3630 | 1320 | 239 | 100 | 88 | 47 | 333 | 5060 | 400 | 660 | 3110 | 2550 |
| MIN | 114 | 133 | 76 | 42 | 36 | 28 | 27 | 51 | 76 | 106 | 185 | 160 |
| AC-FT | 28770 | 19170 | 6460 | 3500 | 2810 | 1940 | 4280 | 29220 | 8570 | 14210 | 42030 | 29950 |
| CFSM | 6.57 | 4.52 | 1.48 | . 80 | .71 | .44 | 1.01 | 6.67 | 2.02 | 3.25 | 9.60 | 7.07 |
| IN. | 7.58 | 5.05 | 1.70 | . 92 | .74 | .51 | 1.13 | 7.70 | 2.26 | 3.74 | 11.07 | 7.89 |
| CAL YR | 1990 | TOTAL 62284 | MRAN 17 | 1 MAX | 3630 MIN 2 | 24 AC-PT | 123500 | CFSM 2.40 | IN. 32. | .54 | | |

CAL YR 1990 TOTAL 62284 MEAN 171 MAX 3630 MIN 24 AC-FT 123500 CFSM 2.40 IN. 32.54 WTR YR 1991 TOTAL 96251 MEAN 264 MAX 5060 MIN 27 AC-FT 190900 CFSM 3.70 IN. 50.29

e Estimate

50149100 RIO CULBBRINAS NEAR AGUADA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat $18^{\circ}24'03^{\circ}$, long $67^{\circ}09'40^{\circ}$, at bridge on Highway 2, and 2.3 mi (3.7 km) northeast of Aguada plaza. DRAINAGE AREA.--97.0 mi² (251.2 km²).

PERIOD OF RECORD. -- Water years 1958, 1970 to current year.

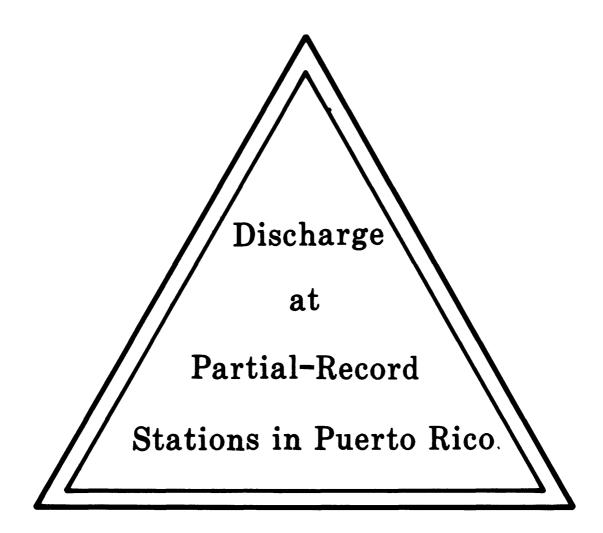
WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | WATI | EK-GOALITI | DATA, WA | TER IBAR | OCTOBER | 1990 TO 81 | EPTEMBER 1 | .991 | | |
|----------------|---|---|---|--|---|---|---|---|---|---|---|
| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI+ FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
| NOV 1990 06 | 1145 | 590 | 330 | 7.9 | 25.0 | 6.5 | 7.6 | 30 | 30 | K10000 | 4900 |
| JAN 1991 | | | | | | | | | | _ | |
| 11 FEB | 0745 | 74 | 303 | 8.0 | 24.0 | 94 | 7.0 | 80 | <10 | 390 | K163 |
| 21 APR | 1030 | 81 | 326 | 7.9 | 24.0 | 1.6 | 7.0 | 81 | 10 | 2400 | 310 |
| 17 JUN | 1140 | 44 | 331 | 7.5 | 27.0 | 15 | 4.7 | 58 | 20 | K1200 | 540 |
| 12 | 1115 | 111 | 342 | 7.8 | 27.5 | 17 | 4.3 | 53 | 24 | 600 | 800 |
| 08 | 1230 | 234 | 352 | 7.7 | 28.0 | 17 | 4.9 | 61 | 18 | K200 | K1600 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD 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) | SODIUM AD- SORP- TION RATIO | FOTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| NOV 1990 06 | 150 | 0 | 53 | 5.3 | 9.4 | 0.3 | 3 2.7 | 140 | <0.5 | 14 | 12 |
| JAN 1991 | | | | | | | | 130 | | | |
| 11 FEB | | | | | | | | | | | |
| 21 APR | | | | | | | | 120 | | | |
| 17 Jun | 130 | 0 | 43 | 6.1 | 16 | 0.0 | 3.2 | 130 | <0.5 | 11 | 19 |
| 12 AUG | | | | | | | | 130 | | | |
| 08 | 130 | 0 | 44 | 5.7 | 11 | 0.4 | 2.4 | 130 | | 9.0 | 12 |
| | RI E SC DATE (M AS | DR, DI DIS- SC DLVRD (1) IG/L 1 | S 80 | of soi eti- i ets, so is- (t lved f | LIDS, TOT DIS- AT DLVED DEG TONS SU PER PEN | 105 . C, NI S- 1 | GEN, CITRATE NIT | EEN, G TRITE NO2 STAL TO GG/L (M | EN, G +NO3 AMM TAL TO G/L (M | EN, G ONIA ORG TAL TO G/L (M | TRO- EN, ANIC TAL G/L N) |
| NOV : | | 0.20 2 | 11 | 207 33 | 0 | 145 | 0.780 | 0.020 0 | .800 0 | . 120 | 0.98 |
| JAN 1 | | | | · - | | 4 | 0.390 |).010 0 | .400 0 | .030 | 0.47 |
| FEB 21. | | | . | | | 12 | |).130 1 | .10 0 | . 080 | 0.32 |
| APR 17. | | :0.10 3 | 16 | 212 2 | 5.1 | 12 | | | | | 0.39 |
| JUN | | .v.10 3 | | | | | | | | | |
| AUG | | | | · - | | 15 | | | | | 0.62 |
| 08. | | | 19 | 191 12 | 1 | 68 | 0.930 | 0.020 0 | .950 0 | . 070 | 0.53 |
| K = 1 | non-ideal d | ount | | | | | | | | | |

K = non-ideal count

50149100 RIO CULEBRINAS NEAR AGUADA, PR--Continued WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- BRABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------------|---|---|---|---|--|---|---|---|--|--|
| NOV 1990 | | | | | | | | | | |
| 06 | 1.1 | 1.9 | 8.4 | 0.120 | <1 | <100 | <10 | 9 | 5 | 40 |
| JAN 1991 11 | 0.50 | 0.90 | 4.0 | 0.020 | | | | | | |
| FEB 21 | 0.40 | 1.5 | 6.6 | 0.130 | | | | | | |
| APR 17 | 0.50 | 1.1 | 5.0 | 0.170 | <1 | <100 | <10 | 7 | 1 | 40 |
| JUN 12 | 0.70 | 1.5 | 6.7 | 0.130 | | | | | | |
| AUG 08 | | | | | | | | | | |
| 08 | 0.60 | 1.6 | 6.9 | 0.070 | | | | | | |
| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- BRABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
| NOV 1990 06 | 4200 | 39 | 190 | 0.10 | <1 | <1 | 100 | <0.010 | <1 | 0.01 |
| JAN 1991 11 | , | | | | | | | | | |
| FRB | | | | | | | | | | |
| 21 APR | | | | | | | | | | |
| 17 Jun | 690 | 8 | 70 | <0.10 | <1 | <1 | 60 | <0.010 | 2 | 0.03 |
| 12 AUG | | | | | | | | | | |
| 08 | | | | | | | | | | |
| | | | | 22.00 | | | | | | |
| | | | | PESTICI | DE ANALYS | ES | | | | |
| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- BLDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
| JUN 1991 12 | 1115 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | 0.02 | <0.010 | <0.010 |
| | | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | 101020 | 101020 | 101020 | | 101122 | 101020 |
| DATE | ENDRIN, TOTAL (UG/L) | BTHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | METHYL TRI- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
| JUN 1991 | 40 04 C | 40.04 | .0 046 | .0.010 | .0.046 | . 6 6 5 | .0.00 | .0 00 | .0.05 | .6.04 |
| 12 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| DAT JUN 199 | (VG | ON, CHL AL TOT | A- RS, Y- PE OR. THA AL TOT | NE APHE AL TOT | al thi | I- 2,4· | AL TOT | S-T 2, 4 AL TOT /L) (UG/ | al tot | AL |
| 12 | | .01 <0 | .10 < | 0.1 < | 1 <0 | .01 0 | .19 <0 | .01 <0 | .01 <0 | .01 |



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 useable in low-flow or floodflow 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 drought 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.

Low-flow partial-record stations

Measurements of streamflow in the areas covered by this report made at low-flow partial-record stations are given in the following table. 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 nearby stream when continuous records are available, will give a picture of the low-flow potentiality of stream.

Discharge measurements made at low-flow partial-records stations during water year 1991

PUBLICATION RECORD

| STATION STATION NUMBER NAME | | LOCATION AND BASIN | DRAINAGE AREA mi ² (km²) | DATE | TIME | STREAM- FLOW ft ³ /s (m ² /s) |
|--------------------------------|--------------------------------------|---|--|---------|---------------|--|
| | | Río Melanía basin | | | | |
| 50095900 | Quebrada Melanía near Jobos, PR | Lat 17°57'51", long 66°59'30". Hydrologic unit 21010004. | 2.75 (7.13) | 3/06/91 | 1025 | 0.38 (0.011) |
| | | 0.5 mi (1.0 km) upstream from bridge on Hwy 3. | | 4/16/91 | 1215 | 0.24 (0.007) |
| 50097000 | Quebrada Cimarrona near Jobos, PR | Lat 17°59'18", long 66°10'59". Hydrologic unit 21010004. | 3.09 (8.00) | 3/06/91 | 1110 | 0.12 (0.003) |
| | | Barrio Pozo Hondo, 2.4 mi (3.7 km) north from Puerto de Jobos, and 4.0 mi (6.4 km) northwest from Guayama Plaza. | | 4/16/91 | 1 05 0 | 0.00 |
| | | Rio Seco basin | | | | |
| 500 978 00 | Río Seco near Central Guamaní, PR | Lat 17°58'06", long 66°10'52". Hydrologic unit 21010004. At | 11.2 (29.0) | 3/06/91 | 1055 | 0.00 |
| | | Bridge on Rwy 3, .2 mi (0.3 (0.3 km) north of Central Guamaní, and 1.2 mi (1.9 km) northwest of Jobos. | | 4/16/91 | 1200 | 0.00 |
| | | Río Salinas (Nigua) basin | | | | |
| 50100200 | Río Lapa near Rabo del Buey, PR | Lat 18°03'36", long 66°14'28". Hydrologic unit 21010004. Barrio Lapa, at Hwy 1, 1.6 mi | 10.0 (25.8) | 3/06/91 | 1400 | 3.28 (0.093) |
| | | (2.6 km) upstream from confluence with Río Majada, and 6.2 mi (10 km) southwest from Cayey Plaza. | | 4/16/91 | 0730 | 1.65 (0.047) |
| 50100300 | Río Jájome at Jájome, PR | Lat 18°03'49", long 66°09'38". Hydrologic unit 21010004. Barrio Jájome Bajo, at Hwy | 4.56 (11.8) | 3/06/91 | 0750 | 2.67 (0.076) |
| | | 708, 3.5 mi (5.6 km) south from Cayey Plaza. | | 4/16/91 | 0950 | 1.18 (0.033) |
| 50100450 | Río Majada at La Plena, PR | Lat 18°02'40", long 66°12'27". Hydrologic unit 21010004. Barrio Quebrada Yegua, at Hwy | 16.7 (43.2) | 3/06/91 | 0900 | 6.62 (0.19) |
| | | 712, 2.0 mi (3.2 km) northeast from Albergue Olímpico, and 5.5 mi (8.8 km) southwest fron Cayey Plaza. | | 4/16/91 | 0900 | 2.76 (0.078) |
| 50100700 | Río Majada at Rabo del Buey, PR | Lat 18°02'17", long 66°14'27". Hydrologic unit 21010004. | 22.2 (57.5) | 3/06/91 | 1205 | 5.40 (0.15) |
| | | Barrio Lapa, 0.2 mi (0.3 km) upstream from confluence with Río Lapa, 400 ft upstream from intersection of Hwy's 1 and 712, and 0.2 mi (0.3 km) nortwest from Albergue Olimpico. | | 4/16/91 | 0810 | 0.98 (0.028) |

| STATION NUMBER | STATION NAME | LOCATION AND | DRAINAGE AREA mi² (km²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|-------------------|-------------------------------------|--|----------------------------------|---------|-----------------------|--|
| | | BASIN | | | | |
| 50102000 | Río Salinas at Salinas, PR | Lat 17°58'42", long 66°18'17". Hydrologic unit 21010004. At Bridge on Hwy 1, and 0.4 mi | 52.4 (136) | 3/06/91 | 1305 | 2.96 (0.084) |
| | | (0.6 km) west from Salinas Plaza. | | 4/16/91 | 1305 | 1.71 (0.048) |
| | | Río Jueyes basin | | | | |
| 50102400 | Río Jueyes at Río Jueyes, PR | Lat 18°01'17", long 66°19'51". Hydrologic unit 21010004. Barrio Río Jueyes, at Hwy 154, | 3.50 (9.06) | 3/07/91 | 1040 | 0.97 (0.027) |
| | | 1.3 mi (2.1 km) upstream from Hwy 52, and 4.5 mi (7.2 km) Southeast from Coamo Plaza. | | 4/16/91 | 1410 | 0.69 (0.020) |
| 50103000 | Río Jueyes near Jauca, PR | Lat 17°58'45", long 66°20'20". Hydrologic unit 21010004. At bridge on Hwy 1, 1.8 mi (2.9 | 8.56 (22.2) | 3/07/91 | 1120 | 0.00 |
| | | km) east of Jaucas, and 2.7 mi (4.3 km) west of Salinas Plaza. | | 4/16/91 | 1345 | 0.00 |
| | | Río Coamo basin | | | | |
| 50104000 | Río Coamo near Pasto, PR | Lat 18°07'08", long 66°21'52". Hydrologic unit 21010004. Barrio Pasto, at Hwy 555, | 9.05 (23.4) | 3/08/91 | 0715 | 3.98 (0.113) |
| | | 2.6 mi (4.2 km) northwest from Coamo Plaza. | | 4/17/91 | 1350 | 3.71 (0.105) |
| 50105400 | Río Cuyón at La Guava, PR | Lat 18°05'20", long 66°16'17". Hydrologic unit 21010004. Barrio Algarrobo, at Hwy 717, | 4.33 (11.2) | 3/06/91 | 1450 | 1.20 (0.034) |
| | | 1.0 mi (1.6 km) southwest from Cerro Verdún, and 5.6 mi (9.0 km) east from Coamo Plaza. | | 4/16/91 | 0640 | 0.76 (0.022) |
| 50105600 | Río Cuyón near Coamo, PR | Lat 18°05'25", long 66°18'50". Hydrologic unit 21010004. Barrio Cuyón, at Hwy 14, 0.8 | 18.1 (46.8) | 3/07/91 | 0650 | 2.94 (0.083) |
| | | mi (1.3 km) southeast from Cerro Santa Ana, and 2.8 mi (4.5 km) northeast from Coamo Plaza. | | 4/17/91 | 0705 | 1.42 (0.040) |
| 50105900 | Quebrada Montería near Coamo, PR | Lat 18°05'13", long 66°21'04". Hydrologic unit 21010004. Barrio Pasto, at confluence | 7.12 (18.4) | 3/07/91 | 0835 | 0.58 (0.016) |
| | | with Río Cuyón, and 0.5 mi (0.8 km) northeast from Coamo Plaza. | | 4/17/91 | 0835 | 0.37 (0.010) |
| 50106100 | Río Coamo at Coamo, PR | Lat 18°05'00", long 66°21'16". Hydrologic unit 21010004. Coamo, at Hwy 14, 500 ft | 43.5 (113) | 3/07/91 | 0750 | 9.43 (0.267) |
| | | (152 m) downstream from con- fluence with Río Cuyón, and 0.2 mi (0.3 km) east from Coamo Plaza. | | 4/17/91 | 0750 | 4.69 (0.133) |
| 50106600 | Río de La Mina near Coamo, PR | Lat 18°05'04", long 66°23'22". Hydrologic Unit 21010004. Barrio Santa Catalina, at Hwy | 2.62 (6.78) | 3/08/91 | 0850 | (0.008) |
| | | 150, 2.2 mi (3.5 km) west from Coamo Plasa. | | 4/18/91 | 0825 | 0.15 (0.004) |
| 50106650 | Río del Pasto near Coamo, PR | Lat 18°04'49", long 66°22'32". Hydrologic unit 21010004. Barrio San Idelfonso, at Hwy | 1.80 (4.67) | 3/08/91 | 0 82 0 0750 | 0.27 (0.008) 0.13 |
| | | 150, 1.3 mi (2.1 km) west from Coamo Plaza. | | 4/18/91 | 0/30 | (0.004) |

| STATION NUMBER | STATION NAME | LOCATION | DRAINAGE AREA | | | stream Flows |
|-------------------|---|---|------------------|---------|------|------------------------------|
| | | and Basin | mi² (km²) | DATE | TIME | ft ³ /s (m³/s) |
| 50106700 | Río de La Mina at Coamo, PR | Lat 18°03'56", long 66°22'29". Hydrologic unit 21010004. | 5.88 (15.2) | 3/07/91 | 1510 | 0.54 (0.015) |
| | | Barrio San Idelfonso, at Hwy 14, 0.2 mi (0.3 km) upstream from confluence with Río Coamo, and 1.7 mi (2.7 km) from Coamo Plaza. | | 4/17/91 | 1255 | 0.33 (0.009) |
| 50106820 | Río Coamo at Baños de Coamo, PR | Lat 18°02'23", long 66°22'31". Hydrologic unit 21010004. Barrio San Idelfonso, at the | 58.5 (152) | 3/07/91 | 0935 | 12.1 (0.343) |
| | | end of Hwy 546, 3.3 mi (5.3 km) southwest from Coamo Plaza. | | 4/17/91 | 0935 | 7.52 (0.213) |
| 50107000 | Río Coamo near Santa Isabel, PR | Lat 17°58'36", long 66°25'10". Hydrologic unit 21010004. At bridge on Hwy 1 at Velázquez, | 69.3 (179) | 3/07/91 | 1150 | 0.54 (0.015) |
| | | 1.1 mi (1.8 km) northwest of Santa Isabel Plaza. | | 4/17/91 | 1030 | 0.00 |
| | | Río Descalabrado basin | | | | |
| 50107800 | Río Descalabrado near Sanja Blanca, PR | Lat 18°05'24", long 66°24'30". Rydrologic unit 21010004. Barrio Santa Catalina, at Hwy | 4.27 (11.0) | 3/08/91 | 0920 | 0.46 (0.013) |
| | 150, 2.0 mi (3.2 km) southeast from Lago Toa Vaca, and 3.4 mi (5.5 km) northwest from Coamo Plaza. | | | 4/18/91 | 0910 | 0.25 (0.007) |
| 50108200 | Río Descalabrado at Las Ollas, PR | Lat 18°02'10", long 66°25'36". Hydrologic unit 21010004. Barrio Descalabrado, at Hwy | 13.9 (36.0) | 3/07/91 | 1420 | 1.56 (2.044) |
| | 536, 0.6 mi (1.0 km) upstream from Hwy 52, and 2.2 mi (3.5 km northwest from Cerro del Muerto | | | 4/17/91 | 1215 | 0.25 (0.007) |
| 50108500 | Río Descalabrado near Santa Isabel, PR | Lat 17°58'45", long 66°26'35". Hydrologic unit 21010004. At bridge on Hwy 1, 0.9 mi (1.4 | 18.1 (46.9) | 3/07/91 | 1235 | 0.89 (0.025) |
| | | km) upstream from mouth, and 3.1 mi (5.0 km) northwest of Santa Isabel. | | 4/17/91 | 1050 | 0.41 (0.012) |
| | | Río Cañas basin | | | | |
| 50109000 | Río Cañas near Juana Díaz, PR | Lat 18°02'41°, long 66°27'26°. Hydrologic unit 21010004. Barrio Río Cañas Arriba, at | 2.88 (7.47) | 3/07/91 | 1350 | 0.10 (0.003) |
| | | Hwy 14, 3.3 east from Juana Diaz Plaza. | | 4/17/91 | 1145 | 0.11 (0.003) |
| 50109500 | Río Cañas near Santa Isabel, PR | Lat 17°59'39", long 66°28'33". Hydrologic unit 21010004. At bridge on Hwy 1, 0.5 mi (0.8 | 6.38 (16.5) | 3/07/91 | 1315 | 0.00 |
| ku ku mi | | km) from mouth, 0.6 mi (1.0 km) east of Pastillo, and 5.1 mi (8.2 km) northwest of Santa Isabel Plaza. | | 4/17/91 | 1120 | 0.00 |
| | | Río Jacaguas basin | | | | |
| 50110550 | Río Jacaguas at Villalba, PR | Lat 18°07'37", long 66°29'42". Hydrologic unit 21010004. Barrio Hato Puerco Arriba, | 12.2 (31.7) | 3/14/91 | 0955 | 44.5 (1.260) |
| | | upstream from Water Treatment Plant, 100 ft (30 m) downstream from confluence with Quebrada Achiote, 0.2 mi (0.3 km) south- west from Villalba. | | 4/25/91 | 0910 | 41.1 (1.164) |
| 50110700 | Río Toa Vaca at Pedro García, PR | Lat 18°08'11", long 66°23'47". Hydrologic unit 21010004. Barrio Pedro García, 2.1 mi | 3.09 (8.00) | 3/14/91 | 1245 | 0.28 (0.008) |
| | | (3.4 km) southeast from inter- section of Hwy's 143 and 155, and 4.1 mi (6.6 km) northeast Lago Toa Vaca. | | 4/25/91 | 1140 | 0.05 (0.001) |

| STATION NUMBER | Station Name | LOCATION AND | DRAINAGE AREA mi ³ | DATE | TIME | STREAM FLOWS ft ³ /s |
|-------------------|---|--|-------------------------------------|---------|------|---------------------------------------|
| | | Basin | (km²) | | | (m³/s) |
| 50110900 | Río Toa Vaca upstream from Lago Toa Vaca, PR | Lat 18°07'36", long 66°27'25". Hydrologic unit 21010004. Barrio Caonillas Arriba, at Hwy | 14.2 (36.8) | 3/14/91 | 1105 | 2.42 (0.068) |
| | | 553, 0.5 mi (0.8 km) upstream Lago Toa Vaca, and 2.4 mi (3.9 km) east from Villalba. | | 4/25/91 | 1010 | 1.93 (0.055) |
| 50111720 | Quebrada Guanábana near Juana Díaz, PR | Lat 18°03'12", long 66°29'02". Hydrologic unit 21010004. Barrio Tijeras, at Hwy 14, | 1.72 (4.46) | 3/13/91 | 0820 | 0.09 (0.002) |
| | | 1.5 mi (2.4 km) east from Juana Díaz Plza. | | 4/22/01 | 1205 | 0.01 (0.000) |
| | | Río Inabón basin | | | | |
| 50112400 | Río Inabón at Real Anón, PR | Lat 18°07'22", long 66°34'20". Hydrologic unit 21010004. Barrio Anón, at Hwy 511, 1.0 | 6.00 (15.4) | 3/13/91 | 1205 | 2.39 (0.068) |
| | | mi (1.6 km) northeast from Cerro Santo Domingo, and 4.5 mi (7.2 km) northwest from Lago Guayabal. | | 4/23/91 | 1200 | 3.96 (0.112) |
| 50112700 | Río Guayo near Collores, PR | Rydrologic unit 21010004. (Barrio Collores, at Hwy 5.17 | 1.67 (4.34) | 3/13/91 | 1015 | 0.92 (0.026) |
| | | about 400 ft (122 m) west from escuela Guaraguao 0.9 mi (1.4 km) northwest from intersection of Hwy's 517 and 5.12, and 3.5 mi (5.6 km) northwest from Lago Toa Vaca. | | 4/23/91 | 1040 | 0.91 (0.026) |
| 50112750 | Quebrada Indalecia at Collores, PR | Lat 18°06'33", long 66°32'20". Rydrologic unit 21010004. Barrio Collores, 200 ft | 3.52 (9.11) | 3/13/91 | 1110 | 0.00 |
| | | (61 m) upstream from confluence with Río Guayo, 0.9 mi (1.4 km) northeast from Cerro Agustinillo, and 2.2 mi (3.5 km) northwest from Lago Guayabal. | | 4/23/91 | 1115 | 0.00 |
| 50112800 | Río Guayo upstream from Diversion at Collores, PR | Lat 18°05'10", long 66°32'24". Hydrologic unit 21010004. Barrio Collores, 2.1 mi | 9.55 (24.7) | 3/13/91 | 0905 | 1.56 (0.044) |
| | | (3.4 km) southwest from Lago Guayabal, and 3.1 mi (5.0 km) northwest from Juana Diax Plaza. | | 4/23/91 | 0950 | 1.90 (0.054) |
| | | Río Bucaná basin | | | | |
| 50113790 | Río San Patricio upstream from Lago | Lat 18°07'12", long 66°36'27". Rydrologic unit 21010004. Barrio | 5.84 (15.1) | 3/12/91 | 1310 | 2.97 (0.084) |
| | Cerrillos, PR | Maraguez, 1.5 mi (2.4 km) north- west from Cerro Santo Domingo, 3.6 mi (5.8 km) northwest from Lago Cerrillos, and 7.3 mi from (12 km) Degetau Plaza, Ponce. | | 4/22/91 | 1415 | 2.83 (0.080) |
| 50113800 | Río Cerrillos upstream from Lago Cerrillos, PR | Lat 18°07'01", long 66°36'17". Hydrologic unit 21010004. At barrio Maragüez, 1.3 mi (2.1 km) | 11.9 (30.7) | 3/12/91 | 1435 | 5.24 (0.148) |
| | CHILLIUS, FR | west from Cerro Santo Domingo, 3.3 mi (5.3 km) northwest from Lago Cerrillos, and 7.2 mi (12 km) from Degetau Plaza, Ponce. | | 4/22/91 | 1503 | 6.01 (0.170) |
| 50114150 | Quebrada Ausubo near Ponce, PR | Lat 18°03'09", long 66°35'08". Hydrologic unit 21010004. At Barrio Machuelo Arriba, 2.4 mi | 1.18 (3.05) | 3/11/91 | 1045 | 0.00 |
| | | (3.9 km) west from Coto Laurel, 1.5 mi (2.4 km) south from Lago Cerrillos, and 3.8 mi (6.1 km) northeast from Degetau Plaza, Ponce. | | 4/22/91 | 1245 | 0.00 |

| STATION NUMBER | STATION NAME | LOCATION | DRAINAGE ARBA mi³ | DATE | TIME | STREAM FLOWS ft ³ /s |
|-------------------|---|---|-------------------------|---------|------|---------------------------------------|
| | | BASIN | (km²) | DALG | | (m³/s) |
| 50114200 | Río Bayagán near Ponce, PR | Lat 18°02'51", long 66°35'12". Hydrologic unit 21010004. At | 3.82 (9.88) | 3/11/91 | 1030 | 0.00 |
| | | Barrio Machuelo Arriba, 2.5 mi (4.0 Km) west of Coto Laurel, 1.9 mi (3.0 km) south from Lago Cerrillos, and 3.0 mi (4.8 km) northeast from Degetau Plaza, Ponce. | | 4/22/91 | 1240 | 0.00 |
| 50114600 | Río Bucaná at Ponce, PR | Lat 18°00'28", long 66°35'36". Hydrologic unit 21010004. At bridge on Hwy 1, 0.2 mi (0.3 | 27.3 (70.7) | 3/11/91 | 1230 | 2.24 (0.063) |
| | | km) east of intersection of Hwys 1 and 2, 1.5 mi (2.4 km) east of Degetau Plaza in Ponce, 3.1 mi (5.0 km) upstream from mouth. | | 4/23/91 | 1615 | 2.94 (0.083) |
| | | Río Portugués basin | | | | |
| 50114900 | Río Portugués near Tibes, PR | Lat 18°04'26", long 66°38'35". Hydrologic unit 21010004. At barrio Tibes, 0.5 mi (0.8 km) | 7.27 (18.8) | 3/12/91 | 0810 | 3.66 (0.104) |
| | | southwest from Cerro del Diablo, 6.0 mi (9.6 km) northeast from Peñuelas, and 6.2 mi (10 km) north from Ponce. | | 4/24/91 | 1035 | 2.51 (0.071) |
| 50115400 | Río Portugués mear Ponce, PR | Lat 18°02'27", long 66°36'41". Hydrologic unit 21010004. At barrio Portugués, 1.0 mi | 12.2 (31.6) | 3/12/91 | 0915 | 3.65 (0.103) |
| | | (1.6 km) west from Jardines de Ponce, 0.4 mi (0.6 km) north from confluence with Río Chi- quito, and 1.9 mi (3.0 km) north from Degetau Plasa, Ponce. | | 4/24/91 | 1125 | 1.69 (0.048) |
| 50115450 | Río Chiquito at Portugués, PR | Lat 18°04'11", long 66°37'00". Hydrologic unit 21010004. At barrio Portugués, 2.1 mi | 3.12 (8.09) | 3/12/91 | 1040 | 0.60 (0.017) |
| | | (3.4 km) northwest from Jardines de Ponce, 1.7 mi (2.7 km) southwest from Pico Pinto, and 2.8 mi (4.5 km) north from Degetau Plasa, Ponce. | | 4/24/91 | 1210 | 0.20 (0.006) |
| 50115600 | Río Chiquito near Ponce, PR | Lat 18°02'37", long 66°36'31'. Hydrologic unit 21010004. At barrio Portugués, 0.6 mi | 4.43 (11.5) | 3/12/91 | 1010 | 0.19 (0.005) |
| | | (1.0 km) west from Jardines de Ponce, 0.8 mi (1.3 km) South from Cerro El Gato, and 2.1 mi (3.4 km) north from Degetau Plaza, Ponce. | | 4/24/91 | 1230 | 0.52 (0.015) |
| 50116500 | Río Portugués at Hwy 2 By-Pass at Ponce, PR | Lat 17°59'52", long 66°36'52". Hydrologic unit 21010004. At bridge on Hwy 2 By-Pass, 1.1 | 20.5 (53.1) | 3/11/91 | 1330 | 0.70 (0.020) |
| | | mi (1.8 km) south of Degetau Plaza, and 2.0 mi (3.2 km) upstream from mouth. | | 4/23/91 | 1535 | 0.74 (0.021) |
| | | Río Matilde basin | | | | |
| 50116800 | Río Cañas at Magueyes PR | Lat 18°04'26", long 66°39'07". Hydrologic unit 21010004. At barrio Magueyes, 2.4 mi | 4.00 (10.3) | 3/11/91 | 1445 | 1.89 (0.054) |
| | | (3.9 km) southwest from Cerro del Diablo, 4.7 mi (7.6 km) northwest from Peñuelas, and (6.4 km) northwest from Ponce. | | 4/24/91 | 0825 | 2.05 (0.058) |
| 50116970 | Río Cañas downstream from Las Américas Ave., PR | Lat 18°00'37", long 66°38'26". Hydrologic unit 21010004. 0.5 mi (0.8 km) upstream from con- | 8.50 (22.0) | 3/11/91 | 1540 | 6. 82 (0.193) |
| | - | fluence with Río Pastillo. | | 4/24/91 | 0910 | 4.33 |
| | | | | | | (0.123) |

Low-flow partial-record stations--Continued

| STATION NUMBER | Station Name | LOCATION | DRAINAGE AREA mi ² DATE (km ²) | | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|--|--|--|---|---------|-----------------|--|
| | | Basin | | | | |
| 50117800 | Río Pastillo at Pastillo, PR | Lat 18°02'53", long 66°39'52". Hydrologic unit 21010004. Barrio Quebrada Limón at Hwy | 4.32 (11.2) | 3/11/91 | 0910 | 0.84 (0.024) |
| | | 502, 0.8 mi (1.3 km) northwest of Hwy's 502 and 132 intersection, 0.9 mi (1.4 km) west of Magueyes and 3.1 mi (5.0 km) northwest from Ponce. | | 4/22/91 | 0930 | 0.47 (0.013) |
| 50118300 | Río Pastillo near Ponce, PR | Lat 18°00'31", long 66°38'39". Hydrologic unit 21010004. Canas Urbano, on bridge, 0.7 mi | 10.6 (27.6) | 3/11/91 | 0850 | 0.00 |
| | | (1.1 km) downstream from Jardines del Caribe and 1.1 mi (1.7 km) west of Escuela Dr. Pila, Ponce. | | 4/22/91 | 0910 | 0.00 |
| 50119000 | Río Matilde at Ponce, PR | Lat 17°59'53", long 66°38'06". Rydrologic unit 21010004. At Rwy 2, 1.1 mi (1.8 km) upstream | 20.5 (53.2) | 3/11/91 | 0805 | 4.43 (0.125) |
| | | from mouth. | | 4/22/91 | 0825 | 3.87 (0.110) |
| 50119200 | 50119200 Quebrada del Agua at Playa de Ponce, PR Hydrologic unit 21010004. 700 ft (213 m) upstream from con- fluence with Río Matilde. Río Tallaboa basin | | 6.45 (16.7) | 3/11/91 | 1430 | 0.00 |
| | | | | 4/22/91 | 1500 | 0.00 |
| | | | | | | |
| 50120550 | Río Tallaboa near Quebrada Ceiba, PR | Lat 18°04'18", long 66°42'03". Hydrologic unit 21010004. Barrio Quebrada Ceiba, on bridge, | 8.41 (21.8) | 3/11/91 | 1010 | 3.61 (0.102) |
| 0.06 mi (0 391, 1.2 m Tallaboa A | 0.06 mi (0.1 km) west from Hwy 391, 1.2 mi (2.0 km) north from Tallaboa Alta and 1.7 mi (2.7 km) northeast from Pefiuelas Plaza. | | 4/22/91 | 1020 | 3.14 (0.089) | |
| 50120700 | Río Guayanés near Peñuelas, PR | Lat 18°04'03", long 66°43'36". Rydrologic unit 21010004. Barrio Jaguas, on Rwy 386, 0.2 | 7.29 (18.9) | 3/11/91 | 1120 | 1.21 (0.034) |
| | | mi (0.4 km) northeast from Hwy's 386 and 132 intersection, 0.6 mi (1.0 km) northeast from Peñuelas Plaza. | 4/22/91 | | 1125 | 1.34 (0.038) |
| 50121000 | Río Tallabba at Peñuelas, PR | Lat 18°03'02", long 66°43'19". Hydrologic unit 21010004. 350 ft (106.7 m) downstream from | 24.2 (62.7) | 3/11/91 | 1210 | 6.27 (0.178) |
| | | Hwy 132 bridge, 0.6 mi (1.0 km) south of Penuelas. | | 4/22/91 | 1220 | 4.90 (0.139) |
| 50122000 | Río Tallaboa at Tallaboa, PR | Lat 18°00'31", long 66°43'49". Hydrologic unit 21010004. At bridge at Hacienda Dolores, | 31.6 (81.7) | 3/11/91 | 1315 | 2.19 (0.062) |
| | | 700 ft (213 m) upstream from Hwy 127, 0.8 mi (1.3 km) north- west of Tallaboa, and 7.6 mi (12.2 km) west of Degetau Plaza, Ponce. | | 4/22/91 | 1400 | 1.88 (0.053) |
| | | Río Macaná basin | | | | |
| 50122500 | Río Macaná near Peñuelas, PR | Lat 18°03'40", long 66°46'12". Hydrologic unit 21010004. | 2.77 (7.17) | 3/13/91 | 0910 | 0.44 (0.012) |
| | | Barrio Macaná at Bwy's 131 and 132 intersection, 5.5 mi (8.8 km) northeast from Yauco, and 2.8 (4.5 km) northeast from Guayanilla Plaza. | | 4/24/91 | 0935 | 0.41 (0.012) |
| 50122900 | Río Macaná at Magas Arriba, PR | Lat 18°01'00", long 66°45'57". Hydrologic unit 21010004. 1.8 mi (2.8 km) east of Guayanilla | 8.98 (23.2) | 3/13/91 | 0750 | 0.00 |
| | | plaza, 200 ft (60 m) upstream from bridge on Hwy 2, and 0.6 mi (1.0 km) upstream from mouth. | | 4/24/91 | 0750 | 0.00 |

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| Station Number | station Name | LOCATION AND | DRAINAGE ARBA mi² (km²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|-------------------|---|--|----------------------------------|---------|------|--|
| | | Basin | | | | |
| | | Río Guayanilla basin | | | | |
| 50123100 | Río Guayanilla at Pasto, PR | Lat 18°05'53", long 66°47'38". Hydrologic unit 21010004. At | 6.45 (16.7) | 3/13/91 | 1005 | 2.72 (0.077) |
| | | barrio Pasto, 1.8 mi (2.9 km) southeast from Pico Rodadero, 1.8 mi (2.9 km) west from Cerro El Peligro, and 5.2 mi (8.4 km) north from Guayanilla Plaza. | | 4/24/91 | 1020 | 2.60 (0.074) |
| 50124600 | Río Guayanilla near Central Rufina, PR | Lat 18°01'00", long 66°47'01". Hydrologic unit 21010004. At Guayanilla, 1.2 mi (1.9 km) | 23.0 (59.5) | 3/13/91 | 0820 | 0.46 (0.013) |
| | | upstream from mouth, 0.8 mi (1.3 km) northeast from Central Rufina, and 0.6 mi (1.0 km) southeast from Guayanilla Plaza. | | 4/24/91 | 0835 | 0.39 (0.011) |
| | | Río Yauco basin | | | | |
| 50125000 | Río Yauco near Lago Lucchetti Damsite, PR | Lat 18°06'40", long 66°52'38". Hydrologic unit 21010004. | 8.05 (20.8) | 3/13/91 | 1320 | 2.61 (0.074) |
| | | Barrio Vegas, 300 ft (91 m) from mouth, 1.5 mi (2.4 km) northwest from spillway, and 5.4 mi (8.7 km) northwest from Yaugo Plaza. | | 4/24/91 | 1350 | 2.24 (0.063) |
| | Río Naranjo near Lago Lucchetti Damsite, PR | Lat 18°06'20", long 66°51'37". Hydrologic unit 21010004. Barrio Naranjo at Hwy 128, 0.3 | 1.92 (4.97) | 3/13/91 | 1245 | 0.27 (0.008) |
| | | mi (0.5 km) from mouth and 0.9 | | 4/24/91 | 1305 | 0.28 (0.008) |
| 50125600 | Lago Lucchetti Hydrologic unit 210100 | Lat 18°06'20", long 66°50'56". Hydrologic unit 21010004. Barrio Naranjo, 0.6 mi (1.0 km) | 2.83 (7.33) | 3/13/91 | 1200 | 0.68 (0.019) |
| | | west from Hacienda Roig, 0.9 mi (1.4 km) from mouth, and 1.3 mi (2.1 km) from spillway. | | 4/24/91 | 1225 | 0.41 (0.012) |
| 50125860 | Río Duey at Duey, PR | Lat 18°05'44", long 66°50'06". Hydrologic unit 21010004. Barrio Duey, 0.8 mi (1.3 km) | 4.55 (11.8) | 3/13/91 | 1115 | 2.55 (0.072) |
| | | southeast from Bacienda Roig, 1.2 mi (1.9 km) east from Lago Lucchetti, and 4.1 mi (6.6 km) from Yauco Plaza. | | 4/24/91 | 1125 | 2.03 (0.057) |
| | | Río Loco basin | | | | |
| 50128450 | Quebrada Grande upstream from Lago Loco, PR | Lat 18°03'45", long 66°53'10". Hydrologic unit 21010004. Barrio Almácigo Alto, 800 ft (244 m) upstream from confluene | 2.72 (7.03) | 3/14/91 | 1000 | 0.56 (0.016) |
| | | with Rio Loco, 1.2 mi (1.9 km) north from spillway, and 3.0 mi (4.8 km) northwest from Yauco Plaza. | | 4/25/91 | 0925 | 0.25 (0.007) |
| 50128500 | Río Loco upstream from Lago Loco, PR | Lat 18°03'22", long 66°53'08". Hydrologic unit 21010004. At barrio Susúa Alta, 0.2 mi | 7.66 (19.8) | 3/14/91 | 0920 | 1.00 (0.028) |
| | | (0.3 km) upstream from Lago Loco, 1.9 mi (3.0 km) north- east from Cerro La Torre, and 5.2 mi (8.4 km) southeast from Sabana Grande Plaza. | | 4/25/91 | 0850 | 0.30 (0.008) |
| 50129200 | Quebrada Susúa at Palomas, PR | Lat 18°01'19", long 66°52'28". Hydrologic unit 21010004. At bridge on Hwy 2, 0.5 mi (0.8 | 3.23 (8.37) | 3/14/91 | 0820 | 0.35 (0.010) |
| | | km) north of Palomas, and 1.9 mi (3.1 km) southwest of Yauco. | | 4/25/91 | 0750 | 0.86 (0.024) |

| STATION NUMBER | STATION NAME | Location and Basin | DRAINAGE AREA mi² (km²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|-------------------|--|---|----------------------------------|---------|--------------|--|
| | | Río Guanajibo basin | | | | |
| 50130400 | Río Grande near Sabana Grande, PR | Lat 18°05'53", long 66°56'18". Hydrologic unit 21010003. Barrio Rín at Hwy 364, 0.5 mi | 6.45 (16.7) | 3/11/91 | 1000 | 0.64 (0.018) |
| | | (0.8 km) northeast from Capilla del Pozo de la Virgen, and 1.8 mi (2.9 km) northeast from Sabana Grande Plaza. | | 4/22/91 | 1100 | 0.00 |
| 50130500 | Río Guanajibo at La Pica, PR | Lat 18°04'11", long 66°57'29". Hydrologic unit 21010003. Barrio Rayo at Hwy 2, 1.0 mi | 14.7 (38.2) | 3/11/91 | 0910 | 1.87 (0.053) |
| | | (1.6 km) north from Cerro de de los Bonelli, and 0.8 mi (1.3 km) southeast from Sabana Grande Plaza. | | 4/22/91 | 1125 | 1.52 (0.043) |
| 50130800 | Sabana Grande, PR Sabana Grande, PR Hydrologic unit 21010003. Barrio Santana at Hwy 2, 0.2 mi (0.3 km) east from Hwy's 2 and 363 intersection, and 0.9 mi (1.4 km) west from Sabana Grande Plaza. | | 1.98 (5.13) | 3/11/91 | 1045 | 0.06 (0.002) |
| | | | | 4/22/91 | 1200 | 0.00 |
| 50131010 | Río Cruces near Sabana Grande, PR | Lat 18°04'54", long 66°58'37". Hydrologic unit 21010003. Barrio Santana at Hwy 2, 400 ft | 4.68 (12.1) | 3/11/91 | 1105 | 1.11 (0.031) |
| | (122 m) west from Hwy 2 and 363 intersection, 1.1 mi (1.8 km) west from Sabana Grande Plaza. | | | 4/24/91 | 1025 | 0.75 (0.021) |
| 50131800 | Río Cupeyes near San Germán, PR | Lat 18°04'48", long 67°00'24". Hydrologic unit 21010003. Barrio Guamá, 0.2 mi (0.3 km) | 4.16 (10.8) | 3/12/91 | 0635 | 0.65 (0.018) |
| | | downstream from Hwy 2, and 2.5 mi (4.0 km) east from San Germán Plaza. | | 4/24/91 | 1105 | 0.48 (0.014) |
| 50132010 | Río Guanajibo below San Germán, PR | Lat 18°05'28", long 67°02'38". Hydrologic unit 21010003. 0.5 mi (0.8 km) north of San | 36.1 (93.5) | 3/12/91 | 0815 | 9.04 (0.256) |
| | m 6 m 6 m | Germán Plaza and 1500 ft (457m) downstream from Hwy 360 bridge. | | 4/23/91 | 1050 | 3.81 (0.108) |
| 50133000 | Río Cain near San Germán, PR | Lat 18°06'06", long 67°02'26". Hydrologic unit 21010003. Barrio Caín, at Hwy 361, 600 | 6.32 (16.4) | 3/12/91 | 0720 1135 | 0.33 (0.009) 0.33 |
| | | ft (183 m) upstream from Hwy 2, and 1.3 mi (2.1 km) north from San Germán Plaza. | | 4/24/91 | 1135 | (0.009) |
| 50133800 | Río Duey near Rosario, PR | Lat 18°08'57", long 67°03'15". Hydrologic unit 21010003. Barrio Duey Alto, 200 ft (61 m) | 4.17 (10.8) | 3/12/91 | 1015 | 0.87 (0.025) |
| | | downstream from Hwy 348, 100 ft (30 m) downstream from conflu- ence with Río Nueve Pasos, and 2.0 mi (3.2 km) southeast from Rosario Plaza. | | 4/23/91 | 0840 | 0.50 (0.014) |
| 50134600 | Río Hoconuco near San Germán, PR | Lat 18°07'08", long 67°04'27". Rydrologic unit 21010003. Barrio Hoconuco Bajo, 0.2 mi | 5.18 (13.4) | 3/12/91 | 0845 | 0.06 (0.002) |
| | | (0.3 km) downstream from Hwy 358, 200 ft upstream from confluence with Río Duey, and 3.2 mi (5.1 km) northwest from San Germán Plaza. | | 4/24/91 | 1245 | 0.00 |
| 50135000 | Río Hoconuco (Duey) near San Germán, PR | Lat 18°07'10", long 67°04'48'. Hydrologic unit 21010003. Barrio Duey Bajo, 200 ft | 13.2 (34.3) | 3/12/91 | 0915 | 1.08 (0.030) |
| | | (61 m) downstream from Hwy 2, and 3.4 mi (5.5 km) northwest from San Germán Plaza. | | 4/25/91 | 0835 | 0.44 (0.012) |

| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE ARBA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|--|--|---|---|---------|-----------------|--|
| 50135700 | Río Maricao at Maricao, PR | Lat 18°11'22", long 66°59'37". Hydrologic unit 21010003. Barrio Maricao Afuera, at Hwy | 3.80 (9.85) | 3/14/91 | 1030 | 2.26 (0.064) |
| | 357, 0.4 mi (0.6 km) eas Hacienda San Antonio, an mi (1.6 km) northwest fr Maricao Plaza. | | | 4/23/91 | 0700 | 2.58 (0.073) |
| 50135800 | Río Rosario at Las Vegas, PR | Lat 18°11'13", long 67°01'52". Hydrologic unit 21010003. Barrio Montoso, at Hwy 119, | 8.33 (21.6) | 3/14/91 | 1120 | 5.68 (0.161) |
| 0 f 1 | | 0.1 mi (0.2 km) southeast from intersection with Hwy 105, and 3.6 (5.8 km) northeast from Rosario Plaza. | | 4/23/91 | 0750 | 4.39 (0.124) |
| 50136400 | Río Rosario near Hormigueros, PR | Hormigueros, PR Hydrologic unit 21010003. At Bridge on Hwy 348, 0.5 mi (0.8 | | 3/11/91 | 1235 | 9.44 (0.267) |
| | | km) Southwest of Rosario Plaza. | | 4/22/91 | 1250 | 7.71 (0.218) |
| 50136500 Río Rosario at Hwy 2 Lat 18°07'35", long 67°05'39". Hydrologic unit 21010003. Barrio Benavente, at Hwy 2, | | | 22.8 (58.9) | 3/12/91 | 1155 | 9.14 (0.259) |
| 2.7 mi (4.3 km) southw Rosario, and 2.5 mi (4 | 2.7 mi (4.3 km) southwest from Rosario, and 2.5 mi (4.0 km) southeast from Hormigueros | | 4/23/91 | 1010 | 7.16 (0.203) | |
| 50137800 | Río Viejo near Cabo Rojo, PR | Lat 18°06'04", long 67°07'48". Hydrologic unit 21010003. Barrio Bajura, at Hwy 103, | 12.3 (31.9) | 3/15/91 | 0800 | 1.22 (0.035) |
| | | 1.0 mi (1.6 km) northeast from intersection with Hwy 102, and 1.4 mi (2.2 km) from Cabo Rojo Plaza. | | 4/23/91 | 1145 | 1.62 (0.046) |
| | | Quebrada Maga basin | | | | |
| 50138100 | Quebrada Maga near Guanajibo, PR | Lat 18°09'18", long 67°08'07" Hydrologic unit 21010003. Barrio Guanajibo, 0.3 mi | 0.76 (1.96) | 3/13/91 | 1100 | 0.00 |
| | | (0.5 km) southeast from Mayagues Mall, and 1.2 mi (1.9 km) northwest from Hormigueros Plaza. | | 4/23/91 | 1215 | 0.00 |
| | | Río Hondo basin | | | | |
| 50138200 | Río Hondo near Guanajibo, PR | Lat 18°09'45", long 67°09'00". Hydrologic unit 21010003. Barrio Guanajibo, at Hwy 114, | 3.16 (8.18) | 3/13/91 | 1130 | 0.18 (0.005) |
| | | 1.8 mi (2.9 km) east from Cerro Cornelia, and 2.0 mi (3.2 km) northwest from Hormigueros Plaza. | | 4/25/91 | 0705 | 0.18 (0.005) |
| | | Quebrada Sábalos basin | | | | |
| 50138300 | Quebrada Sábalos near Mayagüez, PR | Lat 18°10'47", long 67°08'58". Hydrologic unit 21010003. Barrio Sábalos, at Hwy 2R, 2.9 | 2.47 (6.40) | 3/13/91 | 1200 | 0.38 (0.011) |
| | | mi (4.7 km) northwest from Hormigueros, and 1.7 mi (2.7 km) southwest from Mayagüez Plaza. | | 4/25/91 | 0640 | 0.32 (0.009) |
| | | Río Yagües basin | | | | |
| 50138900 | Río Yagües at Balboa, PR | Lat 18°12'13", long 67°07'55". Hydrologic unit 21010003. 1200 ft (366 m) upstream from bridge | 12.2 (31.6) | 3/13/91 | 1235 | 3.36 (0.095) |
| | | on Balboa St. and 1.6 mi (2.6 km) upstream from mouth. | | 4/25/91 | 0600 | 3.73 (0.106) |

| Station Number | STATION NAME | LOCATION AND | DRAINAGE ARBA mi ³ (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|-------------------|--|---|---|--------------------|--------------|--|
| | | Basin | | | | |
| | | Río Grande de Añasco basin | | | | |
| 50140300 | Río Guilarte near Adjuntas, PR | Lat 18°10'58", long 66°46'09". Hydrologic unit 21010003. Barrio Guilarte at Hwy 131, | 2.62 (6.78) | 3/12/91 | 0830 | 2.83 (0.080) 1.88 |
| | | 0.4 mi (0.6 km) southwest from Hwy's 130 and 131 intersection, and 4.3 mi (6.9 km) east from Castafier. | | 4/23/91 | 1000 | (0.053) |
| 50140800 | Rio Limani near Yahuecas, PR | Lat 18°12'01", long 66°47'50". Hydrologic unit 21010003. Barrio Yahuecas, 200 ft (61 m) | 7.38 (19.1) | 3/12/91 | 0925 | 5.30 (0.150) |
| | | upstream with Rio Guilarte, and 500 ft (152 m) southwest from Hwy's 129 and 135 intersection. | | 4/23/91 | 1100 | 3.64 (0.103) |
| 50141400 | Río Guayo at Guayo, PR | Lat 18°10'49", long 66°49'40". Hydrologic unit 21010003. Barrio Guayo at Hwy 131, 1.0 mi | 4.15 (10.7) | 3/12/91 | 1115 | 3.35 (0.095) |
| | | (1.6 km) upstream from Lago Guayo, 0.4 mi (0.6 km) southeast from Castafier. | | 4/23/91 | 1300 | 2.09 (0.059) |
| 50142000 | Rio Blanco at La Torre, PR | Lat 14°18'34", long 66°51'49". Hydrologic unit 21010003. Barrio La Torre, at Hwy 128, | 33.2 (86.0) | 3/11/91 | 1710 | 20.5 (0.059) |
| | | 2.7 mi (4.3 km) northwest from Lago Guayo, and 4.5 mi (7.2 km) northwest from Castafier. | | 4/24/91 | 1115 | 12.4 (0.351) |
| 50142100 | Quebrada de Los Plátanos at Marisol, PR | Lat 18°15'41", long 66°51'22". Hydrologic unit 21010003. Barrio Marisol, at Hwy 128, | 0.57 (1.47) | 3/15/91 | 1025 | 0.28 (0.008) |
| 50142300 | Rio Prieto at | 0.3 mi (0.5 km) south from Hwy's 128 and 129 intersection. | 7.47 | 4/24/91 3/11/91 | 1010 1430 | 0.48 (0.014) 6.27 |
| 50142300 | Indiera Alta, PR | Lat 18°10'07", long 66°51'49". Hydrologic unit 21010003. Barrio Indiera Alta, at Hwy 128, 2.3 mi (3.7 km) southwest from | (19.3) | 4/24/91 | 1335 | (0.178) 3.10 |
| | | Lago Guayo, and 2.2 mi (3.5 km) southwest from Castafier. | | | | (0.088) |
| 50142710 | Rio Prieto at Rio Prieto, PR | Lat 18°12'06', long 66°53'05". Hydrologic unit 21010003. Barrio Río Prieto, at Hwy 431, 3.7 mi (5.6 km) west from Lago | 15.1 (39.0) | 3/11/91 4/25/91 | 1540 1245 | 1.85 (0.052) 0.85 |
| | | Guayo, and 6.4 mi (10 km) northeast from Maricao Plasa. | | 4/45/51 | 1145 | (0.024) |
| 50142900 | Rio Prieto at Pesuela, PR | Lat 18°15'17", long 66°54'25". Hydrologic unit 21010003. Barrio Pezuela, 400 ft (122 m) | 26.1 (67.7) | 3/12/91 | 1530 | 8.58 (0.243) |
| | | upstream from confluence with Río Grande de Añasco, and 3.4 mi (5.5 km) southwest from Lares Plaza. | | 4/24/91 | 0830 | 6.03 (0.171) |
| 50143000 | Rio Grande de Añasco near Lares, PR | Lat 18°15'28", long 66°55'05". Hydrologic unit 21010003. At bridge on Hwy 124, 0.7 mi (1.1 | 26.3 (68.1) | 3/12/91 | 1310 | 29.2 (0.827) |
| | km) from confluence with Rio Blanco and Rio Prieto, and 3.7 mi (6.0 km) southwest from Lares Plaza. | | | 4/24/91 | 0720 | 19.9 (0.564) |
| | | | | | | (0.240) |
| 50143104 | Rio Lajas near Maricao, PR | Lat 18°10'54", long 66°57'39". Hydroloigc unit 21010003. Barrio Indiera Fría, at Hwy 105, | 5.79 (15.0) | 3/12/91 | 0720 | 3.26 (0.092) |
| | 0.3 mi (0.5 km) upstream from confluence with Rio Guaba, 0.7 mi (1.1 km) Maricao Plaza. | | | 4/23/91 | 1410 | 2.22 (0.063) |

| STATION NUMBER | STATION NAME | LOCATION AND | DRAINAGE ARBA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|-------------------|--|--|---|---------|-----------------|--|
| | | BASIN | • • • • | | | |
| 50143108 | Río Guaba near Maricao, PR | Lat 18°11'02", long 66°57'30". Hydrologic unit 21010003. Barrio Bucarabones, at Hwy | 4.95 (12.8) | 3/12/91 | 0820 | 4.19 (0.119) |
| | | 105, 200 ft (61 m) upstream from confluence with Río Lajas, and 1.5 mi (2.4 km) from Maricao Plaza. | | 4/23/91 | 1755 | 2.77 (0.078) |
| 50143150 | Río Bucarabones near Las Marías, PR | | | 3/12/91 | 1155 | 5.81 (0.164) |
| | | (122 m) upstream from confluence with Río Guaba, and 3.7 mi (5.6 km) northeast from Maricao Plaza. | | 4/23/91 | 1210 | 4.69 (0.133) |
| 50143200 | Río Gusba near Las Marías, PR | Lat 18°13'37", long 66°56'33". Hydrologic'unit 21010003. Barrio Cerrote, at Hwy 124, 0.3 | 25.4 (65.7) | 3/12/91 | 1045 | 15.8 (0.447) |
| | | mi (0.5 km) downstream from confluence with Río Bucarabones, and 3.9 mi (6.3 km) northeast from Maricao Plaza. | | 4/23/91 | 1120 | 11.0 (0.312) |
| 50143400 | Quebrada Las Cañas at Perchas, PR | Barrio Perchas No 2, at Hwy 434, | 3.08 (7.98) | 3/15/91 | 0840 | 2.40 (0.068) |
| | 800 ft (244 m) upstream from confluence with Río Grande de Afinasco, and 3.5 mi (5.6 km) from Las Marías Plaza. | | 4/23/91 | 0910 | 2.25 (0.064) | |
| 50143500 | Río Mayagüecilla at Las Marías, PR | Lat 18°14'50", long 66°59'05". Hydrologic unit 21010003. Barrio Palma Escrita, at Hwy 124, | 3.30 (8.54) | 3/12/91 | 0955 | 0.09 (0.002) |
| | · | 2.0 mi (3.2 km) upstream from confluence with Rio Grande de Afiasco, and 0.7 mi (1.1 km) southeast fron Las Marías Plaza. | | 4/23/91 | 1030 | 0.02 (0.001) |
| 50143800 | Río Grande de Añasco near Las Marías, PR | Lat 18°16'41", long 66°58'48". Hydrologic unit 21010003. Barrio Guacio, at Hwy 119, | 116 (299) | 3/15/91 | 0725 | 60.6 (1.716) |
| | | 1.8 mi (2.9 km) northeast from Las Marías Plaza. | | 4/23/91 | 0755 | 51.2 (1.450) |
| 50143900 | Río Arenas at Las Marías, PR | Lat 18°15'10", long 66°59'57". Hydrologic unit 21010003. Barrio Maravillas, at Hwy 119, | 2.79 (7.22) | 3/13/91 | 1400 | 3.28 (0.093) |
| | | 0.5 mi (0.8 km) southwest from Las Marías Plaza. | | 4/23/91 | 0640 | 2.73 (0.077) |
| 50144200 | Quebrada Cerro Gordo near Cerro Gordo, PR | Lat 18°17'09", long 66°04'09". Hydrologic unit 21010003. Barrio Corcovada, 600 (183 m) | 2.66 (6.89) | 3/13/91 | 1025 | 2.22 (0.063) |
| | | upstream from confluence with Río Grande de Añasco, and 5.7 mi (9.2 km) from Las Marías, and 4.8 mi (7.7 km) east from Añasco Plaza. | | 4/25/91 | 0800 | 2.02 (0.057) |
| 50144900 | Río Humata near El Espino, PR | Lat 18°17'18", long 67°06'24'. Hydrologic unit 21010003. Barrio Carreras, at Hwy 109, | 4.86 (12.6) | 3/13/91 | 1125 | 3.12 (0.088) |
| | | 0.3 mi (0.5 km) upstream from confluence with Río Grande de Añasco, and 2.4 mi (3.9 km) east from Añasco Plaza. | | 4/25/91 | 0900 | 1.38 (0.039) |
| 50145000 | Río Grande de Añasco at El Espino, PR | Lat 18°16'50", long 67°06'46". Hydrologic unit 21010003. Barrio Espino, at Hwy 406, | 108 (280) -384 | 3/13/91 | 1230 | 91.8 (2.560) |
| | | 400 ft (249 m) east from intersection with Hwy 109, and 1.9 mi (3.1 km) from Añasco Plaza. | | 4/25/91 | 0955 | 67.8 (1.920) |

| STATION NUMBER | STATION NAME | LOCATION AND | DRAINAGE ARBA mi: (km:) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|-------------------|---|--|----------------------------------|---------|------|--|
| | | Basin | | | | |
| 50145400 | Río Casei near Mayagüez, PR | Lat 18°15'18", long 67°04'48". Hydrologic unit 21010003. Barrio Legüísamo, at Hwy 108, | 8.17 (21.2) | 3/13/91 | 0905 | 6.93 (0.392) |
| | | 4.6 mi (7.4 km) northeast from Mayaüés, and 4.5 mi (7.2 km) southeast from Mayagües Plaza. | | 4/24/91 | 1600 | 5.30 (0.150) |
| 50146000 | Río Grande de Añasco at Añasco Arriba, PR | Lat 18°16'31", long 66°07'37". Hydrologic unit 21010003. 0.8 mi (1.2 km) south of Afiasco | 161 (416) | 3/14/91 | 0700 | 92.7 (2.625) |
| | | and 3.0 mi (4.8 km) upstream from mouth. | | 4/22/91 | 1500 | 81.1 (2.297) |
| 50146002 | Río Cañas at Río Cañas Arriba, PR | Lat 18°13'37", long 67°04'01". Hydrologic unit 21010003. Barrio Cañas Arriba, at Hwy | 3.58 (9.26) | 3/13/91 | 0755 | 2.26 (0.064) |
| | 354, 0.2 mi (0.3 km) south from intersection with Hwy 355, and 5.1 mi (8.2 km) from Mayagüez Plaza. | | | 4/25/91 | 0640 | 1.73 (0.049) |
| 50146005 | Río Cañas at Río Cañas Abajo, PR | Lat 18°14'38", long 67°07'17". Hydrologic unit, 21010003. Barrio Río Cañas Abajo, at Hwy | 11.2 (29.1) | 3/13/91 | 0635 | 2.57 (0.073) |
| | | 108, and 3.1 mi (5.0 km) north- east from Mayagües Plaza. | | 4/24/91 | 1655 | 2.09 (0.059) |
| 50146075 | Río Dagüey near Añasco, PR | Lat 18°17'19", long 67°08'08". Hydrologic unit 21010003. Barrio Carreras, at Hwy 405, | 1.06 (2.75) | 3/14/91 | 0800 | 0.31 (0.009) |
| intre 0.5 m | | 100 ft (30 m) east from intresection with Hwy 404, and 0.5 mi (0.8 m) northeast from Mayagües Plasa. | | 4/22/91 | 1430 | 0.27 (0.008) |
| | | Río Grande basin | | | | |
| 50146200 | Río Gr <u>ande</u> near Ríncón, PR | Lat 18°22'06", long 67°13'56". Hydrologic unit 21010003. At bridge on Hwy 115, 1.2 mi (1.9 | 2.83 (7.33) | 3/14/91 | 1240 | 0.49 (0.014) |
| | | km) upstream from mouth, and 2.2 mi (3.5 km) northeast of Rincón. | | 4/22/91 | 1330 | 0.29 (0.008) |
| | | Río Ingenio basin | | | | |
| 50146300 | Río Ingenio at Jagüey, PR | Lat 18°20'36", long 67°11'52". Hydrologic unit 21010003. Bario Jaguey, at unmunbered Hwy, | 3.18 (8.22) | 3/14/91 | 1035 | 1.21 (0.034) |
| | | 0.3 mi (0.5 km) from Hwy 411 intersection, and 2.7 mi (4.3 km) southwest from Aguada Plaza. | | 4/22/91 | 1125 | 1.29 (0.036) |
| 50146400 | Río Ingenio near Aguada, PR | Lat 18°22'48", long 67°12'35". Hydrologic unit 21010003. At bridge on unimproved road, 0.3 | 7.00 (18.1) | 3/14/91 | 1150 | 2.59 (0.073) |
| | | mi (0.5 km) upstream from con- fluence with Rio Culebra, 0.7 mi (1.1 km) upstream from mouth of Rio Guayabo, and 1.4 mi (2.3 km) west of Aguada. | | 4/22/91 | 1230 | 1.58 (0.045) |
| | | Río Culebra basin | | | | |
| 50146600 | Río Culebra near Aguada, PR | Lat 18°22'26", long 67°11'35". Hydrologic unit 21010003. At bridge on Hwy 411, 0.6 mi (1.0 | 3.75 (9.70) | 3/14/91 | 0910 | 1.18 (0.033) |
| | | km) south of Aguada, 1.5 mi (2.4 km) upstream from conflu- ence with Rio Ingenio, and 1.9 mi (3.1 km) upstream from mouth of Rio Guayabo. | | 4/22/91 | 1030 | 0.81 (0.023) |

DISCHARGE AT 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 of 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 record, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, and discharge measurements 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 years for which the annual maximum has been determined.

| | Location and drainage area | | Water ye | ar 1991 m | aximum | Period of record maximum | | |
|---|---|------------------------|----------|-----------------------------|---|--------------------------|-----------------------------|---|
| Station name and number | | Period of record | Date | Gage height ft (m) | Dis- charge ft ³ /s (m ³ /s) | Date | Gage height ft (m) | Dis- charge ft ³ /s (m ³ /s) |
| | Río Salinas B | asin | | | | | | |
| Quebrada Yeguas near Salinas, PR (50100600) | Lat 18°01'57", long 66°13'30", Hydrologic Unit 21010004, on right bank, 350 ft (107 m) upstream bridge on Highway 712, 1.4 mi (2.2 km) southwest of La Plena, 1.6 mi (2.6 km) southeas of Camp Santiago and 1.7 mi (2.7 km) northwest of Gasyama municipal limit. Drainage area is 2.66 mi ² (6.89 km ²). | | 10-20-90 | 11.90 (3.627) | 1,310 (37.10) | 10-20-90 | 11.90 (3.627) | 1,310 (37.10) |

Water-Quality at
Partial-Record
Stations in
Puerto
Rico

AMALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

Water-quality partial-record stations are particular sites where chemical-quality, biological and or sediment data are collected systematically over a period of years for use in hydrological analysis. The data are collected usually less than quarterly.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | • | WIBK-ROYT | III DATA, | MATTER ID | AR OCIODA | R 1990 10 | | K 2772 | |
|----------------------------|-------|--|---|--------------------------------|--------------------------------------|--|-------------------------------------|--|--|
| DATE | TIME | DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET) | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TRANS- PAR- ENCY (SECCHI DISK) (IN) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
| | | | R | TALAUD OI | ACA BASIN | | | | |
| 50010720 | LAGO | GUAJATACA | NO.3 NR 1 | MOUTH NR | QUEBRADI LI | LAS, PR (L | AT 18°22' | 05"N LONG | 066°54'36"W) |
| NOV 1990 28 MAR 1991 | 0930 | 1.00 | 269 | 6.8 | 27.7 | 99.6 | 8.2 | 103 | 20 |
| 27 | 0935 | 1.00 | 325 | 7.6 | 28.5 | 81.0 | 8.2 | 105 | 26 |
| <i>JUL</i> 12 | 0810 | 1.00 | 262 | 7.2 | 29.0 | 31.2 | 9.3 | 122 | 39 |
| | | | RIO GR | ANDE DE A | RECIBO BAS | SIN | | | |
| 50025110 | LAGO | DOS BOCAS | NO.3 AT | vest bran | CH NR UTU | ADO, PR (L | AT 18°19' | 15"N LONG | 066°40'11"W) |
| NOV 1990 26 MAR 1991 | 0900 | 1.00 | 222 | 5.9 | 26.5 | 51.6 | 11.9 | 145 | 160 |
| 25 | 0940 | 1.00 | 238 | 7.7 | 26.0 | 30.0 | 8.3 | 99 | K350 |
| JUL 17 | 0845 | 1.00 | 255 | 7.8 | 28.0 | 37.2 | 6.9 | 88 | K400 |
| | | | RIO I | DE LA PLA | TA BASIN | | | | |
| 50039900 | LAGO | CARITE NO | .3 ON RIO | DE LA PL | ATA NR CA | YMY,PR (L | AT 18°05' | 04"N LONG | 066°06′03"W) |
| NOV 1990 | | | | | | | | | |
| 23 MAR 1991 | 0815 | 1.00 | 127 | 5.9 | 24.3 | 54.0 | 6.8 | 86 | 11 |
| 20 JUL | 0855 | 1.00 | 133 | 7.8 | 27.0 | 42.0 | 8.4 | 93 | 19 |
| 09 | 0825 | 1.00 | 145 | 7.4 | 26.8 | 48.0 | 7.9 | 84 | 15 |
| 50044400 | LAGO | LA PLATA | NO.5 NR M | OUTH NR N | ARANJITO, | PR (LAT | 18019733 | N LONG 06 | 5°12'28"W) |
| NOV 1990 21 | 0915 | 1.00 | 344 | 6.2 | 27.0 | 30.0 | 11.3 | 139 | K130 |
| MAR 1991 19 | 0845 | 1.00 | 336 | 7.8 | 24.6 | 24.0 | 9.1 | 108 | K250 |
| JUL 10 | 0800 | 1.00 | 421 | 6.4 | 28.5 | 14.4 | 1.8 | 23 | K 7 |
| | | | RIO GRAI | NDE DE LO | IZA BASIN | | | | |
| 50057500 | T-AGO | LOIZA NO. | 4 MD MATERI | ND CAGO | 10 DD /T. | T 18016' | 51°N LONG | 066900/31 | (*W) |
| | 2.00 | | 20011 | | em, ew (12 | 1. 10.10 | 11 110610 | | , |
| NOV 1990 19 MAR 1991 | 1155 | 1.00 | 327 | 6.4 | 28.5 | 23.4 | 6.0 | 76 | 2900 |
| 21 JUL | 0900 | 1.00 | 259 | 6.6 | 27.0 | 7.0 | 5.0 | 62 | 550 |
| 15 | 0945 | 1.00 | 391 | 6.2 | 29.0 | 33.6 | 1.9 | 24 | 160 |

K = non-ideal count

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | WAT WH | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) | |
|-----------------------|--|-----------|---|--|--|--|--|--|--------------|
| | | | RIO GO | AJATACA B | ASINCon | tinued | | | |
| 50010720 | LAGO | Guajataca | NO.3 NR | MOUTH NR | QUEBRADIL | LAS, PR (L | AT 18°22' | 05"N LONG | 066°54'36"W) |
| NOV 1990 | | | | | | | | | |
| 28 MAR 1991 | 13 | 130 | <1 | | <0.010 | <0.100 | 0.040 | 0.36 | |
| 27 | 12 | 140 | 6 | 0.090 | 0.020 | 0.110 | 0.020 | 0.58 | |
| ЈО L 12 | 49 | 100 | 1 | | <0.010 | <0.050 | 0.060 | 0.94 | |
| | | RI | O GRANDE | DE ARECIE | O BASIN | Continued | l | | |
| 50025110 | LAGO | DOS BOCAS | NO.3 AT | WEST BRAN | CH NR UTU | ADO, PR (L | AT 18°19' | 15"N LONG | 066°40'11"W) |
| NOV 1990 | | | | | | | | | |
| 26 | 93 | 77 | <1 | 0.680 | 0.020 | 0.700 | 0.050 | 0.55 | |
| MAR 1991 25 JUL | 180 | 80 | 2 | 0.390 | 0.020 | 0.410 | 0.030 | 0.47 | |
| 17 | 130 | 75 | 5 | 0.150 | 0.010 | 0.160 | 0.030 | 0.47 | |
| | | 1 | RIO DE LA | PLATA BA | sINCont | inued | | | |
| 50039900 | LAGO | CARITE NO | .3 ON RIC | DE LA PL | ATA NR CA | YBY, PR (L | AT 18°05' | 04"N LONG | 066°06'03"W) |
| NOV 1990 | | | | | | | | | |
| 23 MAR 1991 20 | 160 26 | 31 39 | 2 | | 0.010 | <0.100 | 0.110 | 0.29 | |
| JUL | 26 | 39 | 7 | | <0.010 | <0.050 | <0.010 | | |
| 09 | 8 | 35 | 4 | | <0.010 | <0.050 | <0.010 | | |
| 50044400 | LAGO | LA PLATA | NO.5 NER 1 | OUTH NR N | aranjito, | PR (LAT | 18°19′33 | N LONG 06 | 6°12′28"W) |
| NOV 1990 | | | _ | | | | | | |
| 21 MAR 1991 | K14 | 140 | 6 | 0.570 | 0.030 | 0.600 | 0.080 | 0.62 | |
| 19 | 94 | 120 | <1 | 0.230 | 0.030 | 0.260 | 0.020 | 0.68 | |
| JUL 10 | 52 | 150 | 8 | 0.110 | 0.030 | 0.140 | 0.120 | 1.5 | |
| | | RIO | GRANDE D | E LOIZA B | ASINCon | tinued | | , | |
| 50057500 | LOIZA | NO.4 NR M | OUTH NR C | AGUAS, PR | (LAT 18° | 16'51"N L | ONG 066°0 | 0'35"W) | |
| NOV 1990 | | | | | | | | | |
| 19 MAR 1991 | 108 | 110 | 12 | 0.550 | 0.050 | 0.600 | 1.10 | 0.30 | |
| 21 JUL | 54 | 82 | 2 | 0.680 | 0.120 | 0.800 | 1.00 | 0.60 | |
| 15 | K20 | 100 | 5 | 0.039 | 0.050 | 0.089 | 1.50 | 1.2 | |

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE 50010720 | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | | PHOS-PHORUS TOTAL (MG/L AS P) AJATACA B | PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) ASINCon | | (MG/L) | PLANK- TON BIOMASS DRY WT (MG/L) | 055054125888 |
|----------------------------------|---|---|-----------|---|---|-------------|-----------|--|---------------|
| 30010720 | LAGO | GUAUATACA | MO.3 NA | MOUTH NA | Angowantr | LAS, PK (L | W. 10-74 | OD M TOUG | 066°54′36"W) |
| NOV 1990 28 MAR 1991 27 | 0.40 | 0.71 | 3.1 | 0.040 | 7.70 11.0 | 0.800 | 2.0 | 250 240 | |
| JUL | | | | | | | | | |
| 12 | 1.0 | | | 0.040 | 5.70 | 0.200 | 2.5 | 260 | |
| | | RIC | GRANDE | DE ARECIB | O BASIN | Continued | | | |
| 50025110 | T.AGO | DOS BOCAS | NO.3 AT | WEST BRAN | си мв пип | ADO. PR (T. | AT 18019/ | 15 "N TONG | 066°40'11"W) |
| | | 202 2002 | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | -11 141 010 | | 10 13 | 15 N DONO | |
| NOV 1990 26 Mar 1991 | 0.60 | 1.3 | 5.8 | 0.060 | 30.0 | 0.500 | 3.2 | 260 | |
| 25 JUL | 0.50 | 0.91 | 4.0 | 0.040 | 2.00 | <0.100 | 2.4 | 250 | |
| 17 | 0.50 | 0.66 | 2.9 | 0.030 | 7.30 | 0.100 | 2.4 | 250 | |
| | | 1 | RIO DE LA | PLATA BA | SINCont | inued | | | |
| 50039900 | LAGO | CARITE NO | .3 ON RIO | DE LA PL | ATA NR CA | YBY, PR (L | AT 18°05' | 04"N LONG | 066°06′03"W) |
| NOV 1990 | | | | | | | | | |
| 23 MAR 1991 | 0.40 | | | <0.010 | 5.00 | 0.500 | 1.8 | 240 | |
| 20 JUL | 0.20 | | | 0.020 | 2.80 | 0.800 | 2.4 | 240 | |
| 09 | 0.50 | | | 0.010 | 4.30 | 1.10 | 1.7 | 230 | |
| 50044400 | LAGO | LA PLATA I | NO.5 NR M | OUTH NR N | ARANJITO, | PR (LAT | 18°19′33" | N LONG 060 | 5°12′28"W) |
| NOV 1990 | | | | | | | | | |
| 21 MAR 1991 | 0.70 | 1.3 | 5.8 | 0.110 | 12.0 | 1.00 | 4.2 | 250 | |
| 19 JUL | 0.70 | 0.96 | 4.2 | 0.180 | 24.0 | 1.60 | 2.3 | 230 | |
| 10 | 1.6 | 1.7 | 7.7 | 0.230 | 28.0 | 0.800 | 2.6 | 270 | |
| | | RIO | GRANDE D | e loiza b | ASINCon | tinued | | | |
| 50057500 | LAGO | LOIZA NO. | NR MOUT | H NR CAGU | AS, PR (L | AT 18°16' | 51"N LONG | 066°00′35 | 5 " W) |
| NOV 1990 19 MAR 1991 | 1.4 | 2.0 | 8.9 | 0.420 | 8.10 | 0.800 | 1.4 | 230 | |
| 21 | 1.6 | 2.4 | 11 | 0.510 | 3.10 | 0.400 | 2.5 | 260 | |
| JUL 15 | 2.7 | 2.8 | 12 | 0.630 | 6.60 | 1.30 | 2.4 | 250 | |

| | | | MIS | CRILLANBOU | S STATION | WWTIRES | i | | | |
|----------------|--------------|--|---|--------------------------------|--------------------------------------|--|-------------------------------------|--|--|--|
| DATE | TIMB | DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET) | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TRANS- PAR- ENCY (SECCHI DISK) (IN) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
| | | | | RTO GUAJ | ATACA BAS | INConti | nued | | | |
| | | | | | | | | | | |
| 50010790 | LAGO | GUAJATACA | NO.1 NR | DAM NR QU | BBRADILLA | S, PR (LAT | 18023756 | "N LONG 0 | 66055, 33. | 'W) |
| NOV 1990 | | | | | | | | 440 | | |
| 28 28 | 1005 1020 | 1.00 89 .0 | 254 317 | 6.7 6.6 | 28.0 26.0 | 105 | 8.8 2.0 | 112 25 | 67 | 32 |
| MAR 1991 | 1000 | | | | | 50.0 | 25.2 | 440 | | |
| 27 27 | 1000 1010 | 1.00 50.0 | 286 25 | 7.6 7.2 | 26.0 | 52.0 | 95.0 2.4 | 118 32 | 50 | K2 |
| JUL 12 | 0840 | 1.00 | 283 | 7.4 | 29.0 | 66.0 | 8.4 | 110 | K15 | K17 |
| 12 | 0835 | 68.0 | 326 | 6.2 | 24.5 | | 0.07 | 110 | VT2 | |
| | | | PTO | MDANNE DE | ARECIBO | D) GTWCo | ntinued. | | | |
| | | | | | | | | | | |
| 50020050 | LAGO | GARZAS NO | .1 NR DAM | NER ADJUN | TAS, PR (L | AT 18°08' | 21"N LONG | 066044'3 | 5"W) | |
| NOV 1990 | | | | | | | | | | |
| 27 27 | 0950 1000 | 1.00 74.0 | 125 131 | 5.8 6.2 | 23.5 22.5 | 59.0 | 8.7 2.2 | 111 28 | K15 | 24 |
| MAR 1991 | | | | | | | | | | -40 |
| 26 26 | 0945 1000 | 1.00 96.0 | 146 151 | 7.5 7.0 | 21.5 20.0 | 98.0 | 9.4 3.2 | 115 39 | K10 | K13 |
| JUL 11 | 1010 | 1.00 | 175 | | 26.0 | 40.0 | 8.7 | 114 | 29 | 27 |
| 11 | 1005 | 97.0 | 189 | 7.3 6.0 | 20.5 | 42.0 | 0.1 | 2 | | |
| 50027090 | TAGO | DOS BOCAS | NO 1 NO | DAM MD 1991 | TT3 DO DO (| T.NR 19020 | /00 PM T/N | m 066040' | 04 ** | |
| | LAGO | DOS BUCKS | NO.1 MR | DAM MR UI | URDO, PR (| TWI 10-20 | UP IN LIGHT | G 000-E0 | ue w, | |
| NOV 1990 26 | 1000 | 1.00 | 185 | 6.4 | 27.5 | 64.8 | 12.2 | 152 | 22 | 50 |
| 26 | 0950 | 82.0 | 181 | 6.4 | 25.5 | | 4.1 | 5 | | == |
| MAR 1991 25 | 1015 | 1.00 | 235 | 7.8 | 26.0 | 65.5 | 7.4 | 90 | K10 | K1 |
| 25 | 1035 | 81.0 | 230 | 7.0 | 24.0 | | 6.0 | 1 | | |
| JUL 17 | 0930 | 1.00 | 246 | 6.9 | 28.5 | 90.0 | 5.9 | 76 | K17 | 94 |
| 17 | 0945 | 80.0 | 208 | 6.4 | 26.0 | | 0.6 | 8 | | |
| | | | RIO | DR LA PLA | TA BASIN- | -Continue | đ | | | |
| 50039950 | LAGO | CARITE NO | .1 NR DAM | NR CAYEY | , P.R. (L | AT 18°04' | 39"N LONG | 066°06′1 | 9 " W) | |
| NOV 1990 23 | 0910 | 1.00 | 108 | 6.2 | 24.5 | 64.8 | 7.8 | 98 | 16 | 79 |
| 23 | 0900 | 71.0 | 163 | 6.0 | 23.0 | | 1.8 | 23 | | |
| MAR 1991 20 | 0930 | 1.00 | 97 | 8.4 | 24.0 | 55.0 | 10.1 | 126 | K10 | K10 |
| 20 | 0940 | 68.0 | 69 | 7.2 | 22.0 | | 2.3 | 29 | | |
| JUL 09 | 0855 | 1.00 | 132 | 8.0 | 27.0 | 49.0 | 8.8 | 116 | к3 | 190 |
| 09 | 0840 | 62.0 | 170 | 6.0 | 22.1 | | 0.8 | 1 | | |
| 50044950 | LAGO | LA PLATA | NO.3 NR D | AM NR NAR | ANJITO, P | R (LAT 18 | °20′18"N | LONG 066° | 14'01"W) | |
| NOV 1990 | | | | | - | | | | | |
| 21 | 1015 | 1.00 | 281 | 6.9 | 27.5 | 38.4 | 11.0 | 137 | 150 | K4 |
| 21 MAR 1991 | 1025 | 43.0 | 149 | 6.5 | 24.0 | | 2.4 | 30 | | |
| 19 | 0930 | 1.00 | 254 | 7.7 | 24.5 | 55.0 | 6.9 | 81 | K7 | 170 |
| 19 JUL | 0935 | 58.0 | 147 | 6.9 | 22.5 | | 2.6 | 31 | | |
| 10 | 0905 | 1.00 | 366 | 6.4 | 29.0 | 62.4 | 4.6 | 60 | K17 | 58 |
| 10 | 0855 | 58.0 | 318 | 6.1 | 23.5 | | 0.1 | 1 | | |
| | | | RIO GR | ANDE DE I | OIZA BASI | NContin | ued | | | |
| 50058800 | LAGO | LOIZA NO. | 7 NR DAM | NR TRUJIL | LO ALTO, | PR (LAT 1 | 8°19′29"N | LONG 066 | °00′47 "W) | • |
| NOV 1990 19 | 1100 | 1.00 | 247 | 5.9 | 29.0 | 40.8 | 8.9 | 114 | 54 | K4 |
| 19 | 1045 | 45.0 | 245 | 6.0 | 27.0 | | 1.5 | 19 | | |
| MAR 1991 21 | 0830 | 1.00 | 167 | 6.8 | 26.0 | 10.0 | 4.8 | 59 | 120 | K15 |
| 21 JUL | 0840 | 27.0 | 159 | 6.7 | 25.0 | | 2.8 | 34 | | |
| 15 | 0910 | 1.00 | 373 | 6.2 | 29.0 | 23.4 | | 41 | K170 | 27 |
| 15 | 0920 | 12.0 | 372 | 6.1 | 29.0 | | 1.9 | 24 | | |
| | | | | | | | | | | |

K = non-ideal count

| | | HARD- | | | | | | ALKA- | |
|----------------|----------------|-------------------|------------|----------------|----------------|---|---------------|-------------------|----------------------|
| | HARD- | NESS | | MAGNE- | | SODIUM | POTAS- | LINITY | ATT TO 1889 |
| | NESS | NONCARB WH WAT | CALCIUM | SIUM, | SODIUM, | AD- SORP- | SIUM, DIS- | WAT WH TOT FET | SULFATE DIS- |
| | TOTAL (MG/L | TOT FLD | SOLVED | DIS- SOLVED | DIS- SOLVED | TION | SOLVED | FIRLD | SOLVED |
| DATE | AS | MG/L AS | (MG/L | (MG/L | (MG/L | RATIO | (MG/L | MG/L AS | (MG/L |
| | CACO3) | CACO3 | AS CA) | AS MG) | AS NA) | | AS K) | CAC03 | AS SO4) |
| | | | | | | | | | |
| | | | RIO | GUAJATAC | A BASIN | Continued | | | |
| 50010790 | TAGO | GUAJATACA | NO.1 NR | DANK NED OF | ERPANTIJ.A | S.PR (T.AT | 18023/56 | "N LONG 0 | 66°55′23"W) |
| 50020.50 | | | | one an go | | -, (| | | , |
| NOV 1990 | | | | | | | | | |
| 28 | 140 | | 49 | 3.8 | 6.3 | 0.2 | 2.2 | 130 | 8.5 |
| 28 | 160 | | 60 | 3.6 | 5.5 | 0.2 | 1.7 | 160 | 3.2 |
| MAR 1991 27 | 150 | | 53 | 4.1 | 6.3 | 0.2 | 1.9 | 120 | 16 |
| 27 | 160 | | 57 | 4.0 | 6.3 | 0.2 | 2.0 | 140 | 10 |
| JOL | | | ٠. | | ••• | | | | |
| 12 | 150 | | 55 | 3.4 | 5.1 | 0.2 | 1.8 | 150 | 8.3 |
| 12 | 66 | | 18 | 5.1 | 6.3 | 0.3 | 1.0 | 110 | 2.9 |
| | | PTO | GRANDE DE | ARRATRA | DAGTWCo | -+1 | | | |
| | | RIO | OKAMUB DE | ARBUIDO | DVOTUCO | II CTINGGO | | | |
| 50020050 | LAGO | GARZAS NO | .1 NR DAM | NR ADJUN | TAS, PR (L | AT 18º08'2 | 1"N LONG | 066044'3 | 5"W) |
| | | | | | | | | | |
| NOV 1990 | | | 48 | | | | | | |
| 27 27 | 59 53 | | 17 15 | 4.1 3.7 | 6.2 5.5 | 0.4 0.3 | 1.1 1.2 | 56 61 | 2.6 3.0 |
| MAR 1991 | 33 | | 13 | 3.7 | 3.3 | 0.3 | | 01 | 3.0 |
| 26 | 67 | | 19 | 4.8 | 6.6 | 0.4 | 1.1 | 59 | 2.3 |
| 26 | 67 | | 19 | 4.8 | 6.3 | 0.3 | 1.2 | 65 | 2.8 |
| 10r | | | | | | | | | |
| 11 11 | 69 130 | | 19 45 | 5.3 | 6.3 | 0.3 | 1.4 2.0 | 80 70 | 8.2 11 |
| 11 | 130 | | 45 | 4.0 | 5.9 | 0.2 | 2.0 | ,, | -11 |
| | | | | | | | | | |
| | | | | | | | | | |
| 50027090 | LAGO | DOS BOCAS | NO.1 NR | DAM NR UT | 'UADO, PR (| LAT 18°20' | O9"N LON | G 066°40′ | 04 "W) |
| NOV 1990 | | | | | | | | | |
| 26 | 74 | | 20 | 5.9 | 9.5 | 0.5 | 2.0 | 72 | 8.9 |
| 26 | 74 | | 20 | 5.8 | 9.6 | 0.5 | 1.8 | 70 | 13 |
| MAR 1991 | • • | | | | | | | | |
| 25 | 85 | | 23 | 6.7 | 12 | 0.6 | 2.0 | 75 | 15 |
| _25 | 81 | | 22 | 6.3 | 10 | 0.5 | 2.1 | 82 | 12 |
| JUL 17 | 81 | | 22 | 6.4 | 11 | 0.5 | 2.0 | | 14 |
| 17 | 81 | | 22 | 6.4 | 11 | 0.5 | 2.2 | 190 | 15 |
| | - | | | ٠.٠ | | 0.5 | | 22.0 | |
| | | | RIO DE LA | PLATA BA | SINCont | inued | | | |
| 50039950 | T.300 | CARTER NO. | 4 MB DAW | ND CLVOV | . n.p. /r | AT 18°04'3 | O BAT TOMO | 06600611 | 0 #W1 |
| 30037730 | IIAGO | CARTIE NO | · I MK DAM | MK CAIBI | , P.R. (1 | W. 10-0# 3 | S M DOM | 000-00-1 | . , , , , |
| NOV 1990 | | | | | | | | | |
| 23 | 38 | | 8.6 | 4.0 | 7.9 | 0.6 | 1.0 | 54 | <1.0 |
| 23 | 29 | | 6.3 | 3.2 | 7.9 | 0.6 | 0.80 | 31 | 3.0 |
| MAR 1991 20 | 31 | | 6.9 | 3.4 | 7.8 | 0.6 | 1.0 | 19 | 2.7 |
| 20 | 32 | | 7.0 | 3.5 | 8.1 | 0.6 | 0.80 | 30 | 2.8 |
| JUL | | | | | | | | | |
| 09 | 35 | | 6.9 | 4.4 | 9.0 | 0.7 | 0.80 | 56 | 3.0 |
| 50044950 | T.3.00 | TA DTAMA | NO 2 NO D | . w w w. w | ANTTEO D | R (LAT 189 | 20/10 837 | T.ONG 0660 | 14/04 (W) |
| 30044330 | III.GO | IM PLAIR | MO.3 NA L | AM MA MAN | ANUITO, P | K (TWI TO- | 20. 10 .W | Tresta 000- | T# . GT . W) |
| NOV 1990 | | | | | | | | | |
| 21 | 110 | | 26 | 11 | 21 | 0.9 | 2.2 | 110 | 13 |
| 21 MAR 1991 | 54 | | 13 | 5.3 | 10 | 0.6 | 2.3 | 51 | 6.7 |
| 19 | 110 | | 26 | 10 | 14 | 0.6 | 3.0 | 87 | 13 |
| 19 | 110 | | 27 | 11 | 17 | 0.7 | 2.3 | 44 | 13 |
| JUL | | | | | | • | | | |
| 10 | 110 | | 27 | 10 | 15 | 0.6 | 2.9 | 120 | 7.1 |
| 10 | 130 | | 30 | 13 | 20 | 0.8 | 1.7 | 130 | 14 |
| | | n | IO GRANDE | DE TATES | DIGTH. C | ontinued | | | |
| | | ĸ | TO GROWING | NE TOTAN | DADINC | CHETHIAG | | | |
| 50058800 | LAGO | LOIZA NO. | 7 NR DAM | NR TRUJIL | LO ALTO, | PR (LAT 18 | 019'29"N | LONG 066 | °00'47"W) |
| | | | | | - | | | | |
| NOV 1990 19 | | | 20 | | 46 | • • | | | |
| 19 | 82 85 | | 20 22 | 7.7 7.2 | 18 17 | 0.9 0.8 | 3.0 3.3 | 84 82 | 12 9.3 |
| MAR 1991 | | | | 1.4 | 11 | 0.0 | ٠,٠ | 04 | 7.3 |
| 21 | 100 | | 25 | 9.3 | 23 | 1 | 2.6 | 50 | 18 |
| 21 | 100 | | 25 | 9.4 | 25 | 1 | 2.7 | 44 | 19 |
| JUL 15 | 97 | - | 25 | | 26 | | | 400 | 20 |
| 15 | 97 | | 25 24 | 8.3 8.3 | 26 25 | 1 1 | 4.6 4.6 | 100 100 | 20 19 |
| 20111 | 74 | | 44 | 6.3 | 49 | - | 4.0 | 100 | 15 |

| DATE | 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) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) |
|----------------------|---|--|---|---|---|--|--|--|--|
| | | | | RIO GUAJA | TACA BASI | NContin | ued | | |
| 50010790 | LAGO (| GUAJATACA | NO.1 NR | DAM NR QU | EBRADILLA | S,PR (LAT | 18°23′56 | "N LONG 0 | 66°55′23°W) |
| NOV 1990 | | | | | | | | | |
| 28 28 Mar 1991 | 7.2 5.0 | 0.20 0.20 | 6.4 7.6 | 162 183 | <1 | | <0.010 | 0.100 | 0.040 |
| 27 27 JUL | 11 10 | 0.10 0.10 | 6.8 7.9 | 171 181 | 3 | | 0.010 | <0.050 | 0.020 |
| 12 12 | 6.2 9.1 | 0.10 0.20 | 19 7.0 | 125 180 | 6 | | 0.010 | <0.050 | 0.070 |
| | | | מים מים | NDE DE AR | PCTBO 210 | TNConti | nued. | | |
| | | | NIO dici | MIDE DE AK | BCIDO DAD | INCOHCI | HG-G | | |
| 50020050 NOV 1990 | LAGO (| Garzas no | .1 NR DAN | INR ADJUN | TAS,PR (L | AT 18°08' | 21"N LONG | 066044'3 | 5*W) |
| 27 | 5.5 | 0.20 | 18 | 89 | 1 | | <0.010 | <0.100 | 0.030 |
| 27 | 5.5 | 0.20 | 21 | 91 | | | | | |
| MAR 1991 26 | 5.8 | <0.10 | 21 | 96 | <1 | | 0.010 | <0.050 | 0.010 |
| 26 JUL | 6.3 | <0.10 | 22 | 101 | ` | | | | |
| 11 11 | 9.0 | 0.30 0.10 | 6.7 21 | 129 118 | 2 | | <0.010 | <0.050 | 0.060 |
| 50027090 | LAGO I | DOS BOCAS | NO.1 NR | DAM NR UT | UADO,PR (| LAT 18°20 | '09"N LON | G 066°40′ | 04 "W) |
| NOV 1990 26 | 9.7 | 0.20 | 22 | 124 | <1 | 0.490 | 0.010 | 0.500 | 0.030 |
| 26 MAR 1991 | 8.7 | 0.20 | 24 | 122 | | | | | |
| 25 25 JUL | 11 12 | 0.10 <0.10 | 20 23 | 135 137 | 2 | | <0.010 | 0.210 | 0.020 |
| 17 17 | 13 13 | 0.30 0.30 | 21 21 | 136 205 | 17 | 0.087 | 0.010 | 0.097 | 0.010 |
| | | | PTO DE | LA PLATA | BASTNC | ontinued | | | |
| 50039950 | LAGO (| CARITE NO | | NR CAYEY | | | 39"N LONG | 066006'1 | 9 " W) |
| NOV 1990 | | | | | | | | | |
| 23 23 | 10 9.9 | 0.20 0.20 | 16 17 | 66 59 | 41 | | 0.010 | <0.100 | 0.090 |
| MAR 1991 20 20 | 10 9.6 | 0.20 0.20 | 18 19 | 68 62 | 4 | 0.057 | 0.010 | 0.067 | 0.020 |
| JUL | | | | | | | | | |
| 09 09 | 10 9.2 | 0.10 0.10 | 19 20 | 87 81 | 12 | | <0.010 | <0.050 | <0.010 |
| 50044950 | LAGO 1 | LA PLATA I | NO.3 NER E | am nr nar | ANJITO, P | R (LAT 18 | °20′18"N | LONG 066° | 14'01"W) |
| NOV 1990 21 | 38 | 0.20 | 20 | 197 | <1 | 0.180 | 0.020 | 0.200 | 0.040 |
| 21 MAR 1991 | 10 | 0.20 | 16 | 94 | | | | | |
| 19 19 JUL | 19 17 | 0.10 0.10 | 17 20 | 133 155 | 6 | | <0.010 | <0.050 | 0.020 |
| 10 10 | 24 18 | 0.10 0.10 | 18 20 | 199 172 | 4 | | <0.010 | <0.050 | 0.050 |
| | | | PI | O GRANDE | DE LOIZA | BASINCo | ntinued | | |
| 50058800 | LAGO I | LOIZA NO. | 7 NR DAM | NR TRUJIL | LO ALTO, | PR (LAT 1 | 8°19′29"N | LONG 066 | °00′47=W) |
| NOV 1990 | | | | | | | | | |
| 19 19 | 18 17 | <0.10 0.20 | 26 25 | 152 153 | 21 | 0.420 | 0.080 | 0.500 | 0.050 |
| MAR 1991 21 21 | 23 23 | 0.10 0.10 | 29 29 | 160 160 | 26 | 0.500 | 0.090 | 0.590 | 0.050 |
| JUL 15 | 29 | 0.10 | 28 | 201 | 13 | 0.130 | 0.090 | 0.220 | 1.10 |
| 15 | 28 | 0.10 | 28 | 197 | | | | | |

| DATE | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) | CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) | PLANK- TON BIOMASS ASH WT (MG/L) | PLANK- TON BIOMASS DRY WT (MG/L) |
|-----------------|--|---|---|---|--|---|---|--|--|
| | | | RIO G | JAJATACA : | BasinCo | ntinued | | | |
| 50010790 | LAGO | GUAJATACA | NO.1 NR | DAM NR QU | EBRADILLA | S,PR (LAT | 18°23′56 | "N LONG 0 | 66°55′23"W) |
| NOV 1990 | | | | | | | | | |
| 28 | 0.26 | 0.30 | 0.40 | 1.8 | 0.040 | 3.30 | 0.200 | 3.4 | 240 |
| 28 MAR 1991 | | | | | | | | | |
| 27 27 | 0.38 | 0.40 | | | 0.020 | 2.00 | <0.100 | 2.4 | 250 |
| JOL | | | | | | | | | 252 |
| 12 12 | 0.33 | 0.40 | | | 0.020 | 3.20 | 0.400 | 2.5 | 260 |
| | | | RIO GR | ANDE DE A | RECIBO BA | SINCont | inued | | |
| 50020050 | LAGO | GARZAS NO. | 1 NR DAM | NR ADJUN | TAS, PR (L | AT 18°08' | 21"N LONG | 066044'3 | 5"W) |
| NOV 1990 27 | 0.27 | 0.30 | | | <0.010 | 3.10 | 0.200 | 1.6 | 250 |
| 27 | | | | | 40.010 | | | | |
| MAR 1991 26 | 0.39 | 0.40 | | | 0.020 | 1.20 | <0.100 | 2.4 | 250 |
| 26 JUL | | | | | | | | | |
| 11 | 0.44 | 0.50 | | | 0.010 | 16.0 | 0.400 | 2.5 | 250 |
| 50027090 | | DOS BOCAS | | | | | | | |
| NOV 1990 | | | | | | | | | |
| 26 | 0.37 | 0.40 | 0.90 | 4.0 | 0.010 | 11.0 | 0.200 | 1.6 | 240 |
| 26 Mar 1991 | | | | | | | | | |
| 25 25 | 0.38 | 0.40 | 0.61 | 2.7 | <0.010 | 1.70 | <0.100 | 2.4 | 250 |
| JUL 17 17 | 0.49 | 0.50 | 0.60 | 2.6 | 0.010 | 3.90 | 0.400 | 2.5 | 250 |
| 1, | | | | | | | | | |
| | | | | | BASINC | | | | |
| 50039950 | LAGO | CARITE NO | .1 NR DAM | NR CAYBY | , P.R. (L | AT 18°04' | 39"N LONG | 066006'1 | .9"W) |
| NOV 1990 23 | 0.41 | 0.50 | | | <0.010 | 3.50 | 0.500 | 1.4 | 230 |
| 23 MAR 1991 | | | | | | | | | |
| 20 | | <0.20 | | | 0.030 | 4.50 | 1.40 | 2.2 | 230 |
| JOL | | | | | | | | | |
| 09 09 | | 0.40 | | | 0.020 | 13.0 | 3.60 | 2.4 | 250 |
| 50044950 | LAGO | LA PLATA I | NO.3 NR D | AM NR NAR | ANJITO, P | R (LAT 18 | °20′18"N | LONG 0669 | 14'01"W) |
| NOV 1990 21 | 0.46 | 0.50 | 0.70 | 3.1 | 0.020 | 6.10 | 0.400 | 2.2 | 240 |
| 21 MAR 1991 | | | | | | | | | |
| 19 19 | 0.48 | 0.50 | | | 0.040 | | | 2.3 | 220 |
| JUL 10 | 0.45 | 0.50 | | | 0.020 | 20.0 | 1.10 | 2.5 | 260 |
| 10 | | | | | | | | | |
| | | | RIO GRA | NDE DE LO | IZA BASIN | Continu | ed | | |
| 50058800 | LAGO | LOIZA NO. | 7 NR DAM | NR TRUJIL | LO ALTO, | PR (LAT 1 | 8°19'29"N | LONG 066 | 900'47"W) |
| NOV 1990 19 | 0.75 | 0.80 | 1.3 | 5.8 | 0.110 | 9.60 | 0.400 | 2.6 | 250 |
| 19 MAR 1991 | | | | | | | | | |
| 21 21 JUL | 0.35 | 0.40 | 0.99 | 4.4 | 0.240 | 9.40 | 0.200 | 2.5 | 260 |
| 15 15 | 1.1 | 2.2 | 2.4 | 11 | 0.470 | 17.0 | 2.20 | 2.5 | 260 |

K = non-ideal count

PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | | PCB, | ALDRIN, | CHLOR- DANE, | DDD, | DDE, | DDT, | DI- AZINON, | DI- BLDRIN | ENDO- SULFAN, |
|----------------|------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|-----------------|------------------|
| DATE | TIME | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) | TOTAL (UG/L) |
| | | | F | lio guajat | ACA BASIN | Continu | ed. | | | |
| 50010790 | LAGO | GUAJATACA | NO.1 NR | DAM NR QU | EBRADILLA | S,PR (LAT | 18°23′56 | "N LONG 0 | 66°55′23" | W) |
| JUL 1991 12 | 0840 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| | | | RIO | DE LA PLA | TA BASIN- | -Continue | a | | | |
| 50039950 | LAGO | CARITE NO | .1 NR DAN | NR CAYEY | , P.R. (L | AT 18°04' | 39"N LONG | 066006'1 | 9 "W) | |
| JUL 1991 | | | | | | | | | | |
| 09 | 0855 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| 50044950 | LAGO | LA PLATA | NO.3 NR I | DAM NR NAR | ANJITO, P | R (LAT 18 | °20′18"N | LONG 066° | 14'01"W) | |
| JUL 1991 10 | 0905 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| | | | RIO | GRANDE DE | LOIZA BA | SINCont | inued | | | |
| 50058800 | LAGO | LOIZA NO. | 7 NR DAM | NR TRUJIL | LO ALTO, | PR (LAT 1 | 8°19′29″1 | 4 TOMG 0 6 6 | °00′47°W) | |
| JUL 1991 | 0010 | .0.1 | -0.015 | -0.4 | -0.015 | -0.010 | -0.050 | | .0.010 | .0 010 |
| 15 | 0910 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | 0.01 | <0.010 | <0.010 |

PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DATE | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR RPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|-------------------|----------------------------|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| | | | 1 | RIO GUAJA | TACA BASII | NContin | req | | |
| 50010790 | LAGO | GUAJATACA | NO.1 NR | DAM NR QU | RBRADILLA | S,PR (LAT | 18°23'56 | 'N LONG 0 | 56°55′23"W) |
| JUL 1991 | | | | | | | | | |
| 12 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | |
| | | | RIO I | DR LA PLA | TA BASIN | -Continue | 1 | | • |
| 50039 9 50 | LAGO | CARITE NO. | 1 NR DAM | NR CAYEY | , P.R. (L | NT 18°04' | 9"N LONG | 066006'19 |) "W) |
| JUL 1991 | | | | | | | | | |
| 09 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |
| 50044950 | LAGO | LA PLATA A | 10.3 NR D | AM NR NAR | anjito, pr | R (LAT 189 | 20'18"N 1 | LONG 066º1 | L4'01"W) |
| JUL 1991 | | | | | | | | | |
| 10 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |
| | | | RIO | GRANDE D | e loiza bj | SINCont | inued | | |
| 50058800 | LAGO | LOIZA NO.7 | NR DAM I | NR TRUJIL | LO ALTO, E | R (LAT 1 | 3°19'29"N | LONG 066 | 00'47"W) |
| JUL 1991 15 | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |

PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

NAPH-THA-LENES, PARA-THION, POLY-PER-TOX-TOTAL CHLOR. APHENE, 2,4-D, 2,4,5-T 2, 4-DP SILVEX, TOTAL TOTAL TOTAL TOTAL THANK TRI-DATE TOTAL TOTAL TOTAL TOTAL THION (UG/L) (UG/L) (UG/L) (UG/L) (UG/L) (UG/L) (UG/L) (UG/L) (UG/L) RIO GUAJATACA BASIN--Continued 50010790 LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W) JUL 1991 12... <0.10 <0.01 <0.01 <0.1 <1 0.01 <0.01 <0.01 <0.01 RIO DE LA PLATA BASIN--Continued 50039950 LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W) JUL 1991 <0.01 <0.01 09... <0.10 <0.1 <1 <0.01 <0.01 <0.01 <0.01 50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W) JUL 1991 <0.01 10... <0.10 <0.1 <1 <0.01 0.03 <0.01 <0.01 <0.01 RIO GRANDE DE LOIZA BASIN--Continued 50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W) JUL 1991 15...

<1

<0.01

0.03

<0.01

<0.01

<0.01

<0.01

<0.10

<0.1

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RIO GUAJATACA BASIN

182422067015100. Local number, 165.

LOCATION.--Lat 18°24'22", long 67°01'51".

Owner: P.R. Aqueduct and Sewer Authority.
Name: Saltos # 1 (Mateo Peres).

AQUIFER.--Cibao Formation. Aquada Limestone.

WELL CHARACTERISTICS.--Drilled production water-table well, diameter 16 in (0.40 m), cased 16 in (0.40 m) 0-40 ft (0-12.2 m), cased 12 in (0.30 m) 40-200 ft (12.2-61.0 m). Depth 200 ft (61.0 m).

DATUM.--Elevation of land-surface datum is 689 ft (210 m) above mean sea level.

Measuring point: Hole on pump base, 0.80 ft (0.24 m) above land-surface datum. Prior to November 1985, hole on top of pump base, 1.00 ft (0.30 m) above land-surface datum.

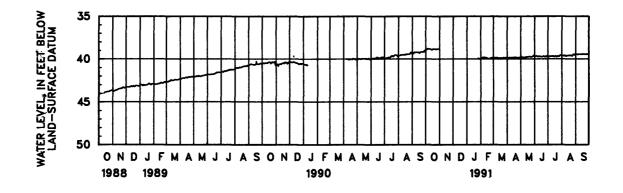
REMARKS.--Recording observation well. Formerly published as 182421067015000.

PERIOD OF RECORD.--January 1982 to March 1985. November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 38.81 ft (11.8 m) below land-surface datum, June 18, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | Jan | PEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-----|-----|-------|-------|-------|-------|-------|---------------|-------|-------|-------|
| 1 | 38.92 | | | | 40.00 | 40.01 | 39.85 | 39.80 | 39.66 | 39.70 | 39.58 | 39.51 |
| 2 | 38.93 | | | | 39.98 | 39.92 | 39.81 | 39.78 | 39.70 | 39.73 | 39.63 | 39.45 |
| 3 | 38.94 | | | | 39.90 | 39.85 | 39.83 | 39.75 | 39.70 | 39.72 | 39.61 | 39.44 |
| 4 | 38.85 | | | | 39.86 | 39.83 | 39.87 | 39.78 | 39.67 | 39.69 | 39.60 | 39.44 |
| 5 | 38.81 | | | | 39.84 | 39.85 | 39.89 | 39.81 | 39.64 | 39.66 | 39.59 | 39.44 |
| 6 | 38.82 | | | | 39.82 | 39.85 | 39.83 | 39.87 | 39.67 | 39.70 | 39.66 | 39.49 |
| 7 | 38.81 | | | | 39.82 | 39.85 | 39.82 | 39.83 | 39.72 | 39.69 | 39.64 | 39.44 |
| 8 | 38.81 | | | | 39.81 | 39.85 | 39.86 | 39.82 | 39.73 | 39.66 | 39.57 | 39.42 |
| 9 | 38.83 | | | | 39.80 | 39.86 | 39.86 | 39.80 | 39.71 | 39.67 | 39.57 | 39.43 |
| 10 | 38.83 | | | | 39.82 | 39.84 | 39.83 | 39.81 | 39.68 | 39.70 | 39.63 | 39.46 |
| 11 | 38.83 | | | | 39.88 | 39.89 | 39.83 | 39.79 | 39.68 | 39.66 | 39.65 | 39.44 |
| 12 | 38.85 | | | | 39.87 | 39.91 | 39.83 | 39.78 | 39.68 | 39.66 | 39.62 | 39.44 |
| 13 | 38.87 | | | | 39.86 | 39.89 | 39.82 | 39.79 | 39.70 | 39.65 | 39.59 | 39.44 |
| 14 | 38.92 | | | | 39.85 | 39.86 | 39.81 | 39.78 | 39.73 | 39.70 | 39.60 | 39.44 |
| 15 | 38.91 | | | | 39.87 | 39.88 | 39.83 | 39.78 | 39.71 | 39.69 | 39.57 | 39.43 |
| 16 | 38.86 | | | | 39.96 | 39.88 | 39.86 | 39.75 | 39.71 | 39.75 | 39.60 | 39.43 |
| 17 | 38.84 | | | | 39.99 | 39.87 | 39.80 | 39.75 | 39.73 | 39.66 | 39.57 | 39.43 |
| 18 | 38.83 | | | | 39.97 | 39.87 | | 39.76 | 39.74 | 39.65 | 39.55 | 39.43 |
| 19 | 38.84 | | | | 39.96 | 39.84 | 39.80 | 39.74 | 39.72 | 39.65 | 39.58 | 39.43 |
| 20 | 38.84 | | | | 39.96 | 39.87 | 39.81 | 39.72 | 39.70 | 39.76 | 39.59 | 39.42 |
| 21 | 38.83 | | | | 39.94 | 39.92 | 39.80 | 39.72 | 39.67 | 39.69 | 39.57 | 39.44 |
| 22 | 38.83 | | | | 39.95 | 39.97 | 39.82 | 39.74 | 39.68 | 39.70 | 39.55 | 39.45 |
| 23 | 38.84 | | | | 39.91 | 39.88 | 39.84 | 39.76 | 39.72 | 39.65 | 39.60 | 39.46 |
| 24 | 38.87 | | | | 39.94 | 39.83 | 39.90 | 39.73 | 39.73 | 39.63 | 39.66 | 39.46 |
| 25 | 38.84 | | | | 39.87 | 39.84 | 39.84 | 39.76 | 39. 69 | 39.69 | 39.56 | 39.42 |
| 26 | 38.83 | | | 39.94 | 39.86 | 39.85 | 39.83 | 39.73 | 39.68 | 39.70 | 39.50 | 39.43 |
| 27 | 38.85 | | | 39.93 | 39.95 | 39.88 | 39.82 | 39.74 | 39.72 | 39.59 | 39.45 | 39.42 |
| 28 | 38.84 | | | 39.95 | 40.01 | 39.84 | 39.83 | 39.71 | 39.70 | 39.57 | 39.52 | 39.43 |
| 29 | 38.83 | | | 40.01 | | 39.83 | 39.83 | 39.64 | 39.64 | 39.55 | 39.49 | 39.45 |
| 30 | | | | 39.98 | | 39.93 | 39.82 | 39.60 | 39.65 | 39.57 | 39.43 | 39.42 |
| 31 | | | | 39.99 | | 39.95 | | 39.65 | | 39.60 | 39.45 | |
| LOW | 38.94 | | | 40.01 | 40.01 | 40.01 | 39.90 | 39.87 | 39.74 | 39.76 | 39.66 | 39.51 |
| HIGH | 38.81 | | | 39.93 | 39.80 | 39.83 | 39.80 | 39.60 | 39.64 | 39.55 | 39.43 | 39.42 |



RIO GUAJATACA BASIN

182647066552400. Local numbar, 202.
LOCATION.--Lat 18°26'47", long 66°55'24".
Owner: P.R. Aqueduct and Sewer Authority.

Name: Carmelo Barreto Garcia well.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-296 ft (0-90.2 m), diameter 13 in (0.33 m), cased 13 in (0.33 m) 0-550 ft (0-167.6 m), perforated 270-529 ft (82.3-161.2 m). Depth

Chameter 13 in (0.33 m), cased 13 in (0.35 m), 550 ft (167.6 m).

DATUM.--Elevation of land-surface datum is about 475 ft (145 m) above mean sea level, from topographic map.

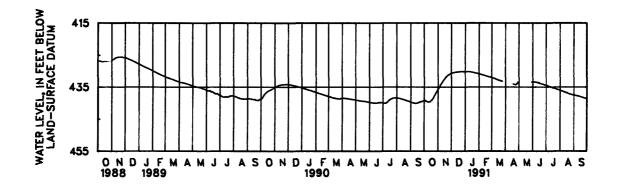
Measuring point: Hole on side of casing, 1.50 ft (0.46 m) above land-surface datum. Prior July 25, 1986, top of shelter floor, 3.30 ft (1.00 m) above land-surface datum.

REMARKS. -- Recording observation well.
PERIOD OF RECORD. -- November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.-Highest water level recorded, 409.17 ft (124.71 m) below land-surface datum, Sept. 25, 1986; lowest water level recorded, 452.80 ft (138.01 m) below land-surface datum, June 26, 1986.

WATER LEVEL, IN FRET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| | | | | TWR | NAMIANBOUS | OBSERVA | FION AT 12 | .00 | | | | |
|------|--------|--------|--------|--------|------------|---------|------------|--------|--------|--------|--------|--------|
| DAY | OCT | NOA | DEC | Jan | PEB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
| 1 | 439.22 | 435.63 | 430.65 | 430.11 | 430.86 | 432.01 | | | 433.34 | 434.48 | 436.00 | 437.49 |
| 2 | 439.17 | 435.42 | 430.57 | 430.09 | 430.87 | 432.02 | | | 433.36 | 434.52 | 436.07 | 437.51 |
| 3 | 439.12 | 435.19 | 430.56 | 430.10 | 430.88 | 432.07 | | | 433.35 | 434.56 | 436.10 | 437.53 |
| 4 | 439.07 | 434.95 | 430.52 | 430.11 | 430.92 | 432.11 | | | 433.34 | 434.60 | 436.15 | 437.57 |
| 5 | 439.41 | 434.77 | 430.45 | 430.12 | 430.95 | 432.16 | | | 433.36 | 434.65 | 436.20 | 437.61 |
| 6 | 439.43 | 434.37 | 430.42 | 430.11 | 430.99 | 432.21 | | | 433.38 | 434.71 | 436.28 | 437.63 |
| 7 | 439.48 | 434.17 | 430.39 | 430.10 | 431.03 | 432.27 | | | 433.41 | 434.76 | 436.32 | 437.66 |
| 8 | 439.50 | 433.95 | 430.36 | 430.10 | 431.06 | 432.30 | | | 433.46 | 434.81 | 436.36 | 437.68 |
| 9 | 439.57 | 433.74 | 430.33 | 430.12 | 431.10 | 432.35 | | | 433.46 | 434.86 | 436.42 | 437.72 |
| 10 | 439.62 | 433.50 | 430.29 | 430.13 | 431.17 | 432.41 | | | 433.50 | 434.91 | 436.49 | 437.75 |
| 11 | 439.60 | 433.27 | 430.28 | 430.14 | 431.22 | 432.52 | | | 433.54 | 434.94 | 436.53 | 437.77 |
| 12 | 439.61 | 433.05 | 430.29 | 430.15 | 431.26 | 432.57 | | | 433.58 | 434.99 | 436.59 | 437.83 |
| 13 | 439.57 | 432.84 | 430.25 | 430.17 | 431.27 | 432.60 | | | 433.61 | 435.04 | 436.62 | 437.86 |
| 14 | 439.52 | 432.66 | 430.25 | 430.22 | 431.31 | 432.64 | | | 433.66 | 435.10 | 436.69 | 437.89 |
| 15 | 439.41 | 432.46 | 430.24 | 430.25 | 431.40 | 432.72 | | | 433.72 | 435.15 | 436.74 | 437.93 |
| 16 | 439.26 | 432.27 | 430.23 | 430.27 | 431.47 | 432.76 | | | 433.76 | 435.26 | 436.79 | 437.99 |
| 17 | 439.15 | 432.05 | 430.16 | 430.29 | 431.51 | 432.82 | | | 433.82 | 435.24 | 436.85 | 438.03 |
| 18 | 439.01 | 431.95 | 430.13 | 430.35 | 431.55 | 432.89 | 434.03 | | 433.87 | 435.30 | 436.90 | 438.08 |
| 19 | 438.86 | 431.81 | 430.15 | 430.37 | 431.59 | 432.87 | 434.08 | | 433.92 | 435.35 | 436.95 | 438.12 |
| 20 | 438.66 | 431.65 | 430.15 | 430.37 | 431.65 | 432.95 | 434.12 | | 433.97 | 435.44 | 437.00 | 438.17 |
| 21 | 438.45 | 431.51 | 430.10 | 430.40 | 431.67 | 433.02 | 434.16 | | 434.00 | 435.45 | 437.04 | 438.21 |
| 22 | 438.20 | 431.40 | 430.07 | 430.46 | 431.71 | 433.07 | 434.19 | | 434.05 | 435.50 | 437.18 | 438.27 |
| 23 | 437.96 | 431.27 | 430.04 | 430.52 | 431.72 | 433.10 | 434.24 | | 434.12 | 435.54 | 437.19 | 438.32 |
| 24 | 437.68 | 431.20 | 430.05 | 430.55 | 431.79 | 433.13 | 434.12 | | 434.14 | 435.59 | 437.23 | 438.36 |
| 25 | 437.43 | 431.12 | 430.07 | 430.55 | 431.80 | 433.18 | 434.12 | | 434.18 | 435.65 | 437.24 | 438.39 |
| 26 | 437.17 | 431.01 | 430.07 | 430.58 | 431.85 | | 434.06 | | 434.22 | 435.72 | 437.28 | 438.45 |
| 27 | 436.89 | 430.93 | 430.08 | 430.60 | 431.92 | | 433.82 | | 434.27 | 435.75 | 437.31 | 438.50 |
| 28 | 436.62 | 430.85 | 430.08 | 430.65 | 431.96 | | 433.68 | | 434.31 | 435.79 | 437.37 | 438.55 |
| 29 | 436.36 | 430.78 | 430.09 | 430.71 | | | 433.39 | | 434.37 | 435.84 | 437.40 | 438.59 |
| 30 | 436.13 | 430.69 | 430.10 | 430.72 | | | | 433.36 | 434.42 | 435.90 | 437.41 | 438.59 |
| 31 | 435.89 | | 430.10 | 430.80 | | | | 433.36 | | 435.95 | 437.45 | |
| LOW | 439.62 | 435.63 | 430.65 | 430.80 | 431.96 | 433.18 | 434.24 | 433.36 | 434.42 | 435.95 | 437.45 | 438.59 |
| HIGH | 435.89 | 430.69 | 430.04 | 430.09 | 430.86 | 432.01 | 433.39 | 433.36 | 433.34 | 434.48 | 436.00 | 437.49 |



RIO GRANDE DE ARECIBO BASIN

182737066370900. Local number, 204. LOCATION.--Lat 18°27'37", long 66°37'09". Owner: Sucesión Marquex.

Owner: Sucesión Marquer.

Name: Gilberto Rivera well.

AQUIFER.--Aymanon Limestone.

WELL CHARACTERISTICS.--Abandoned unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

DATUM.--Elevation of land-surface datum is 48.0 ft (14.63 m) above mean sea level.

Measuring point: Air hole on pump base, 0.50 ft (0.15 m) above land-surface datum.

REMARKS.--Recording observation well.

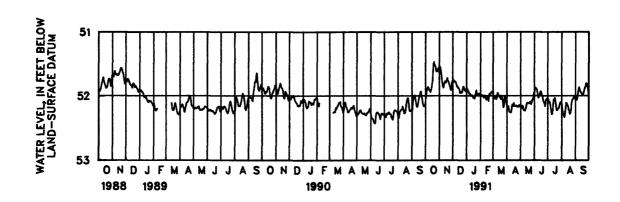
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 50.00 ft (15.24 m) below land-surface datum, May 14, 1986; lowest water level recorded, 52.52 ft (16.0 m) below land-surface datum, June 9, 10, 1990.

WATER LEVEL, IN FRET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 52.09 | 51.56 | 51.76 | 51.88 | 51.99 | 51.97 | 52.17 | 52.16 | 51.95 | 52.04 | 52.13 | 52.07 |
| 2 3 | 52.03 | 51.54 | 51.79 | 51.88 | 51.98 | 52.00 | 52.17 | 52.18 | 51.91 | 52.04 | 52.19 | 52.06 |
| | 51.99 | 51.55 | 51.75 | 51.90 | 52.00 | 52.05 | 52.17 | 52.19 | 51.87 | 52.11 | 52.24 | 52.06 |
| 4 | 51.91 | 51.58 | 51.76 | 51.92 | 52.00 | 52.00 | 52.16 | 52.15 | 51.87 | 52.08 | 52.28 | 52.06 |
| 5 | 51.88 | 51.63 | 51.78 | 51.92 | 51.99 | 52.00 | 52.21 | 52.15 | 51.88 | 52.09 | 52.29 | 52.02 |
| 6 | 51.87 | 51.69 | 51.77 | 51.96 | 51.99 | 52.02 | 52.25 | 52.16 | 51.89 | 52.11 | 52.31 | 51.97 |
| 7 | 51.86 | 51.77 | 51.78 | 51.97 | 51.99 | 52.04 | 52.25 | 52.19 | 51.90 | 52.17 | 52.33 | 51.93 |
| 8 | 51.87 | 51.80 | 51.79 | 51.96 | 52.02 | 52.05 | 52.25 | 52.22 | 51.95 | 52.22 | 52.30 | 51.89 |
| 9 | 51.91 | 51.85 | 51.82 | 51.97 | 52.03 | 52.04 | 52.26 | 52.22 | 52.00 | 52.26 | 52.23 | 51.86 |
| 10 | 51.91 | 51.87 | 51.84 | 52.00 | 52.01 | 52.00 | 52.25 | 52.23 | 52.03 | 52.29 | 52.17 | 51.89 |
| 11 | 51.91 | 51.85 | 51.86 | 52.00 | 51.99 | 51.95 | 52.21 | 52.23 | 52.02 | 52.27 | 52.11 | 51.92 |
| 12 | 51.94 | 51.80 | 51.85 | 52.00 | 52.01 | 51.96 | 52.15 | 52.21 | 52.00 | 52.21 | 52.11 | 51.93 |
| 13 | 51.92 | 51.79 | 51.88 | 51.99 | 52.05 | 52.00 | 52.13 | 52.19 | 51.97 | 52.12 | 52.14 | 51.95 |
| 14 | 51.89 | 51.77 | 51.87 | 51.99 | 52.06 | 52.01 | 52.16 | 52.16 | 51.95 | 52.07 | 52.14 | 51.96 |
| 15 | 51.86 | 51.77 | 51.89 | 52.02 | 52.01 | 52.02 | 52.15 | 52.12 | 51.93 | 52.05 | 52.16 | 51.97 |
| 16 | 51.81 | 51.79 | 51.91 | 52.03 | 52.00 | 51.99 | 52.11 | 52.11 | 51.93 | 52.06 | 52.19 | 51.98 |
| 17 | 51.76 | 51.76 | 51.96 | 52.02 | 52.05 | 52.03 | 52.15 | 52.11 | 51.96 | 52.03 | 52.23 | 51.99 |
| 18 | 51.61 | 51.74 | 51.94 | 52.04 | 52.06 | 52.05 | 52.16 | 52.11 | 52.00 | 52.08 | 52.25 | 51.97 |
| 19 | 51.51 | 51.72 | 51.93 | 52.04 | 52.08 | 52.05 | 52.16 | 52.11 | 52.00 | 52.13 | 52.28 | 51.94 |
| 20 | 51.46 | 51.76 | 51.95 | 51.99 | 51.99 | 52.02 | 52.16 | 52.12 | 52.04 | 52.20 | 52.27 | 51.91 |
| 21 | 51.52 | 51.77 | 51.95 | 51.97 | 51.96 | 52.01 | 52.15 | 52.11 | 52.08 | 52.23 | 52.25 | 51.88 |
| 22 | 51.51 | 51.79 | 51.94 | 51.92 | 51.99 | 52.06 | 52.15 | 52.10 | 52.09 | 52.22 | 52.20 | 51.87 |
| 23 | 51.54 | 51.82 | 51.91 | 51.91 | 51.98 | 52.13 | 52.16 | 52.09 | 52.11 | 52.21 | 52.11 | 51.85 |
| 24 | 51.54 | 51.84 | 51.87 | 51.98 | 51.95 | 52.18 | 52.17 | 52.11 | 52.13 | 52.19 | 52.08 | 51.81 |
| 25 | 51.61 | 51.86 | 51.85 | 51.99 | 51.94 | 52.15 | 52.17 | 52.13 | 52.16 | 52.19 | 52.05 | 51.80 |
| 26 | 51.62 | 51.89 | 51.87 | 51.98 | 51.94 | 52.05 | 52.16 | 52.09 | 52.11 | 52.18 | 52.05 | 51.81 |
| 27 | 51.61 | 51.91 | 51.89 | 51.99 | 51.93 | 52.01 | 52.17 | 52.07 | 52.06 | 52.14 | 52.03 | 51.84 |
| 28 | 51.61 | 51.86 | 51.91 | 51.96 | 51.93 | 52.04 | 52.14 | 52.05 | 52.05 | 52.12 | 52.03 | 51.86 |
| 29 | 51.58 | 51.79 | 51.92 | 51.99 | | 52.08 | 52.16 | 52.05 | 52.04 | 52.10 | 52.01 | 51.92 |
| 30 | 51.56 | 51.77 | 51.93 | 51.98 | | 52.09 | 52.16 | 51.99 | 52.05 | 52.10 | 52.02 | 51.95 |
| 31 | 51.56 | : | 51.92 | 51.99 | | 52.14 | | 51.95 | | 52.11 | 52.05 | |
| LOW | 52.09 | 51.91 | 51.96 | 52.04 | 52.08 | 52.18 | 52.26 | 52.23 | 52.16 | 52.29 | 52.33 | 52.07 |
| HIGH | 51.46 | 51.54 | 51.75 | 51.88 | 51.93 | 51.95 | 52.11 | 51.95 | 51.87 | 52.03 | 52.01 | 51.80 |

WTR YR 1991 MEAN 51.99 LOW 52.33 HIGH 51.46



RIO GRANDE DE MANATI BASIN

182544066341500. Local number, 205.
LOCATION.--Lat 18°25'44", long 66°34'15".
Owner: U.S. Geological Survey.
Name: NC-05 Barceloneta near Cruce Davila.
AQUIFER.--Montebello Limestone.

WELL CHARACTERISTICS. --Artesian observation well, diameter 6 in (0.15 m), 0-2,564 ft (0-782 m), cased 2.5 in (0.06 m), iron pipe 0-1,075 ft (0-328 m), open hole 1,075-2,564 ft (328-782 m). Depth 2,564 ft

(782 m) measured.

DATUM.--Elevation of land surface datum is 312 ft (95.1 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 6.65 ft (2.03 m) above land-surface datum.

REMARKS.-Recording observation well.

PERIOD OF RECORDS.--December 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.16 ft (2.79 m) below land-surface datum, Aug. 18, 1987; lowest water level measured, 24.94 ft (7.60 m) below land-surface datum, Aug. 10, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|--------------------|----------------|---------|----------------|---------|----------------|---------|----------------|
| Oct. 10 Nov. 13 | 24.83 24.84 | Dec. 18 | 24.83 | Feb. 22 | 18.10 | Mar. 26 | 18.10 |

RIO GRANDE DE MANATI BASIN

182757066325600. Local number, 206. LOCATION.--Lat 18°27'57", long 66°32'56". Owner: P.R. Department of Agriculture.

Owner: P.R. Department of Agriculture.

Name: Plazuela No. 2.

AQUIFER.--Aymamon Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m), cased 16 in (0.41 m) 0-85 ft (0-25.9 m), open hole 85-101 ft (25.9-30.8 m). Depth 101 ft (30.8 m).

DATUM.--Elevation of land-surface datum is about 7.0 ft (2.1 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.30 ft (0.40 m) above land-surface datum.

REMARKS.--Recording observation well.

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26 27

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29 30

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PERIOD OF RECORD. -- October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD. --Highest water level recorded, 3.75 ft (1.14 m) below land-surface datum, Sept. 11, 1988; lowest water level recorded, 5.89 ft (1.80 m) below land-surface datum, Apr. 11-12, 1990.

WATER LEVEL, IN FRET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | PEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 5.44 | | 5.20 | 4.46 | 5.54 | 5.19 | 5.71 | 5.57 | 5.40 | 5.36 | 5.41 | 5.33 |
| 2 | 5.40 | | 5.26 | 4.55 | 5.55 | 5.29 | 5.75 | 5.56 | 5.36 | 5.35 | 5.45 | 5.32 |
| 3 | 5.37 | | 4.43 | 4.73 | 5.55 | 5.35 | 5.76 | 5.59 | 5.32 | 5.38 | 5.49 | 5.31 |
| 4 | 5.32 | | 4.40 | 4.87 | 5.55 | 5.38 | 5.75 | 5.58 | 5.31 | 5.39 | 5.52 | 5.32 |
| 5 | 5.27 | | 4.55 | 4.81 | 5.56 | 5.41 | 5.76 | 5.56 | 5.31 | 5.40 | 5.52 | 5.30 |
| 6 | 5.25 | | 4.82 | 4.82 | 5.53 | 5.43 | 5.79 | 5.57 | 5.30 | 5.42 | 5.55 | 5.25 |
| 7 | 5.24 | | 4.99 | 4.93 | 5.55 | 5.49 | 5.81 | 5.58 | 5.31 | 5.44 | 5.57 | 5.21 |
| 8 | 5.24 | | 5.08 | 5.03 | 5.56 | 5.53 | 5.84 | 5.61 | 5.34 | 5.47 | 5.54 | 5.16 |
| 9 | 5.26 | | 5.15 | 5.13 | 5.59 | 5.55 | 5.83 | 5.61 | 5.35 | 5.49 | 5.49 | 5.14 |
| 10 | 5.20 | | 5.19 | 5.14 | 5.59 | 5.55 | 5.81 | 5.59 | 5.37 | 5.50 | 5.43 | 5.15 |
| 11 | | | 5.23 | 4.90 | 5.55 | 5.47 | 5.75 | 5.59 | 5.36 | 5.48 | 5.40 | 5.18 |
| 12 | | | 5.26 | 4.94 | 5.57 | 5.50 | 5.67 | 5.58 | 5.34 | 5.44 | 5.40 | 5.19 |
| 13 | | 5.44 | 5.04 | 5.05 | 5.60 | 5.56 | 5.69 | 5.57 | 5.34 | 5.39 | 5.42 | 5.19 |
| 14 | | 5.47 | 5.18 | 5.16 | 5.60 | 5.56 | 5.67 | 5.56 | 5.32 | 5.38 | 5.44 | 5.20 |
| 15 | | 5.47 | 5.13 | 5.26 | 5.60 | 5.56 | 5.67 | 5.54 | 5.32 | 5.36 | 5.43 | 5.21 |
| 16 | | 5.44 | 5.03 | 5.32 | 5.59 | 5.53 | 5.55 | 5.54 | 5.33 | 5.37 | 5.45 | 5.20 |
| 17 | | 5.24 | 5.11 | 5.35 | 5.59 | 5.53 | 5.62 | 5.54 | 5.34 | 5.32 | 5.48 | 5.21 |
| 18 | | 5.38 | 5.23 | 5.37 | 5.58 | 5.56 | 5.64 | 5.56 | 5.37 | 5.34 | 5.49 | 5.21 |
| 19 | | 5.37 | 5.29 | 5.39 | 4.66 | 5.62 | 5.64 | 5.55 | 5.37 | 5.38 | 5.51 | 5.19 |
| 20 | | 5.41 | 5.33 | 5.39 | 3.81 | 5.61 | 5.59 | 5.54 | 5.39 | 5.43 | 5.50 | 5.16 |
| 21 | | 5.40 | 5.33 | 5.38 | 3.83 | 5.60 | 5.55 | 5.53 | 5.41 | 5.45 | 5.50 | 5.14 |
| 22 | | 5.38 | 5.33 | 5.38 | 4.11 | 5.53 | 5.52 | 5.50 | 5.42 | 5.45 | 5.47 | 5.13 |
| 23 | | 5.45 | 5.34 | 5.39 | 4.34 | 5.65 | 5.51 | 5.49 | 5.41 | 5.44 | 5.41 | 5.11 |
| 24 | | 5.40 | 5.33 | 5.40 | 4.54 | 5.70 | | 5.50 | 5.42 | 5.43 | 5.38 | 5.08 |

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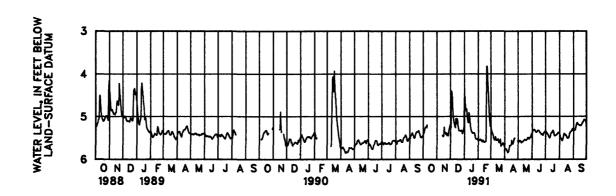
5.40 5.39

5.38

5.37

5.39

5.32



RIO GRANDE DE MANATI BASIN

182710066303700. Local number, 207.
LOCATION.--Let 18°27'10", long 66°30'37".
Owner: P.R. Aqueduct and Sewer Authority.
Name: Cantito La Luisa.

Name: Cantito La Luisa.
AQUIFER.--Aymamon Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-30 ft
(0-9.14 m), cased 10 in (0.25 m) 0-126 ft (0-38.4 m), perforated 80-126 ft (24.4-38.4 m). Depth 126 ft (38.4 m).

DATUM.--Elevation of land-surface datum is about 59.0 ft (18.0 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 2.00 ft (0.61 m) above land-surface datum.

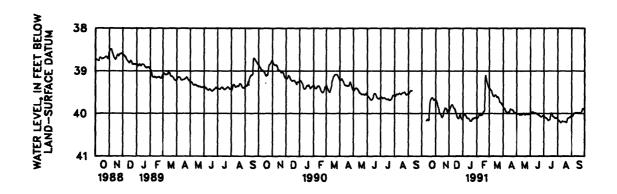
REMARKS.--Recording observation well.

PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 36.38 ft (11.09 m) below land-surface datum, May 15, 1986; lowest water level recorded, 89.83 ft (27.38 m) below land-surface datum, Oct. 5, 1985.

WATER LEVEL, IN FRET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| | | | - | inst | antaneous | OBSERVAT | ION AT 12 | 00 | | | | |
|-------|-------|----------------|-------|-------|-----------|----------|-----------|-------|-------|-------|-------|-------|
| DAY | OCT | NOV | DEC | JAN | PEB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
| | | | | 40.12 | 40.12 | 39.40 | 39.84 | 39.99 | 40.00 | 40.05 | 40.12 | 40.07 |
| 1 | | 39.68 | 39.90 | 40.14 | 40.11 | 39.41 | 39.86 | 40.00 | 39.99 | 40.05 | 40.14 | 40.07 |
| 2 | | 39.69 | 39.92 | 40.03 | 40.10 | 39.43 | 39.87 | 40.01 | 39.98 | 40.07 | 40.16 | 40.06 |
| 3 | | 39.72 | 39.88 | | 40.10 | 39.44 | 39.89 | 40.00 | 39.96 | 40.09 | 40.17 | 40.06 |
| 4 | | 39.75 | 39.85 | 40.01 | | 39.45 | 39.91 | 40.00 | 39.97 | 40.10 | 40.18 | 40.04 |
| 5 | | 39.79 | 39.84 | 40.01 | 40.07 | 39.45 | 33.71 | | | | | |
| _ | | 20.02 | 39.81 | 40.02 | 40.03 | 39.47 | 39.94 | 40.01 | 39.96 | 40.10 | 40.19 | 40.01 |
| 6 | | 39.83 39.86 | 39.80 | 40.04 | 40.02 | 39.50 | 39.95 | 40.02 | 39.96 | 40.11 | 40.21 | 40.00 |
| 7 | | 39.86 | 39.79 | 40.05 | 40.03 | 39.53 | 39.96 | 40.03 | 39.97 | 40.12 | 40.21 | 39.99 |
| 8 | | 39.91 | 39.79 | 40.08 | 40.04 | 39.57 | 39.98 | 40.03 | 39.98 | 40.13 | 40.20 | 39.98 |
| 9 | | | | 40.10 | 40.04 | 39.59 | 39.99 | 40.03 | 39.98 | 40.15 | 40.19 | 39.98 |
| 10 | | 39.99 | 39.83 | 40.10 | 40.04 | 33.33 | 33,72 | •••• | | | | |
| | 44 45 | 40.01 | 39.86 | 40.11 | 40.04 | 39.60 | 39.98 | 40.03 | 39.98 | 40.16 | 40.18 | 39.98 |
| 11 | 40.17 | 40.01 | 39.87 | 40.12 | 40.03 | 39.59 | 39.97 | 40.03 | 39.98 | 40.15 | 40.18 | 39.98 |
| 12 | 40.16 | 40.02 | 39.88 | 40.12 | 40.03 | 39.58 | 39.96 | 40.03 | 39.98 | 40.14 | 40.19 | 39.98 |
| 13 | 40.14 | 40.04 | 39.88 | 40.11 | 40.02 | 39.56 | 39.97 | 40.02 | 39.99 | 40.14 | 40.19 | 39.98 |
| 14 | 40.13 | 40.07 | | 40.11 | 39.97 | 39.56 | 39.97 | 40.00 | 40.00 | 40.13 | 40.19 | 39.98 |
| 15 | 40.15 | 40.08 | 39.94 | 40.13 | 39.97 | 37.50 | 33.37 | 40.00 | | | | |
| | 40.16 | 40.09 | 39.97 | 40.16 | 39.95 | 39.57 | 39.90 | 39.99 | 40.00 | 40.07 | 40.19 | 39.98 |
| 16 | | | 40.00 | 40.17 | 39.95 | 39.60 | 39.89 | 39.99 | 40.01 | 40.00 | 40.19 | 39.99 |
| 17 | 40.15 | 40.05 | 40.04 | 40.18 | 39.93 | 39.62 | 39.90 | 40.01 | 40.02 | 39.99 | 40.19 | 39.98 |
| 18 | 39.89 | 40.06 | | 40.18 | 39.71 | 39.61 | 39.90 | 40.02 | 40.02 | 40.00 | 40.20 | 39.98 |
| 19 | 39.76 | 39.94 | 40.07 | | 39.14 | 39.60 | 39.91 | 40.02 | 40.03 | 40.03 | 40.21 | 39.99 |
| 20 | 39.68 | 39.94 | 40.09 | 40.17 | 33.14 | 39.00 | 33.31 | | | | | |
| | | 39.90 | 40.11 | 40.15 | 39.09 | 39.62 | 39.91 | 40.03 | 40.05 | 40.06 | 40.21 | 39.98 |
| 21 | 39.67 | 39.90 | 40.12 | 40.13 | 39.18 | 39.65 | 39.91 | 40.02 | 40.05 | 40.07 | 40.14 | 39.97 |
| 22 | 39.64 | 39.88 | 40.11 | 40.11 | 39.22 | 39.68 | 39.93 | 40.01 | 40.06 | 40.08 | 40.12 | 39.96 |
| 23 | 39.63 | | 40.09 | 40.11 | 39.25 | 39.72 | 39.95 | 40.01 | 40.07 | 40.08 | 40.11 | 39.94 |
| 24 | 39.63 | 39.88 | 40.04 | 40.12 | 39.30 | 39.74 | 39.96 | 40.02 | 40.08 | 40.09 | 40.10 | 39.89 |
| 25 | 39.64 | 39.89 | 40.04 | 40.14 | 39.30 | 33.74 | | | | | | |
| | 20 66 | 39.92 | 40.02 | 40.11 | 39.34 | 39.74 | 39.97 | 40.02 | 40.08 | 40.11 | 40.10 | 39.88 |
| 26 | 39.66 | 39.94 | 40.06 | 40.10 | 39.37 | 39.75 | 39.98 | 40.02 | 40.07 | 40.10 | 40.09 | 39.89 |
| 27 | 39.67 | | 40.10 | 40.09 | 39.39 | 39.76 | 39.98 | 40.02 | 40.06 | 40.11 | 40.09 | 39.88 |
| 28 | 39.69 | 39.95 | 40.12 | 40.10 | | 39.78 | 39.98 | 40.02 | 40.05 | 40.10 | 40.08 | 39.90 |
| 29 | 39.68 | 39.93 | 40.12 | 40.10 | | 39.79 | 39.98 | 40.01 | 40.04 | 40.11 | 40.06 | 39.93 |
| 30 | 39.66 | 39.91 | | 40.11 | | 39.81 | | 39.99 | | 40.11 | 40.06 | |
| 31 | 39.67 | | 40.15 | 40.11 | | 33.01 | | | | | | |
| | 44 4- | 40.00 | 40.15 | 40.18 | 40.12 | 39.81 | 39.99 | 40.03 | 40.08 | 40.16 | 40.21 | 40.07 |
| LOW | 40.17 | 40.09 | | 40.18 | 39.09 | 39.40 | 39.84 | 39.99 | 39.96 | 39.99 | 40.06 | 39.88 |
| HI GH | 39.63 | 39.68 | 39.79 | #0.0T | 39.03 | 33.40 | | | | | | |



RIO GRANDE DE MANATI BASIN

182308066260400. Local number, 210. LOCATION.--Lat 18°23'08", long 66°26'04". Owner: Gelo Martines. Name: Gelo Martines well. AQUIFER.--Lares Limestone.

AQUIFER.--Lares Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.20 m), cased 8 in (0.20 m).

DATUM.--Elevation of land-surface datum is about 574 ft (174.9 m) above mean sea level, from topographic map.

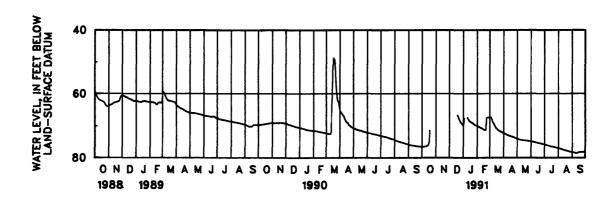
Measuring point: Hole on side of casing, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Recording observation well.

PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 40.56 ft (12.36 m) below land-surface datum, May 22, 1986; lowest water level recorded, 78.61 ft (24.0 m) below land-surface datum, Sept. 12, 1991.

| | | WATER LEVI | RL, IN PE | | Land-Surf Tantaneou | | | YEAR OCTOBE | R 1990 | TO SEPTEME | BR 1991 | |
|------|-------|------------|-----------|-------|------------------------|-------|-------|-------------|--------|------------|---------------|-------|
| DAY | ост | NOA | DEC | JAN | FKB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 76.61 | | | 69.93 | 70.11 | 67.39 | 72.30 | 74.10 | 74.93 | 75.92 | 77.02 | 78.27 |
| 2 | 76.62 | | | 69.21 | 70.16 | 67.39 | 72.30 | 74.16 | 74.96 | 75.96 | 77.06 | 78.30 |
| 3 | 76.62 | | | 67.65 | 70.23 | 67.39 | 72.48 | 74.19 | 74.97 | 75.96 | 77.09 | 78.33 |
| 4 | 76.62 | | | | 70.28 | 67.39 | 72.51 | 74.24 | 75.00 | 75.99 | 77.13 | 78.36 |
| 5 | 76.58 | | | | 70.34 | 67.70 | 72.62 | 74.27 | 75.02 | 76.04 | 77.17 | 78.39 |
| 6 | 76.55 | | | | 70.40 | 68.10 | 72.67 | 74.34 | 75.06 | 76.07 | 77.23 | 78.43 |
| 7 | 76.53 | | | | 70.47 | 68.66 | 72.70 | 74.38 | 75.09 | 76.13 | 77.28 | 78.47 |
| 8 | 76.51 | | | | 70.55 | 68.90 | 72.83 | 74.41 | 75.13 | 76.17 | 77.34 | 78.51 |
| 9 | 76.50 | | | | 70.65 | 69.10 | 72.88 | 74.45 | 75.17 | 76.21 | 77.38 | 78.54 |
| 10 | 76.47 | | | 67.46 | 70.71 | 69.32 | 72.91 | 74.47 | 75.21 | 76.25 | 77.42 | 78.56 |
| 11 | 76.37 | | | 67.71 | 70.72 | 69.66 | 73.02 | 74.50 | 75.22 | 76.29 | 77.46 | 78.58 |
| 12 | 76.30 | | | 67.96 | 70.89 | 69.92 | 73.07 | 74.53 | 75.24 | 76.34 | 77.50 | 78.61 |
| 13 | 76.24 | | 65.64 | 68.17 | 70.97 | 70.25 | 73.09 | 74.55 | 75.26 | 76.39 | 77.55 | 78.51 |
| 14 | 76.11 | | | 68.38 | 71.03 | 70.45 | 73.11 | 74.58 | 75.28 | 76.45 | 77.59 | 78.43 |
| 15 | 75.88 | | | 68.58 | 71.11 | 70.64 | 73.22 | 74.59 | 75.30 | 76.49 | 77.65 | 78.36 |
| 16 | 75.45 | | | 68.70 | 71.21 | 70.84 | 73.27 | 74.59 | 75.34 | 76.53 | 77.69 | 78.33 |
| 17 | 74.68 | | | 68.78 | 71.29 | 70.93 | 73.29 | 74.60 | 75.37 | 76.54 | 77.73 | 78.29 |
| 18 | 71.48 | | | 68.88 | 71.35 | 71.11 | 73.40 | 74.60 | 75.41 | 76.56 | 77.77 | 78.27 |
| 19 | | | 66.71 | 68.96 | 71.37 | 71.28 | 73.42 | 74.65 | 75.44 | 76.57 | 77.81 | 78.25 |
| 20 | | | 66.97 | 69.03 | 71.27 | 71.33 | 73.46 | 74.66 | 75.45 | 76.60 | 77.84 | 78.25 |
| 21 | | | 67.28 | 69.11 | 69.76 | 71.48 | 73.49 | 74.67 | 75.51 | 76.62 | 77.89 | 78.24 |
| 22 | | | 67.68 | 69.21 | 67.40 | 71.62 | 73.60 | 74.68 | 75.54 | 76.66 | 77.95 | 78.23 |
| 23 | | | 68.07 | 69.34 | 67.39 | 71.66 | 73.63 | 74.70 | 75.56 | 76.69 | 77.98 | 78.23 |
| 24 | | | 68.39 | 69.45 | 67.39 | 71.70 | 73.66 | 74.71 | 75.59 | 76.73 | 78.04 | 78.23 |
| 25 | | | 68.70 | 69.57 | 67.39 | 71.83 | 73.69 | 74.74 | 75.64 | 76.77 | 78.09 | 78.23 |
| 26 | | | 68.88 | 69.67 | 67.39 | 71.86 | 73.79 | 74.76 | 75.68 | 76.82 | 78.13 | 78.23 |
| 27 | | | 69.03 | 69.77 | 67.39 | 71.92 | 73.85 | 74.80 | 75.73 | 76.85 | 78.16 | 78.23 |
| 28 | | | 69.20 | 69.85 | 67.39 | 72.06 | 73.91 | 74.82 | 75.78 | 76.88 | 78.1 8 | 78.24 |
| 29 | | 70.46 | 69.41 | 69.91 | | 72.07 | 73.97 | 74.84 | 75.82 | 76.91 | 78.20 | 78.25 |
| 30 | | | 69.63 | 69.97 | | 72.22 | 74.04 | 74.85 | 75.86 | 76.95 | 78.24 | 78.27 |
| 31 | | | 69.84 | 70.04 | | 72.25 | | 74.90 | | 76.99 | 78.24 | |
| LOW | 76.62 | 70.46 | 69.84 | 70.04 | 71.37 | 74.14 | 74.04 | 74.90 | 75.86 | 76.99 | 78.24 | 78.61 |
| HIGH | 71.48 | 70.46 | 65.64 | 67.46 | 67.39 | 67.39 | 72.30 | 74.10 | 74.93 | 75.92 | 77.02 | 78.23 |



RIO CIBUCO BASIN

182647066201700. Local number, 70.

LOCATION.--Lat 18°26'47*, long 66°20'17*.

Cwner: P.R. Aqueduct and Sewer Authority.

Name: Sabana Hoyos.

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in (0.20 m), cased 0-90 ft (0-27.43 m), perforated.

Depth 90 ft (27.43 m).

DATUM.--Elevation of land-surface datum is about 49 ft (14.9 m) above mean sea level, from topographic map.

Measuring point: Top of casing wooden cover, 1.30 ft (0.40 m) above land-surface datum.

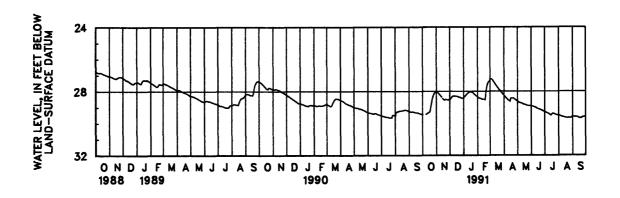
REMARKS.--Recording observation well.

PERIOD OF RECORD.--February 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 21.33 ft (6.50 m) below land-surface datum, Oct. 26, 1976; lowest water level recorded, 31.10 ft (9.48 m) below land-surface datum, July 31, 1975.

| WATE | R LEVEL, | IN | FRET | BELOW | LAND-SURFACE | DATUM, | WATER | YEAR | OCTOBER | 1990 | TO | September | 1991 |
|------|----------|----|------|-------|---------------|---------|--------|------|---------|------|----|-----------|------|
| | | | | TNS | FANMTANROUS C | RSRRVAT | TON AT | 1200 | | | | | |

| | | | | 1401 | ALWITALIGO | 5 ODDBRIA | IIION AI I | 200 | | | | |
|------|-------|-------|-------|-------|------------|-----------|------------|-------|-------|-------|-------|-------|
| DAY | OCT | MOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 29.45 | 28.04 | 28.51 | 28.40 | 28.35 | 27.24 | 28.27 | 28.61 | 28.92 | 29.27 | 29.50 | 29.57 |
| 2 | 29.46 | 28.05 | 28.50 | 28.37 | 28.37 | 27.24 | 28.30 | 28.64 | 28.93 | 29.29 | 29.51 | 29.58 |
| 3 | | 28.06 | 28.47 | 28.33 | 28.39 | 27.22 | 28.33 | 28.67 | 28.93 | 29.31 | 29.52 | 29.58 |
| 4 | | 28.08 | 28.42 | 28.31 | 28.41 | 27.24 | 28.36 | 28.68 | 28.94 | 29.32 | 29.53 | 29.59 |
| 5 | | 28.10 | 28.38 | 28.28 | 28.42 | 27.26 | 28.39 | 28.70 | 28.95 | 29.34 | 29.54 | 29.59 |
| 6 | | 28.13 | 28.34 | 28.25 | 28.44 | 27.28 | 28.43 | 28.71 | 28.96 | 29.35 | 29.56 | 29.60 |
| 7 | | 28.16 | 28.32 | 28.22 | 28.44 | 27.33 | 28.45 | 28.71 | 28.97 | 29.36 | 29.57 | 29.60 |
| 8 | | 28.19 | 28.30 | 28.18 | 28.45 | 27.37 | 28.48 | 28.73 | 28.98 | 29.37 | 29.58 | 29.60 |
| 9 | 29.43 | 28.23 | 28.30 | 28.16 | 28.46 | 27.41 | 28.52 | 28.74 | 28.99 | 29.39 | 29.60 | 29.59 |
| 10 | 29.42 | 28.26 | 28.30 | 28.12 | 28.48 | 27.46 | 28.54 | 28.75 | 29.00 | 29.41 | 29.60 | 29.60 |
| 11 | 29.39 | 28.30 | 28.30 | 28.09 | 28.50 | 27.50 | 28.56 | 28.76 | 29.01 | 29.43 | 29.60 | 29.60 |
| 12 | 29.37 | 28.33 | 28.31 | 28.07 | 28.49 | 27.54 | 28.58 | 28.77 | 29.03 | 29.45 | 29.61 | 29.61 |
| 13 | 29.35 | 28.36 | 28.30 | 28.06 | 28.50 | 27.58 | 28.59 | 28.78 | 29.04 | 29.47 | 29.62 | 29.61 |
| 14 | 29.33 | | 28.30 | 28.04 | 28.50 | 27.61 | 28.61 | 28.80 | 29.06 | 29.49 | 29.63 | 29.64 |
| 15 | 29.32 | 28.46 | 28.30 | 28.04 | 28.51 | 27.66 | 28.63 | 28.81 | 29.08 | 29.50 | 29.64 | 29.66 |
| 16 | 29.29 | 28.48 | 28.31 | 28.04 | 28.51 | 27.69 | 28.44 | 28.82 | 29.09 | 29.46 | 29.65 | 29.67 |
| 17 | 29.26 | 28.50 | 28.31 | 28.04 | 28.52 | 27.74 | 28.44 | 28.84 | 29.10 | 29.44 | 29.65 | 29.67 |
| 18 | 29.21 | 28.53 | 28.32 | 28.05 | 28.54 | 27.78 | 28.44 | 28.84 | 29.12 | 29.41 | 29.66 | 29.67 |
| 19 | 29.02 | 28.55 | 28.33 | 28.06 | 28.29 | 27.81 | 28.43 | 28.85 | 29.13 | 29.39 | 29.66 | 29.67 |
| 20 | 28.87 | 28.53 | 28.34 | 28.07 | 28.00 | 27.86 | 28.43 | 28.86 | 29.14 | 29.39 | 29.67 | 29.66 |
| 21 | 28.72 | 28.51 | 28.36 | 28.08 | 27.80 | 27.89 | 28.43 | 28.87 | 29.15 | 29.39 | 29.67 | 29.66 |
| 22 | 28.56 | 28.51 | 28.37 | 28.10 | 27.66 | 27.92 | 28.44 | 28.88 | 29.16 | 29.40 | 29.67 | 29.63 |
| 23 | 28.43 | 28.51 | 28.38 | 28.12 | 27.56 | 27.94 | 28.46 | 28.89 | 29.17 | 29.42 | 29.65 | 29.62 |
| 24 | 28.33 | 28.52 | 28.38 | 28.16 | 27.48 | 27.98 | 28.48 | 28.90 | 29.18 | 29.44 | 29.65 | 29.61 |
| 25 | 28.25 | 28.53 | 28.39 | 28.18 | 27.42 | 28.01 | 28.50 | 28.91 | 29.20 | 29.45 | 29.65 | 29.60 |
| 26 | 28.19 | 28.54 | 28.41 | 28.21 | 27.39 | 28.06 | 28.52 | 28.91 | 29.22 | 29.46 | 29.66 | 29.60 |
| 27 | 28.14 | 28.54 | 28.42 | 28.23 | 27.36 | 28.10 | 28.54 | 28.91 | 29.23 | 29.47 | 29.66 | 29.60 |
| 28 | 28.09 | 28.53 | 28.43 | 28.26 | 27.36 | 28.13 | 28.56 | 28.91 | 29.24 | 29.48 | 29.65 | 29.59 |
| 29 | 28.06 | 28.53 | 28.44 | 28.29 | | 28.16 | 28.58 | 28.91 | 29,26 | 29.48 | 29.64 | 29.59 |
| 30 | 28.05 | 28.51 | 28.44 | 28.31 | | 28.20 | 28.59 | 28.92 | 29.27 | 29.49 | 29.63 | 29.59 |
| 31 | 28.04 | | 28.43 | 28.33 | | 28.24 | | 28.92 | | 29.49 | 29.59 | |
| LOW | 29.46 | 28.55 | 28.51 | 28.40 | 28.54 | 28.24 | 28.63 | 28.92 | 29.27 | 29.50 | 29.67 | 29.67 |
| HIGH | 28.04 | 28.04 | 28.30 | 28.04 | 27.36 | 27.22 | 28.27 | 28.61 | 28.92 | 29.27 | 29.50 | 29.57 |



RIO CIBUCO BASIN

182615066235300. Local number, 211.
LOCATION.--Lat 18°26'15", long 66°23'53".
Owner: P.R. Aqueduct and Sewer Authority.
Name: Rosario No. 2.
AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS. -- Drilled unused water-table well, diameter 14 in (0.36 m) 0-200 ft (0-61.0 m), diameter 12 in (0.30 m) 200-250 ft (61.0-76.2 m), cased 12 in (0.30 m) 0-250 ft (0-76.2 m), perforated 210-250 ft (64.0-76.2 m), diameter 10 in (0.25 m) 250-270 ft (76.2-82.3 m), open hole; concrete sealed 0-200 ft (0-61.0 m). Depth 270 ft

DATUM.--Elevation of land-surface datum is about 215 ft (65.5 m) above mean sea level, from topographic map.
Measuring point: Hole on side of casing, 1.15 ft (0.35 m) above land-surface datum.
REMARKS.--Recording observation well.

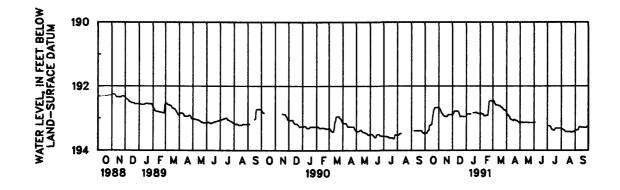
PERIOD OF RECORD. --October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 191.29 ft (58.30 m) below land-surface datum, May 16,

1986; lowest water level recorded, 193.63 ft (59.02 m) below land-surface datum, July 21-25, 1990

WATER LEVEL, IN FEST BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| | INDIANAMENT CONTROL IN 1970 | | | | | | | | | | | | | |
|------|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|
| DAY | OCT | NOV | DEC | JAN | PRB | MAR | APR | MAY | JUN | JUL | λUG | SEP | | |
| 1 | 193.47 | 192.67 | 192.88 | 192.94 | 192.86 | 192.46 | 192.86 | 193.13 | 193.14 | | 193.31 | 193.39 | | |
| 2 | 193.47 | 192.67 | 192.87 | 192.90 | 192.86 | 192.46 | 192.88 | 193.13 | 193.14 | | 193.31 | 193.38 | | |
| 3 | 193.47 | 192.71 | 192.87 | 192.87 | 192.86 | 192.46 | 192.88 | 193.14 | 193.12 | | 193.35 | 193.37 | | |
| 4 | 193.47 | 192.73 | 192.84 | 192.87 | 192.85 | 192.46 | 192.90 | 193.13 | | 193.24 | 193.35 | 193.37 | | |
| 5 | 193.46 | 192.75 | 192.79 | 192.87 | 192.87 | 192.52 | 192.92 | 193.13 | | 193.24 | 193.35 | 193.37 | | |
| 6 | 193.44 | 192.80 | 192.78 | 192.87 | 192.87 | 192.54 | 192.94 | 193.13 | | 193.24 | 193.36 | 193.36 | | |
| 7 | 193.41 | 192.83 | 192.78 | 192.87 | 192.87 | 192.57 | 192.95 | 193.13 | | 193.26 | 193.37 | 193.36 | | |
| 8 | 193.38 | 192.85 | 192.78 | 192.87 | 192.87 | 192.59 | 192.96 | 193.13 | | 193.27 | 193.37 | 193.35 | | |
| 9 | 193.38 | 192.87 | 192.78 | 192.87 | 192.91 | 192.58 | 193.02 | 193.13 | | 193.30 | 193.41 | 193.29 | | |
| 10 | 193.37 | 192.89 | 192.78 | 192.87 | 192.93 | 192.59 | 193.03 | 193.13 | | 193.34 | 193.42 | 193.27 | | |
| 11 | 193.22 | 192.91 | 192.78 | 192.87 | 192.93 | 192.59 | 193.04 | 193.13 | | 193.35 | 193.42 | 193.27 | | |
| 12 | 193.22 | 192.92 | 192.78 | | 192.92 | 192.59 | 193.05 | 193.13 | | 193.36 | 193.42 | 193.27 | | |
| 13 | 193.22 | 192.94 | 192.78 | | 192.92 | 192.59 | 193.05 | 193.13 | | 193.36 | 193.42 | 193.27 | | |
| 14 | 193.21 | 192.94 | 192.79 | | 192.92 | 192.60 | 193.06 | 193.13 | | 193.37 | 193.42 | 193.28 | | |
| 15 | 193.18 | 192.94 | 192.82 | | 192.92 | 192.61 | 193.07 | 193.13 | | 193.37 | 193.42 | 193.28 | | |
| 16 | 193.18 | 192.95 | 192.85 | | 192.91 | 192.61 | 193.08 | 193.13 | | 193.38 | 193.42 | 193.28 | | |
| 17 | 193.08 | 192.95 | 192.90 | 192.83 | 192.91 | 192.60 | 193.04 | 193.13 | | 193.35 | 193.42 | 193.28 | | |
| 18 | 192.95 | 192.95 | 192.95 | 192.83 | 192.91 | 192.63 | 193.04 | 193.13 | | 193.34 | 193.42 | 193.28 | | |
| 19 | 192.87 | 192.95 | 192.95 | 192.83 | 192.81 | 192.64 | 193.05 | 193.14 | | 193.31 | 193.42 | 193.28 | | |
| 20 | 192.77 | 192.93 | 192.95 | 192.83 | 192.63 | 192.66 | 193.06 | 193.14 | | 193.31 | 193.42 | 193.29 | | |
| 21 | 192.72 | 192.91 | 192.95 | 192.83 | 192.47 | 192.65 | 193.07 | 193.14 | | 193.31 | 193.42 | 193.29 | | |
| 22 | 192.70 | 192.89 | 192.95 | 192.83 | 192.46 | 192.68 | 193.08 | 193.14 | | 193.31 | 193.42 | 193.29 | | |
| 23 | 192.67 | 192.89 | 192.95 | 192.82 | 192.46 | 192.68 | 193.07 | 193.14 | | 193.31 | 193.44 | 193.29 | | |
| 24 | 192.67 | 192.89 | 192.95 | 192.82 | 192.46 | 192.71 | 193.08 | 193.14 | | 193.31 | 193.43 | 193.29 | | |
| 25 | 192.67 | 192.89 | 192.95 | 192.84 | 192.45 | 192.73 | 193.09 | 193.14 | | 193.31 | 193.43 | 193.29 | | |
| 26 | 192,67 | 192.89 | 192.95 | 192.85 | 192.45 | 192.74 | 193.10 | 193.14 | | 193.31 | 193.42 | 193.28 | | |
| 27 | 192.67 | 192.89 | 192.95 | 192.85 | 192.47 | 192.74 | 193.11 | 193.14 | | 193.31 | 193.42 | 193.26 | | |
| 28 | 192.67 | 192.89 | 192.95 | 192.85 | 192.47 | 192.75 | 193.12 | 193.14 | | 193.31 | 193.42 | 193.26 | | |
| 29 | 192.67 | 192.89 | 192.95 | 192.86 | | 192.75 | 193.14 | 193.14 | | 193.31 | 193.42 | 193.26 | | |
| 30 | 192.67 | 192.89 | 192.95 | 192.86 | | 192.77 | 193.15 | 193.14 | | 193.31 | 193.40 | 193.26 | | |
| 31 | 192.67 | | 192.95 | 192.86 | | 192.80 | | 193.14 | | 193.31 | 193.39 | | | |
| LOW | 193.47 | 192.95 | 192.95 | 192.94 | 192.93 | 192.80 | 193.15 | 193.14 | 193.14 | 193.38 | 193.44 | 193.39 | | |
| HIGH | 192.67 | 192.67 | 192.78 | 192.82 | 192.45 | 192.46 | 192.86 | 193.13 | 193.12 | 193.24 | 193.31 | 193.26 | | |



RIO CIBUCO BASIN

182515066194000. Local number, 212.

LOCATION.-Lat 18°25'15", long 66°19'40".

Owner: U.S. Geological Survey.

Name: Ponderoxa TW-1.

AQUIFER.--Aguada Limestone-Cibao Formation.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-136 ft (0-41.1 m), perforated 121-131 ft (36.9-39.9 m); bentonite packed 0.5-121 ft (0.15-36.9 m).

Depth 136 ft (39.9 m).

DATUM.--Elevation of land-surface datum is about 98.0 ft (29.9 m) above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.00 ft (0.91 m) above land-surface datum.

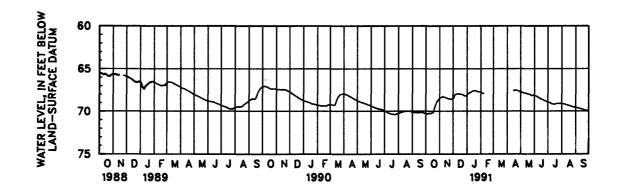
REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 63.05 ft (19.22 m) below land-surface datum, July 15, 1987; lowest water level recorded, 74.63 ft (22.75 m) below land-surface datum, Oct. 27,28, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| | | | | | | 0000000000 | | | | | | |
|------|-------|-------|-------|-------|-------|------------|-------|-------|-------|-------|-------|-------|
| DAY | OCT | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 70.27 | 68.48 | 68.49 | 68.13 | 67.78 | | | 67.69 | 68.15 | 68.90 | 69.11 | 69.58 |
| 2 | 70.29 | 68.44 | 68.46 | 68.02 | 67.80 | | | 67.73 | 68.16 | 68.93 | 69.16 | 69.59 |
| 3 | 70.32 | 68.42 | 68.45 | 67.97 | 67.82 | | 66.99 | 67.73 | 68.17 | 68.96 | 69.16 | 69.60 |
| 4 | 70.32 | 68.41 | 68.28 | 67.94 | 67.84 | | | 67.77 | 68.19 | 68.98 | 69.17 | 69.62 |
| 5 | 70.31 | 68.35 | 68.14 | 67.90 | 67.87 | | | 67.78 | 68.22 | 69.00 | 69.18 | 69.62 |
| 6 | 70.29 | 68.33 | 68.05 | 67.88 | 67.91 | | | 67.82 | 68.25 | 69.01 | 69.18 | 69.64 |
| 7 | 70.27 | 68.32 | 68.01 | 67.82 | 67.93 | | | 67.83 | 68.27 | 69.03 | 69.18 | 69.66 |
| 8 | 70.26 | 68.32 | 67.99 | 67.80 | | | | 67.85 | 68.28 | 69.09 | 69.20 | 69.66 |
| 9 | 70.25 | 68.32 | 67.97 | 67.77 | | | | 67.85 | 68.29 | 69.10 | 69.21 | 69.67 |
| 10 | 70.25 | 68.33 | 67.95 | 67.74 | | | | 67.87 | 68.40 | 69.17 | 69.25 | 69.69 |
| 11 | 70.26 | 68.33 | 67.94 | 67.71 | | | | 67.87 | 68.42 | 69.16 | 69.27 | 69.69 |
| 12 | 70.25 | 68.34 | 67.95 | 67.67 | | | | 67.88 | 68.43 | 69.18 | 69.27 | 69.70 |
| 13 | 70.22 | 68.37 | 67.95 | 67.64 | | | | 67.89 | 68.45 | 69.19 | 69.29 | 69.72 |
| 14 | 70.20 | 68.39 | 67.95 | 67.62 | | | | 67.91 | 68.51 | 69.19 | 69.30 | 69.74 |
| 15 | 70.18 | 68.41 | 67.96 | 67.60 | | | 67.54 | 67.94 | 68.53 | 69.21 | 69.32 | 69.77 |
| 16 | 70.18 | 68.42 | 67.97 | 67.59 | | | 67.56 | 67.95 | 68.56 | 69.22 | 69.34 | 69.78 |
| 17 | 70.16 | 68.44 | 67.97 | 67.58 | | | 67.55 | 67.97 | 68.59 | 69.18 | 69.35 | 69.80 |
| 18 | 70.10 | 68.45 | 67.98 | 67.58 | | | 67.53 | 67.98 | 68.62 | 69.15 | 69.37 | 69.82 |
| 19 | 69.91 | 68.49 | 68.00 | 67.58 | | | 67.52 | 67.99 | 68.64 | 69.13 | 69.38 | 69.83 |
| 20 | 69.70 | 68.53 | 68.02 | 67.58 | | | 67.53 | 68.00 | 68.66 | 69.13 | 69.39 | 69.85 |
| 21 | 69.54 | 68.54 | 68.03 | 67.58 | | | 67.53 | 68.01 | 68.68 | 69.12 | 69.44 | 69.87 |
| 22 | 69.40 | 68.54 | 68.04 | 67.61 | | | 67.53 | 68.02 | 68.71 | 69.11 | 69.45 | 69.88 |
| 23 | | 68.56 | 68.05 | 67.69 | | | 67.54 | 68.06 | 68.75 | 69.11 | 69.46 | 69.88 |
| 24 | | 68.57 | 68.08 | 67.68 | | | 67.57 | 68.07 | 68.78 | 69.10 | 69.48 | 69.90 |
| 25 | | 68.59 | 68.12 | 67.68 | | | 67.59 | 68.15 | 68.79 | 69.11 | 69.49 | 69.91 |
| 26 | 68.89 | 68.60 | 68.14 | 67.69 | | | 67.61 | 68.16 | 68.81 | 69.11 | 69.50 | 69.92 |
| 27 | 68.84 | 68.60 | 68.17 | 67.71 | | | 67.63 | 68.16 | 68.83 | 69.10 | 69.54 | 69.93 |
| 28 | 68.77 | 68.56 | 68.18 | 67.72 | | | 67.66 | 68.14 | 68.86 | 69.11 | 69.54 | 69.93 |
| 29 | 68.69 | 68.55 | 68.21 | 67.72 | | | 67.71 | 68.11 | 68.88 | 69.11 | 69.54 | 69.95 |
| 30 | 68.64 | 68.53 | 68.22 | 67.72 | | | | 68.12 | 68.89 | 69.10 | 69.55 | 69.95 |
| 31 | 68.56 | | 68.22 | 67.75 | | | | 68.13 | | 69.12 | 69.56 | |
| LOW | 70.32 | 68.60 | 68.49 | 68.13 | 67.93 | | 67.71 | 68.16 | 68.89 | 69.22 | 69.56 | 69.95 |
| HIGH | 68.56 | 68.32 | 67.94 | 67.58 | 67.78 | | 66.99 | 67.69 | 68.15 | 68.90 | 69.11 | 69.58 |



RIO CIBUCO BASIN

182330066185700. 182330066185700. Local number, 213.
LOCATION.--Lat 18°23'30", long 66°18'57".

Cwner: P.R. Aqueduct and Sewer Authority.

Name: Pampano No. 2. AQUIFER.--Rio Indio Limestone-Lares Limestone.

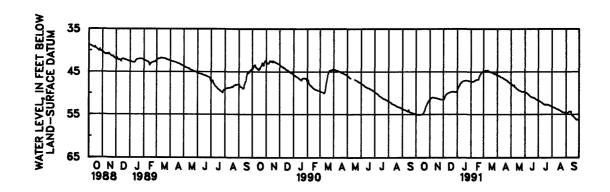
AQUIFER.--Rio Indio Limestone-Lares Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-130 ft
(0-39.6 m), diameter 14 in (0.36 m), cased 12 in (0.30 m) 0-220 ft (0-67.1 m); open hole 220-330 ft (67.6100.6 m). Depth 330 ft (100.6 m).

DATUM.--Elevation of land-surface datum is about 394 ft (120 m) above mean sea level, from topographic map.
Measuring point: Hole on side of casing, 2.95 ft (0.90 m) above land-surface datum.
REMARKS.--Recording observation well.
PERIOD OF RECORD.--October 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.40 ft (10.50 m) below land-surface datum, Dec. 6,
1985; lowest water level recorded, 56.53 ft (17.2 m) below land-surface datum, Sept. 30, 1991.

WATER LEVEL, IN FEST BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 54.99 | 51.55 | 51.50 | 49.43 | 47.32 | 44.89 | 45.80 | 47.83 | 49.77 | 51.64 | 53.25 | 54.68 |
| 2 | 55.08 | 51.35 | 51.44 | 49.08 | 47.29 | 44.83 | 45.85 | 47.92 | 49.81 | 51.78 | 53.33 | 54.71 |
| 3 | 55.11 | 51.24 | 51.41 | 48.79 | 47.30 | 44.78 | 45.92 | 47.94 | 49.87 | 51.79 | 53.36 | 54.73 |
| 4 | 55.08 | 51.13 | 51.11 | 48.56 | 47.33 | 44.72 | 45.95 | 48.10 | 49.92 | 51.87 | 53.32 | 54.89 |
| 5 | 55.01 | 51.06 | 50.78 | 48.40 | 47.31 | 44.69 | 45.97 | 48.22 | 49.94 | 51.92 | 53.37 | 54.65 |
| 6 | 55.10 | 51.03 | 50.57 | 48.25 | 47.30 | 44.70 | 46.04 | 48.24 | 50.07 | 52.03 | 53.41 | 54.50 |
| 7 | 55.06 | 51.00 | 50.41 | 47.99 | 47.30 | 44.69 | 46.11 | 48.33 | 50.13 | 52.11 | 53.47 | 54.38 |
| 8 | 55.04 | 50.98 | 50.31 | 47.83 | 47.21 | 44.67 | 46.20 | 48.13 | 50.24 | 52.15 | 53.51 | 54.33 |
| 9 | 55.02 | 51.01 | 50.19 | 47.68 | 47.11 | 44.69 | 46.28 | 48.42 | 50.28 | 52.26 | 53.60 | 54.33 |
| 10 | 55.10 | 51.06 | 50.10 | 47.63 | 47.05 | 44.68 | 46.30 | 48.61 | 50.42 | 52.36 | 53.69 | 54.34 |
| 11 | 55.03 | 51.03 | 50.04 | 47.48 | 47.04 | 44.64 | 46.38 | 48.69 | 50.51 | 52.41 | 53.74 | 54.32 |
| 12 | 55.00 | 51.11 | 50.01 | 47.37 | 46.95 | 44.85 | 46.42 | 48.80 | 50.65 | 52.49 | 53.75 | 54.31 |
| 13 | 54.98 | 51.12 | 49.95 | 47.27 | 46.91 | 44.88 | 46.50 | 48.90 | 50.75 | 52.62 | 53.74 | 54.94 |
| 14 | 54.99 | 51.14 | 49.91 | 47.24 | 46.84 | 44.89 | 46.52 | 48.98 | 50.83 | 52.66 | 53.81 | 55.17 |
| 15 | 54.96 | 51.14 | 49.84 | 47.19 | 46.85 | 44.97 | 46.63 | 49.05 | 50.87 | 52.74 | 53.81 | 55.30 |
| 16 | 54.92 | 51.15 | 49.84 | 47.17 | 46.85 | 45.01 | 46.69 | 49.10 | 50.92 | 52.75 | 53.97 | 55.36 |
| 17 | 54.87 | 51.16 | 49.75 | 47.10 | 46.83 | 45.11 | 46.72 | 49.22 | 50.99 | 52.75 | 53.99 | 55.34 |
| 18 | 54.72 | 51.25 | 49.69 | 47.10 | 46.80 | 45.09 | 46.81 | 49.29 | 50.98 | 52.69 | 54.03 | 55.50 |
| 19 | 54.42 | 51.32 | 49.71 | 47.08 | 46.29 | 45.08 | 46.84 | 49.40 | 51.05 | 52.67 | 54.09 | 55.69 |
| 20 | 54.18 | 51.31 | 49.71 | 47.01 | 46.03 | 45.12 | 46.94 | 49.42 | 51.08 | 52.75 | 54.22 | 55.75 |
| 21 | 53.94 | 51.31 | 49.70 | 47.04 | 45.89 | 45.18 | 46.96 | 49.46 | 51.01 | 52.73 | 54.26 | 55.91 |
| 22 | 53.57 | 51.34 | 49.67 | 47.04 | 45.64 | 45.26 | 47.07 | 49.52 | 51.14 | 52.72 | 54.29 | 55.98 |
| 23 | 53.22 | 51.41 | 49.62 | 47.05 | 45.46 | 45.38 | 47.10 | 49.55 | 51.18 | 52.73 | 54.36 | 56.07 |
| 24 | 53.00 | 51.44 | 49.64 | 47.08 | 45.31 | 45.45 | 47.33 | 49.64 | 51.28 | 52.76 | 54.52 | 56.23 |
| 25 | 52.79 | 51.47 | 49.70 | 47.08 | 45.15 | 45.48 | 47.36 | 49.70 | 51.38 | 52.83 | 54.50 | 56.13 |
| 26 | 52.55 | 51.51 | 49.70 | 47.11 | 45.01 | 45.59 | 47.46 | 49.65 | 51.46 | 52.86 | 54.52 | 56.15 |
| 27 | 52.33 | 51.53 | 49.69 | 47.16 | 44.98 | 45.47 | 47.54 | 49.68 | 51.55 | 52.92 | 54.55 | 56.17 |
| 28 | 52.09 | 51.51 | 49.71 | 47.16 | 44.93 | 45.48 | 47.65 | 49.68 | 51.57 | 52.95 | 54.56 | 56.29 |
| 29 | 51.90 | 51.49 | 49.74 | 47.23 | | 45.47 | 47.71 | 49.71 | 51.58 | 53.00 | 54.55 | 56.46 |
| 30 | 51.76 | 51.49 | 49.74 | 47.22 | | 45.77 | 47.83 | 49.72 | 51.63 | 53.04 | 54.57 | 56.50 |
| 31 | 51.61 | | 49.70 | 47.23 | | 45.89 | | 49.72 | | 53.19 | 54.68 | |
| LOW | 55.11 | 51.55 | 51.50 | 49.43 | 47.33 | 45.89 | 47.83 | 49.72 | 51.63 | 53.19 | 54.68 | 56.50 |
| HIGH | 51.61 | 50.98 | 49.62 | 47.01 | 44.93 | 44.64 | 45.80 | 47.83 | 49.77 | 51.64 | 53.25 | 54.31 |

WTR YR 1991 MRAN 50.26 LOW 56.50 HIGH 44.64



RIO DE LA PLATA BASIN

182746066170800. Local number, 214. LOCATION.--Lat 18°27'46", long 66°17'08". Owner: Dorado Beach Hotel.

Owner: Dorado Beach Hotel.

Name: Dorado Beach No. 7.

AQUIFER.--Aymanon Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 18 in (0.46 m). Depth 100 ft (30.5 m).

DATUM.--Elevation of land-surface datum is about 26.0 ft (8.0 m) above mean sea level, from topographic map. Prior to this report, elevation incorrectly used was 39.0 ft (11.9 m). Measuring point: Hole on side of casing, 1.10 ft (0.34 m) above land-surface datum.

DEMANDER --Baronding chearuston wall. Mater levels affected by nearby numning well.

(0.34 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

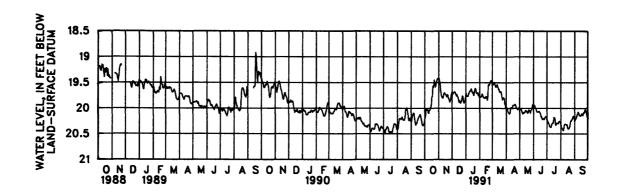
PERIOD OF RECORD.-- Movember 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.23 ft (5.56 m) below land-surface datum, Nov. 16, 1985; lowest water level recorded, 20.58 ft (6.27 m) below land-surface datum, June 22, 1990.

| WATER LEVEL, | IN | FERT | BELOW | LAND-SUR | Face | DATUM, | WATER | YEAR | OCTOBER | 1990 | TO | September | 1991 |
|--------------|----|------|-------|------------|------|----------------|-----------|------|---------|------|----|-----------|------|
| | | | TNG | TANKATUKAT | g OR | GRDVATT | יית ביותר | 1200 | | | | | |

| DAY | OCT | NOV | DEC | Jan | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 20.22 | 19.43 | 19.68 | 19.73 | 19.79 | 19.48 | 19.98 | 20.01 | 19.95 | 20.22 | 20.31 | 20.25 |
| 2 | 20.16 | 19.42 | 19.75 | 19.71 | 19.77 | 19.51 | 19.98 | 20.02 | 19.95 | 20.24 | 20.35 | 20.23 |
| 3 | 20.12 | 19.47 | 19.70 | 19.76 | 19.78 | 19.54 | 19.99 | 20.03 | 19.94 | 20.26 | 20.39 | 20.20 |
| 4 | 20.03 | 19.50 | 19.70 | 19.77 | 19.78 | 19.51 | 20.03 | 20.01 | 19.95 | 20.28 | 20.40 | 20.19 |
| 5 | 20.00 | 19.61 | 19.69 | 19.76 | 19.76 | 19.49 | 20.07 | 20.03 | 19.99 | 20.30 | 20.40 | 20.17 |
| 6 | 20.03 | 19.69 | 19.69 | 19.77 | 19.72 | 19.51 | 20.09 | 20.06 | 20.00 | 20.32 | 20.43 | 20.13 |
| 7 | 20.02 | 19.75 | 19.68 | 19.73 | 19.73 | 19.55 | 20.10 | 20.09 | 20.01 | 20.35 | 20.43 | 20.11 |
| 8 | 20.04 | 19.77 | 19.69 | 19.70 | 19.77 | 19.56 | 20.11 | 20.11 | 20.05 | 20.36 | 20.37 | 20.08 |
| 9 | 20.10 | 19.79 | 19.73 | 19.68 | 19.79 | 19.59 | 20.10 | 20.09 | 20.07 | 20.36 | 20.31 | 20.07 |
| 10 | 20.09 | 19.80 | 19.74 | 19.67 | 19.79 | 19.57 | 20.07 | 20.08 | 20.07 | 20.37 | 20.31 | 20.12 |
| 11 | 20.04 | 19.80 | 19.76 | 19.65 | 19.80 | 19.55 | 20.02 | 20.09 | 20.07 | 20.34 | 20.31 | 20.14 |
| 12 | 20.03 | 19.75 | 19.73 | 19.66 | 19.80 | 19.54 | 19.98 | 20.08 | 20.07 | 20.31 | 20.31 | 20.14 |
| 13 | 20.03 | 19.71 | 19.76 | 19.62 | 19.80 | 19.58 | 19.98 | 20.07 | 20.06 | 20.29 | 20.32 | 20.14 |
| 14 | 19.97 | 19.70 | 19.78 | 19.66 | 19.78 | 19.60 | 19.99 | 20.05 | 20.06 | 20.29 | 20.33 | 20.15 |
| 15 | 19.97 | 19.72 | 19.81 | 19.69 | 19.77 | 19.64 | 19.99 | 20.04 | 20.08 | 20.28 | 20.32 | 20.13 |
| 16 | 19.91 | 19.73 | 19.84 | 19.70 | 19.78 | 19.63 | 19.93 | 20.06 | 20.10 | 20.23 | 20.38 | 20.10 |
| 17 | 19.77 | 19.73 | 19.89 | 19.69 | 19.81 | 19.68 | 19.94 | 20.06 | 20.13 | 20.17 | 20.40 | 20.13 |
| 18 | 19.77 | 19.75 | 19.85 | 19.75 | 19.84 | 19.69 | 19.94 | 20.09 | 20.17 | 20.19 | 20.39 | 20.13 |
| 19 | 19.56 | 19.78 | 19.87 | 19.75 | 19.77 | 19.69 | 19.94 | 20.09 | 20.16 | 20.21 | 20.40 | 20.14 |
| 20 | 19.56 | 19.77 | 19.90 | 19.69 | 19.57 | 19.67 | 19.94 | 20.08 | 20.20 | 20.31 | 20.37 | 20.08 |
| 21 | 19.60 | 19.73 | 19.89 | 19.63 | 19.53 | 19.70 | 19.92 | 20.04 | 20.22 | 20.33 | 20.35 | 20.08 |
| 22 | 19.44 | 19.76 | 19.86 | 19.61 | 19.55 | 19.74 | 19.94 | 20.03 | 20.20 | 20.30 | 20.29 | 20.09 |
| 23 | 19.54 | 19.82 | 19.83 | 19.63 | 19.53 | 19.81 | 19.97 | 20.04 | 20.20 | 20.29 | 20.24 | 20.08 |
| 24 | 19.54 | 19.82 | 19.77 | 19.68 | 19.49 | 19.84 | 20.00 | 20.07 | 20.21 | 20.29 | 20.25 | 20.04 |
| 25 | 19.60 | 19.84 | 19.76 | 19.71 | 19.48 | 19.82 | 20.01 | 20.09 | 20.22 | 20.29 | 20.23 | 20.02 |
| 26 | 19.53 | 19.88 | 19.81 | 19.70 | 19.46 | 19.79 | 20.00 | 20.05 | 20.19 | 20.30 | 20.21 | 20.05 |
| 27 | 19.47 | 19.85 | 19.88 | 19.72 | 19.47 | 19.81 | 20.03 | 20.04 | 20.17 | 20.27 | 20.19 | 20.08 |
| 28 | 19.46 | 19.82 | 19.90 | 19.70 | 19.46 | 19.82 | 19.99 | 20.01 | 20.17 | 20.26 | 20.17 | 20.12 |
| 29 | 19.43 | 19.75 | 19.87 | 19.76 | | 19.91 | 20.00 | 20.00 | 20.16 | 20.25 | 20.15 | 20.17 |
| 30 | 19.42 | 19.71 | 19.85 | 19.74 | | 19.94 | 20.00 | 19.94 | 20.18 | 20.26 | 20.17 | 20.19 |
| 31 | 19.43 | | 19.80 | 19.79 | | 19.98 | | 19.92 | | 20.28 | 20.22 | |
| LOW | 20.22 | 19.88 | 19.90 | 19.79 | 19.84 | 19.98 | 20.11 | 20.11 | 20.22 | 20.37 | 20.43 | 20.25 |
| High | 19.42 | 19.42 | 19.68 | 19.61 | 19.46 | 19.48 | 19.92 | 19.92 | 19.94 | 20.17 | 20.15 | 20.02 |

WTR YR 1991 MRAN 19.94 LOW 20.43 HIGH 19.42



RIO DE LA PLATA BASIN

182530066135400. Local number, 216.
LOCATION.--Lat 1825'30", long 66°13'54".
Owner: P.R. Aqueduct and Sewer Authority.
Name: Pozo Navy-Campanillas.
AQUIFER.--Aquada Limestone.

AQUIFER. --Aguada Limestone.

WELL CHARACTERISTICS. --Drilled unused water-table well, diameter 16 in (0.41 m) 0-106 ft (0-32.3 m), cased 16 in (0.41 m) 0-20 ft (0-6.10 m), cased 12 in (0.30 m) 0-106 ft (0-32.3 m), perforated 20-106 ft (6.10-32.3 m), diameter 10 in (10.25 m) 106-140 ft (32.3-42.7 m), cased 10 in (0.25 m) 106-140 ft (32.3-42.7 m), perforated 106-140 ft (32.3-42.7 m). Depth 140 ft (42.7 m).

DATUM. --Elevation of land-surface datum is about 13.0 ft (3.96 m) above mean sea level, from topographic map. Measuring point: Role on side of casing, 1.80 ft (0.55 m) above land-surface datum.

REMARKS.--Recording observation well.

PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.38 ft (2.86 m) below land-surface datum, June 23, 1987; lowest water level recorded, 14.72 ft (4.49 m) below land-surface datum, Apr. 28, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | МОЛ | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 13.48 | 11.53 | 13.00 | 12.95 | 13.19 | 11.83 | 12.67 | 12.71 | 13.04 | | 14.15 | 13.19 |
| 2 | 13.47 | 11.57 | 12.97 | 12.90 | 12.99 | 11.87 | 12.70 | 12.75 | 13.12 | | 14.17 | 13.18 |
| 3 | 13.18 | 11.61 | 12.87 | 12.91 | 13.18 | 11.91 | 12.70 | 12.64 | 13.17 | | 14.23 | 13.19 |
| 4 | 12.98 | 11.63 | 12.79 | 12.93 | 13.21 | 11.88 | 12.74 | 12.52 | 13.23 | | 14.36 | 13.21 |
| 5 | 12.88 | 11.68 | 12.79 | 12.90 | 13.22 | 11.88 | 12.76 | 12.72 | 13.28 | | 14.39 | 13.23 |
| 6 | 12.85 | 11.72 | 12.85 | 12.89 | 13.19 | 11.90 | 12.78 | 12.72 | 13.33 | | 14.34 | 13.26 |
| 7 | 12.80 | 11.76 | 12.90 | 12.83 | 13.21 | 11.96 | 12.81 | 12.75 | 13.38 | | 14.36 | 13.26 |
| 8 | 12.77 | 11.79 | 12.93 | 12.82 | 13.25 | 12.00 | 12.83 | 12.77 | 13.44 | | 14.38 | 13.24 |
| 9 | 12.79 | 11.84 | 12.96 | 12.79 | 13.29 | 12.05 | 12.85 | 12.64 | 13.49 | | 14.41 | 13.24 |
| 10 | 12.74 | 11.87 | 12.95 | 12.77 | 13.32 | 12.06 | 12.86 | 12.71 | 13.53 | | 14.44 | 13.27 |
| 11 | 12.58 | 11.89 | 13.01 | 12.79 | 13.32 | 12.10 | 12.86 | 12.73 | 13.57 | | 14.50 | 13.23 |
| 12 | 12.68 | 11.90 | 12.81 | 12.78 | 13.32 | 12.10 | 12.86 | 12.76 | 13.61 | | 14.59 | 13.24 |
| 13 | 12.83 | 11.91 | 12.74 | 12.76 | 13.31 | 12.12 | 12.85 | 12.78 | 13.66 | | 14.50 | 13.25 |
| 14 | 12.89 | 11.93 | 12.83 | 12.76 | 13.30 | 12.15 | 12.86 | 12.79 | 13.69 | | 14.51 | 13.27 |
| 15 | 12.84 | 11.95 | 12.90 | 12.78 | 13.43 | 12.19 | 12.87 | 12.81 | 12.90 | | 14.50 | 13.29 |
| 16 | 12.55 | 12.19 | 12.90 | 12.80 | 13.46 | 12.21 | 12.56 | 12.71 | 13.48 | | 14.52 | 13.28 |
| 17 | 12.24 | 12.25 | 12.90 | 12.81 | 13.44 | 12.25 | 12.50 | 12.83 | 13.61 | | 14.52 | 13.27 |
| 18 | 12.36 | 12.32 | 12.92 | 12.85 | 12.96 | 12.26 | 12.51 | 12.79 | 13.68 | | 14.39 | 13.27 |
| 19 | 11.80 | 12.36 | 12.96 | 12.88 | 12.39 | 12.28 | 12.51 | 13.12 | 13.68 | | 14.27 | 13.29 |
| 20 | 11.65 | 12.36 | 12.99 | 12.85 | 11.99 | 12.30 | 12.52 | 13.10 | 13.68 | | 14.33 | 13.29 |
| 21 | 11.70 | 12.36 | 13.02 | 12.62 | 11.81 | 12.34 | 12.53 | 13.08 | 13.70 | | 13.93 | 13.32 |
| 22 | 11.56 | 12.38 | 13.02 | 12.35 | 11.77 | 12.35 | 12.56 | 13.08 | 13.66 | | 13.68 | 13.33 |
| 23 | 11.62 | 12.42 | 13.03 | 12.87 | 11.76 | 12.34 | 12.60 | 12.74 | 13.69 | | 13.53 | 13.34 |
| 24 | 11.58 | 12.69 | 13.05 | 12.96 | 11.76 | 12.39 | 12.63 | 12.94 | 13.70 | 14.09 | 13.48 | 13.34 |
| 25 | 11.69 | 12.97 | 13.08 | 13.00 | 11.75 | 12.42 | 12.65 | 12.91 | 13.87 | 14.13 | 13.48 | 13.34 |
| 26 | 11.64 | 12.96 | 13.12 | 13.03 | 11.75 | 12.44 | 12.64 | 12.87 | 13.90 | 14.17 | 13.49 | 13.35 |
| 27 | 11.43 | 13.02 | 13.18 | 13.07 | 11.79 | 12.48 | 12.66 | 12.86 | 13.56 | 14.18 | 13.34 | 13.33 |
| 28 | 11.44 | 13.05 | 13.18 | 13.08 | 11.81 | 12.50 | 12.67 | 12.84 | 13.78 | 14.18 | 13.16 | |
| 29 | 11.44 | 13.06 | 13.13 | 13.13 | | 12.55 | 12.69 | 12.42 | | 14.17 | 13.08 | |
| 30 | 11.48 | 13.02 | 13.12 | 13.16 | | 12.60 | 12.71 | 12.35 | | 14.19 | 13.13 | |
| 31 | 11.51 | | 13.09 | 13.18 | | 12.65 | | 12.41 | | 14.21 | 13.18 | |
| LOW | 13.48 | 13.06 | 13.18 | 13.18 | 13.46 | 12.65 | 12.87 | 13.12 | 13.90 | 14.21 | 14.59 | 13.35 |
| HIGH | 11.43 | 11.53 | 12.74 | 12.35 | 11.75 | 11.83 | 12.50 | 12.35 | 12.90 | 14.09 | 13.08 | 13.18 |



RIO DE LA PLATA BASIN

182655066142400. Local number, 217. LOCATION.--Lat 18°26'55", long 66°14'24". Owner: U.S. Geological Survey.

Owner: U.S. Geological Survey.

Name: Monserrate TW-2.

AQUIFER.-Alluvial Deposits.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-80 ft (0-24.4 m), perforated 10-80 ft (3.05-24.4 m). Depth 80 ft (24.4 m).

DATUM.--Elevation of land-surface datum is about 3.30 ft (1.00 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.50 ft (1.07 m) above land-surface datum.

REMARKS.--Recording observation well.

PERIOD OF RECORD.--November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.02 ft (0.006 m) below land-surface datum, May 16, 1986; lowest water level recorded, 2.24 ft (0.68 m) below land-surface datum, Aug. 7, 1991.

| WATER | LEVEL, | IN | FRET | BRLOW | LAND. | SURFACE | DATUM, | WATER | YEAR | OCTOBER | 1990 | TO | SEPTEMBER | 1991 |
|-------|--------|----|------|-------|--------|----------|----------|---------|------|---------|------|----|-----------|------|
| | | | | TNO | PANTAI | TROUG OR | CROVA TT | OM AT 1 | 1200 | | | | | |

| DAY | OCT | NOA | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 1.86 | .86 | 1.26 | 1.09 | 1.40 | | 1.48 | 1.56 | 1.59 | 1.86 | 1.99 | 1.72 |
| 2 | 1.82 | .86 | 1.27 | 1.08 | 1.38 | | 1.37 | 1.56 | 1.60 | 1.89 | 2.01 | 1.73 |
| 3 | 1.70 | 1.00 | 1.17 | 1.13 | 1.38 | 1.06 | 1.41 | 1.56 | 1.61 | 1.94 | 2.13 | 1.74 |
| 4 | 1.58 | 1.05 | 1.13 | 1.15 | 1.39 | 1.05 | 1.44 | 1.52 | 1.62 | 1.96 | 2.17 | 1.77 |
| 5 | 1.54 | 1.11 | 1.13 | 1.16 | 1.36 | 1.04 | 1.47 | 1.57 | 1.64 | 1.97 | 2.19 | 1.76 |
| 6 | 1.55 | 1.17 | 1.16 | 1.15 | 1.32 | 1.06 | 1.48 | 1.59 | 1.66 | 1.99 | 2.23 | 1.74 |
| 7 | 1.51 | 1.23 | 1.18 | 1.13 | 1.35 | 1.10 | 1.50 | 1.62 | 1.68 | 2.01 | 2.24 | 1.71 |
| 8 | 1.51 | 1.24 | 1.21 | 1.12 | 1.39 | 1.11 | 1.51 | 1.64 | 1.71 | 2.02 | 2.20 | 1.70 |
| 9 | 1.57 | 1.27 | 1.24 | 1.11 | 1.43 | 1.16 | 1.51 | 1.63 | 1.72 | 2.11 | 2.17 | 1.69 |
| 10 | 1.54 | 1.27 | 1.25 | 1.11 | 1.45 | 1.16 | 1.49 | 1.64 | 1.76 | 2.14 | 2.17 | 1.71 |
| 11 | 1.42 | 1.28 | 1.29 | 1.12 | 1.45 | 1.15 | 1.48 | 1.65 | 1.77 | 2.11 | 2.19 | 1.69 |
| 12 | 1.43 | 1.26 | 1.14 | 1.12 | 1.43 | 1.16 | 1.45 | 1.67 | 1.78 | 2.12 | 2.19 | 1.70 |
| 13 | 1.47 | 1.27 | 1.15 | 1.11 | 1.39 | 1.18 | 1.43 | 1.67 | 1.76 | 2.10 | 2.19 | 1.68 |
| 14 | 1.44 | 1.26 | 1.18 | 1.15 | 1.37 | 1.18 | 1.46 | 1.66 | 1.74 | 2.11 | 2.20 | 1.69 |
| 15 | 1.47 | 1.26 | 1.22 | 1.19 | 1.36 | 1.21 | 1.45 | 1.66 | 1.67 | 2.11 | 2.18 | 1.66 |
| 16 | 1.37 | 1.27 | 1.21 | 1.20 | 1.39 | 1.21 | 1.25 | 1.67 | 1.70 | 1.91 | 2.23 | 1.62 |
| 17 | 1.19 | 1.27 | 1.25 | 1.21 | 1.42 | 1.24 | 1.27 | 1.69 | 1.74 | 1.70 | 2.24 | 1.64 |
| 18 | 1.19 | 1.30 | 1.23 | 1.26 | 1.43 | 1.25 | 1.28 | 1.65 | 1.80 | 1.77 | 2.17 | 1.65 |
| 19 | .77 | 1.31 | 1.25 | 1.27 | 1.20 | 1.24 | 1.28 | 1.65 | 1.79 | 1.82 | 2.18 | 1.65 |
| 20 | .78 | 1.29 | 1.30 | 1.25 | | 1.24 | 1.33 | 1.66 | 1.82 | 1.93 | 2.18 | 1.60 |
| 21 | . 64 | 1.28 | 1.31 | 1.21 | | 1.27 | 1.33 | 1.62 | 1.83 | 1.96 | 2.16 | 1.62 |
| 22 | .61 | 1.29 | 1.28 | 1.18 | | 1.30 | 1.37 | 1.63 | 1.79 | 1.97 | 2.02 | 1.62 |
| 23 | . 75 | 1.33 | 1.27 | 1.23 | | 1.30 | 1.43 | 1.65 | 1.82 | 1.98 | 1.91 | 1.59 |
| 24 | .76 | 1.35 | 1.24 | 1.28 | | 1.37 | 1.45 | 1.65 | 1.83 | 1.99 | 1.93 | 1.57 |
| 25 | . 85 | 1.40 | 1.25 | 1.34 | | 1.36 | 1.48 | 1.65 | 1.85 | 1.99 | 1.91 | 1.55 |
| 26 | .76 | 1.42 | 1.28 | 1.35 | | 1.31 | 1.49 | 1.62 | 1.84 | 2.00 | 1.91 | 1.58 |
| 27 | .75 | 1.39 | 1.33 | 1.37 | | 1.32 | 1.52 | 1.62 | 1.83 | 1.99 | 1.85 | 1.62 |
| 28 | .78 | 1.37 | 1.33 | 1.37 | | 1.33 | 1.53 | 1.60 | 1.77 | 1.99 | 1.69 | 1.62 |
| 29 | .77 | 1.32 | 1.28 | 1.42 | | 1.40 | 1.54 | 1.59 | 1.78 | 1.99 | 1.66 | 1.64 |
| 30 | .79 | 1.27 | 1.24 | 1.41 | | 1.45 | 1.55 | 1.52 | 1.83 | 1.98 | 1.66 | 1.63 |
| 31 | . 83 | | 1.18 | 1.41 | | 1.49 | | 1.50 | | 1.98 | 1.71 | |
| LOW | 1.86 | 1.42 | 1.33 | 1.42 | 1+45 | 1.49 | 1.55 | 1.69 | 1.85 | 2.14 | 2.24 | 1.77 |
| HIGH | . 61 | .86 | 1.13 | 1.08 | 1.20 | 1.04 | 1.25 | 1.50 | 1.59 | 1.70 | 1.66 | 1.55 |



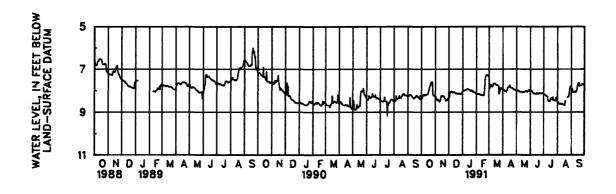
RIO HONDO TO RIO PUERTO NUEVO BASINS

182623066111000. Local number, 218.
LOCATION.--Lat 18°26'23", long 66°11'10".
Owner: P.R. Aqueduct and Sewer Authority.

Owner: P.R. Aqueduct and Sewer Authority.
Name: Levittown No. 7.
AQUIFER.--Alluvial deposits-Aymamon Limestone.
WELL CHARACTERISTICS.--Drilled water-table well.
DATUM.--Elevation of land surface datum is about 10.0 ft (3.05 m) above mean sea level, from topographic map.
Measuring point: Hole on pump base, 1.55 ft (0.47 m) above land-surface datum.
REMARKS.--Recording observation well. Water levels affected by nearby pumping well.
PERIOD OF RECORD.--October 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.94 ft (1.81 m) below land-surface datum, Sept. 20, 1989; lowest water level recorded, 9.77 ft (2.98 m) below land-surface datum, Mar. 23, 1986.

| | WATER LEVEL, | in Peri | | Land-Surfi Tantaneous | | | | 1990 TO | SEPTEMB RR | 1991 | |
|---|--------------|---------|-----|--------------------------|-----|-----|-----|---------|-------------------|------|--|
| , | NOV | DRC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | |

| DAY | oct | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 8.39 | 8.25 | 8.32 | 8.04 | 8.13 | 7.39 | 7.96 | 7.94 | 7.98 | 8.12 | 8.48 | 7.96 |
| 2 | 8.36 | 8.27 | 8.32 | 8.01 | 8.13 | 7.75 | 7.95 | 8.00 | 7.98 | 8.13 | 8.52 | 8.03 |
| 3 | 8.32 | 8.35 | 8.26 | 8.01 | 8.16 | 7.90 | 7.96 | 8.00 | 8.00 | 8.16 | 8.57 | 7.92 |
| 4 | 8.24 | 8.40 | 8.08 | 8.00 | 8.15 | 7.71 | 7.99 | 8.01 | 8.01 | 8.18 | 8.59 | 8.08 |
| 5 | 8.20 | 8.40 | 8.06 | 7.98 | 8.15 | 7.73 | 8.01 | 7.99 | 8.04 | 8.20 | 8.59 | 8.08 |
| 6 | 8.20 | 8.45 | 8.04 | 7.99 | 8.14 | 7.76 | 8.02 | 8.01 | 8.06 | 8.23 | 8.62 | 8.08 |
| 7 | 8.18 | 8.40 | 8.05 | 7.97 | 8.15 | 7.80 | 8.03 | 8.04 | 8.09 | 8.22 | 8.63 | 8.06 |
| 8 | 8.18 | 8.43 | 8.06 | 7.96 | 8.17 | 7.82 | 8.04 | 8.05 | 8.11 | 8.25 | 8.60 | 8.04 |
| 9 | 8.22 | 8.45 | 8.08 | 7.95 | 8.18 | 7.77 | 8.05 | 8.05 | 8.13 | 8.26 | 8.60 | 8.04 |
| 10 | 8.21 | 8.51 | 8.06 | 7.93 | 8.19 | 7.70 | 7.98 | 8.06 | 8.13 | 8.28 | 8.61 | 8.06 |
| 11 | 8.17 | 8.49 | 8.08 | 7.93 | 8.18 | 7.66 | 7.90 | 8.06 | 8.13 | 8.46 | 8.63 | 8.05 |
| 12 | 8.18 | 8.47 | 8.06 | 7.93 | 8.20 | 7.66 | 7.85 | 8.07 | 8.14 | 8.49 | 8.61 | 8.02 |
| 13 | 8.17 | 8.39 | 8.07 | 7.92 | 8.19 | 7.66 | 7.83 | 8.06 | 8.13 | 8.48 | 8.64 | 7.91 |
| 14 | 8.16 | 8.25 | 8.07 | 7.93 | 8.19 | 7.67 | 7.83 | 8.07 | 8.13 | 8.48 | 8.64 | 7.75 |
| 15 | 8.15 | 8.23 | 8.09 | 7.95 | 8.20 | 7.71 | 7.80 | 8.06 | 8.12 | 8.49 | 8.65 | 7.67 |
| 16 | 8.13 | 8.23 | 8.10 | 7.97 | 8.22 | 7.71 | 7.74 | 8.05 | 8.10 | 8.42 | 8.67 | 7.64 |
| 17 | 8.02 | 8.24 | 8.13 | 7.97 | 8.23 | 7.74 | 7.87 | 8.06 | 8.13 | 8.35 | 8.68 | 7.66 |
| 18 | 7.94 | 8.26 | 8.11 | 8.00 | 8.21 | 7.74 | 7.84 | 8.05 | 8.14 | 8.34 | 8.50 | 7.79 |
| 19 | 7.81 | 8.26 | 8.12 | 8.02 | 7.85 | 7.74 | 7.86 | 8.05 | 8.15 | 8.35 | 8.48 | 7.76 |
| 20 | 7.77 | 8.27 | 8.14 | 8.00 | 7.47 | 7.75 | 7.87 | 8.03 | 8.12 | 8.41 | | 7.75 |
| 21 | 7.72 | 8.26 | 8.15 | 7.99 | 7.34 | 7.76 | 7.86 | 8.02 | 8.11 | 8.42 | | 7.75 |
| 22 | 7.62 | 8.34 | 8.15 | 7.99 | 7.29 | 7.78 | 7.89 | 8.00 | 8.11 | 8.29 | | 7.76 |
| 23 | 7.61 | 8.38 | 8.13 | 8.01 | 7.28 | 8.16 | 7.92 | 8.02 | 8.11 | 8.43 | | 7.72 |
| 24 | 7.59 | 8.43 | 8.12 | 8.04 | 7.27 | 8.14 | 7.93 | 8.03 | 8.11 | 8.45 | 8.30 | 7.70 |
| 25 | 7.61 | 8.47 | 8.16 | 8.07 | 7.27 | 7.95 | 7.96 | 8.05 | 8.12 | 8.43 | 8.27 | 7.69 |
| 26 | 7.97 | 8.44 | 8.13 | 8.06 | 7.29 | 7.89 | 7.95 | 8.03 | 8.12 | 8.46 | 8.26 | 7.70 |
| 27 | 8.19 | 8.43 | 8.15 | 8.08 | 7.32 | 7.87 | 7.96 | 8.02 | 8.12 | 8.45 | 8.20 | 7.72 |
| 28 | 8.23 | 8.42 | 8.16 | 8.07 | 7.35 | 7.89 | 7.96 | 7.97 | 8.10 | 8.46 | 7.90 | 7.73 |
| 29 | 8.22 | 8.38 | 8.13 | 8.10 | | 7.91 | 7.99 | 8.00 | 8.10 | 8.30 | 7.83 | 7.76 |
| 30 | 8.24 | 8.34 | 8.11 | 8.11 | | 7.92 | 7.98 | 7.97 | 8.11 | 8.45 | 7.79 | 7.76 |
| 31 | 8.20 | | 8.08 | 8.12 | | 7.96 | | 7.97 | | 8.47 | 7.80 | |
| LOW | 8.39 | 8.51 | 8.32 | 8.12 | 8.23 | 8.16 | 8.05 | 8.07 | 8.15 | 8.49 | 8.68 | 8.08 |
| HIGH | 7.59 | 8.23 | 8.04 | 7.92 | 7.27 | 7.39 | 7.74 | 7.94 | 7.98 | 8.12 | 7.79 | 7.64 |



RIO HONDO TO RIO PUERTO NUEVO BASINS

182441066082600. Local number, 219. LOCATION.--Lat 18°24'41", long 66°08'26". Owner: Department of Defense.

Name: Ft. Buchanan No. 1, Buchanan Park well.

AQUIFER.--Cibao Formation.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 10 in (0.25 m), cased 10 in (0.25 m) 0-270 ft (0-82.3 m), perforated 46-685 ft (14.0-20.7 m), 88-120 ft (26.8-36.6 m), 160-191 ft (48.8-58.2 m), 240-270 ft (73.2-82.3 m).

Depth 270 ft (82.3 m).

DATUM.--Elevation of land-surface datum is about 66.0 ft (20.1 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 0.75 ft (0.23 m) above land-surface datum. Prior June 30, 1986, top of shelter floor, 3.59 ft (1.09 m) above land-surface datum.

REMARKS.--Recording observation well.

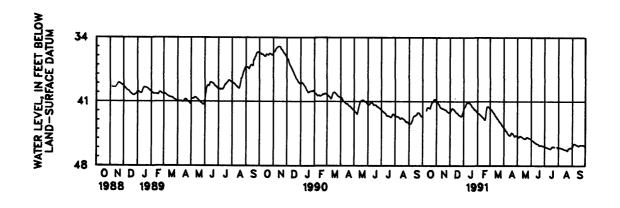
PERIOD OF RECORD.--December 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.97 ft (10.66 m) below land-surface datum, Nov. 12

-14, 1989; lowest water level recorded, 46.37 ft (14.1 m) below land-surface datum, Aug. 21, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | | 40.99 | 42.15 | 41.89 | 42.25 | 41.84 | 43.87 | 44.81 | 45.15 | 45.88 | 46.02 | 45.94 |
| 2 | | 41.05 | 42.09 | 41.72 | 42.30 | 41.85 | 43.92 | 44.84 | 45.20 | 45.94 | 46.03 | 45.84 |
| 3 | | 41.12 | 41.97 | 41.63 | 42.31 | 41.85 | 44.01 | 44.87 | 45.23 | 45.95 | 46.02 | 45.69 |
| 4 | | 41.16 | 41.89 | 41.57 | 42.34 | 41.88 | 44.11 | 44.93 | 45.26 | 45.96 | 46.04 | 45.60 |
| 5 | | 41.23 | 41.78 | 41.47 | 42.39 | 41.97 | 44.19 | 44.84 | 45.27 | 45.98 | 46.05 | 45.61 |
| 6 | | 41.33 | 41.76 | 41.35 | 42.41 | 42.03 | 44.23 | 44.79 | 45.29 | 46.01 | 46.06 | 45.63 |
| 7 | | 41.39 | 41.78 | 41.21 | 42.46 | 42.11 | 44.27 | 44.79 | 45.37 | 46.03 | 46.08 | 45.61 |
| 8 | | 41.47 | 41.82 | 41.12 | 42.51 | 42.19 | 44.38 | 44.78 | 45.44 | 46.04 | 46.10 | 45.64 |
| 9 | | 41.60 | 41.86 | 41.13 | 42.57 | 42.27 | 44.47 | 44.79 | 45.46 | 46.07 | 46.10 | 45.67 |
| 10 | 41.99 | 41.67 | 41.88 | 41.13 | 42.61 | 42.32 | 44.53 | 44.84 | 45.47 | 46.09 | 46.12 | 45.71 |
| 11 | 41.76 | 41.71 | 41.94 | 41.12 | 42.68 | 42.41 | 44.60 | 44.86 | 45.50 | 46.11 | 46.16 | 45.76 |
| 12 | 41.68 | 41.73 | 42.04 | 41.13 | 42.72 | 42.53 | 44.65 | 44.89 | 45.54 | 46.14 | 46.17 | 45.77 |
| 13 | 41.66 | 41.74 | 42.08 | 41.13 | 42.76 | 42.60 | 44.69 | 44.93 | 45.57 | 46.15 | 46.18 | 45.77 |
| 14 | 41.67 | 41.78 | 42.14 | 41.16 | 42.80 | 42.64 | 44.71 | 44.97 | 45.61 | 46.17 | 46.21 | 45.80 |
| 15 | 41.70 | 41.81 | 42.22 | 41.22 | 42.88 | 42.73 | 44.70 | 45.01 | 45.63 | 46.17 | 46.23 | 45.86 |
| 16 | 41.73 | 41.81 | 42.25 | 41.29 | 42.95 | 42.81 | 44.61 | 45.03 | 45.64 | 46.04 | 46.25 | 45.81 |
| 17 | 41.76 | 41.80 | 42.25 | 41.33 | 42.98 | 42.89 | 44.47 | 45.05 | 45.66 | 45.98 | 46.25 | 45.79 |
| 18 | 41.77 | 41.84 | 42.27 | 41.40 | 42.99 | 42.93 | 44.40 | 45.05 | 45.68 | 45.92 | 46.26 | 45.76 |
| 19 | 41.53 | 41.88 | 42.37 | 41.55 | 42.63 | 42.98 | 44.45 | 45.03 | 45.81 | 45.92 | 46.27 | 45.75 |
| 20 | 41.40 | 41.91 | 42.43 | 41.56 | 42.13 | 43.06 | 44.49 | 45.03 | 45.81 | 45.95 | 46.33 | 45.75 |
| 21 | 41.22 | 41.91 | 42.48 | 41.60 | 41.80 | 43.19 | 44.52 | 44.98 | 45.78 | 45.93 | 46.37 | 45.74 |
| 22 | 41.08 | 41.93 | 42.51 | 41.68 | 41.63 | 43.24 | 44.57 | 44.89 | 45.78 | 45.94 | 46.29 | 45.74 |
| 23 | 41.05 | 41.99 | 42.53 | 41.77 | 41.56 | 43.28 | 44.67 | 44.90 | 45.79 | 45.97 | 46.17 | 45.73 |
| 24 | 41.06 | 42.06 | 42.56 | 41.84 | 41.55 | 43.33 | 44.78 | 44.91 | 45.79 | | 46.10 | 45.72 |
| 25 | 41.00 | 42.11 | 42.61 | 41.88 | 41.55 | 43.39 | 44.82 | 44.92 | 45.80 | | 46.09 | 45.73 |
| 26 | 40.84 | 42.14 | 42.62 | 41.90 | 41.60 | 43.47 | 44.77 | 44.96 | 45.84 | | 46.08 | 45.74 |
| 27 | 40.79 | 42.16 | 42.62 | 41.94 | 41.67 | 43.56 | 44.71 | 44.98 | 45.87 | | 46.02 | 45.79 |
| 28 | 40.75 | 42.20 | 42.52 | 42.00 | 41.75 | 43.61 | 44.71 | 45.01 | 45.87 | | 46.03 | 45.84 |
| 29 | 40.75 | 42.23 | 42.36 | 42.07 | | 43.67 | 44.74 | 45.03 | 45.86 | 45.97 | 46.06 | 45.86 |
| 30 | 40.83 | 42.18 | 42.23 | 42.14 | | 43.76 | 44.77 | 45.04 | 45.86 | 46.01 | 46.02 | 45.83 |
| 31 | 40.92 | | 42.06 | 42.20 | | 43.84 | | 45.07 | | 46.04 | 46.01 | |
| LOW | 41.99 | 42.23 | 42.62 | 42.20 | 42.99 | 43.84 | 44.82 | 45.07 | 45.87 | 46.17 | 46.37 | 45.94 |
| HIGH | 40.75 | 40.99 | 41.76 | 41.12 | 41.55 | 41.84 | 43.87 | 44.78 | 45.15 | 45.88 | 46.01 | 45.60 |



RIO HONDO TO RIO PUERTO NUEVO BASINS

182413066044000. Local number, 220.

LOCATION.--Lat 18°24'13", long 66°04'40".

Owner: P.R. Aqueduct and Sewer Authority.

Name: Parque San Luis Rey-Américo Miranda
AQUIFER.--Surficial Deposits-Cibao Formation.

WELL CHRACTERISTICS.--Drilled unused artesian well, diameter 10 in (0.25 m), cased 8 in (0.20 m) 0-166 ft (050.6 m), perforated 39-166 ft (11.9-50.6 m). Depth 166 ft (50.6 m).

DATUM.--Elevation of land-surface datum is about 16.4 ft (5.0 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

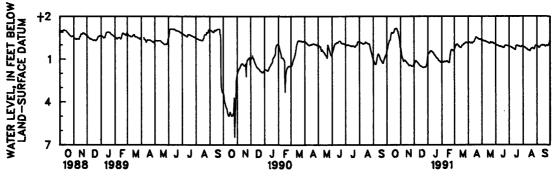
REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

PERIOD OF RECORD.--February 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +2.99 ft (+0.91 m) above land-surface datum, Feb. 6,
May 8-9, 1986; lowest water level recorded, 6.48 ft (1.98 m) below land-surface datum, Oct. 26, 1989

| | | WATER LEV | EL, IN FEE | | Land-Surf <i>i</i> 'Antaneous | | | | 1990 | TO SEPTEMBEI | 1991 | |
|------|-------|-----------|------------|------|----------------------------------|------|------|------|------|--------------|------|------|
| DAY | ост | NOA | DEC | JAN | yeb | MAR | APR | MAY | JUN | JOL | AUG | SEP |
| 1 | .44 | .18 | 1.38 | . 69 | 1.17 | .31 | +.13 | +.33 | +.07 | .10 | .09 | .06 |
| 2 | .34 | .34 | 1.32 | .64 | 1.21 | .21 | +.17 | +.32 | +.03 | .12 | . 11 | . 07 |
| 3 | .20 | . 67 | 1.23 | .58 | 1.19 | .13 | +.15 | +.32 | .02 | .13 | . 15 | .08 |
| 4 | .02 | .80 | 1.16 | .57 | 1.19 | .05 | +.17 | +.30 | .03 | . 14 | . 18 | .15 |
| 5 | +.08 | . 95 | 1.12 | .52 | 1.23 | .01 | +.16 | +.29 | . 03 | . 15 | . 17 | .18 |
| 6 | +.16 | .98 | 1.14 | .47 | 1.15 | +.04 | +.14 | +.28 | . 04 | .18 | .22 | .21 |
| 7 | +.29 | 1.13 | 1.18 | .43 | 1.18 | +.04 | +.12 | +.25 | .06 | .20 | .24 | .16 |
| 8 | +.33 | 1.17 | 1.23 | .42 | 1.18 | +.05 | +.17 | +.28 | . 09 | .21 | .26 | .11 |
| 9 | +.35 | 1.07 | 1.25 | .44 | 1.20 | .01 | +.12 | +.28 | . 10 | .23 | . 28 | .07 |
| 10 | +.60 | 1.08 | 1.29 | .45 | 1.19 | .08 | +.12 | +.23 | .10 | .25 | . 32 | .05 |
| 11 | +.79 | 1.11 | 1.32 | .50 | 1.14 | .07 | +.18 | +.22 | . 13 | .27 | . 35 | .04 |
| 12 | +.87 | 1.14 | 1.38 | .53 | 1.13 | . 14 | +.19 | +.22 | .10 | .29 | .35 | .03 |
| 13 | +.87 | 1.18 | 1.42 | .56 | 1.13 | .16 | +.21 | +.19 | . 14 | .31 | . 37 | .00 |
| 14 | +.83 | 1.22 | 1.45 | . 62 | 1.17 | .18 | +.23 | +.19 | .13 | .34 | .39 | .03 |
| 15 | +.81 | 1.27 | 1.49 | .68 | 1.22 | .20 | +.33 | +.17 | . 14 | .34 | . 40 | .04 |
| 16 | +.86 | 1.30 | 1.51 | .73 | 1.23 | . 17 | +.39 | +.14 | . 17 | .17 | .43 | .04 |
| 17 | +.89 | 1.32 | 1.51 | .75 | 1.26 | . 12 | +.48 | +.11 | . 18 | .07 | .41 | .01 |
| 18 | +1.04 | 1.38 | 1.52 | .81 | 1.23 | .05 | +.53 | +.12 | .20 | .04 | .29 | .06 |
| 19 | +1.11 | 1.43 | 1.56 | . 87 | .92 | .02 | +.53 | +.12 | .20 | .03 | .27 | .09 |
| 20 | +1.12 | 1.48 | 1.58 | .91 | . 64 | .02 | +.49 | +.17 | . 19 | .07 | .26 | .12 |
| 21 | +1.12 | 1.44 | 1.60 | . 92 | .44 | +.01 | +.47 | +.19 | . 07 | .07 | .23 | .06 |
| 22 | +1.16 | 1.44 | 1.60 | .95 | . 35 | +.09 | +.46 | +.17 | . 07 | .08 | .21 | .04 |
| 23 | +1.13 | 1.44 | 1.59 | .99 | .34 | +.07 | +.40 | +.13 | .04 | .11 | .22 | .03 |
| 24 | +1.10 | 1.46 | 1.57 | 1.06 | .35 | +.07 | +.39 | +.15 | . 04 | .09 | . 27 | .05 |
| 25 | +.96 | 1.50 | 1.57 | 1.10 | .38 | +.12 | +.38 | +.17 | .04 | .12 | .28 | .05 |
| 26 | +.91 | 1.50 | 1.58 | 1.12 | .42 | +.17 | +.40 | +.16 | .05 | .14 | .30 | .00 |
| 27 | +.78 | 1.51 | 1.56 | 1.14 | . 43 | +.18 | +.39 | +.11 | . 07 | .13 | .23 | .01 |
| 28 | +.63 | 1.51 | 1.52 | 1.19 | . 38 | +.16 | +.37 | +.09 | . 07 | .14 | .08 | +.09 |
| 29 | +.46 | 1.52 | 1.45 | 1.20 | | +.15 | +.36 | +.09 | . 08 | .09 | . 04 | +.17 |
| 30 | +.30 | 1.39 | 1.29 | 1.24 | | +.13 | +.34 | +.09 | . 09 | .08 | - 04 | +.25 |
| 31 | . 19 | | 1.00 | 1.17 | | +.12 | | +.06 | | .09 | . 05 | |
| LOW | .44 | 1.52 | 1.60 | 1.24 | 1.26 | .31 | +.12 | +.06 | .20 | .34 | .43 | .21 |
| HIGH | +1.16 | .18 | 1.00 | .42 | . 34 | +.18 | +.53 | +.33 | +.07 | .03 | . 04 | +.25 |

WTR YR 1991 MEAN .31 LOW 1.60 HIGH +1.16



⁺ Above land-surface datum.

RIO HONDO TO RIO PUERTO NUEVO BASINS

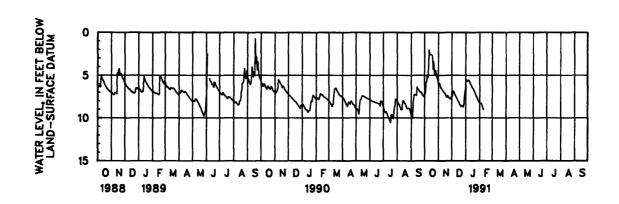
182436066031200. Local number, 221.
LOCATION.--Lat 18°24'36", long 66°03'12".

Owner: P.R. Highway Authority
Name: Ryde Park TW-10.
AQUIFER.--Surficial Deposits-Cibao Formation.
WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-107 ft (0-32.6 m),
perforated 19-107 ft (5.79-32.6 m). Depth 107 ft (32.6 m).
DATUM.--Elevation of land-surface datum is about 82.0 ft (25.0 m) above mean sea level, from topographic map.
Measuring point: Hole on side of casing, 0.70 ft (0.21 m) above land-surface datum. Prior July 28, 1986, top
of shelter floor, 3.14 ft (0.96 m) above land-surface datum.
REMARKS.--Recording observation well.
PREFIOD OF RECORD.--December 1985 to February 11, 1991, discontinued.

PERIOD OF RECORD. --December 1985 to February 11, 1991, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.62 ft (0.19 m) below land-surface datum, Sept. 18, 1989; lowest water level recorded, 15.59 ft (4.75 m) below land-surface datum, Apr. 5, 1986.

| | | WATER LEVEL | , in feet | Below : Inst | Land-Surface Antaneous ob | DATUM, SERVATI | WATER YEAR ON AT 1200 | OCTOBER | 1990 | TO SEPTEMBER | 1991 | |
|----------|------|-------------|-----------|-----------------|------------------------------|-------------------|--------------------------|---------|------|--------------|------|-----|
| DAY | OCT | VOM | DEC | Jan | FEB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
| 1 | 7.16 | 5.84 | 7.45 | 6.00 | 8.21 | | | | | | | |
| 2 | 7.22 | 5.92 | 7.42 | 5.49 | 8.24 | | | | | | | |
| 3 | 6.88 | 5.94 | 7.14 | 5.71 | 8.27 | | | | | | | |
| 4 | 5.86 | 5.94 | 6.85 | 5.72 | 8.28 | | | | | | | |
| 5 | 5.81 | 6.32 | 6.85 | 5.65 | 8.33 | | | | | | | |
| 6 | 5.68 | 6.44 | 6.97 | 5.53 | 8.44 | | | | | | | |
| 7 | 5.10 | 6.51 | 7.13 | 5.55 | 8.60 | | | | | | | |
| 8 | 4.94 | 6.54 | 7.29 | 5.55 | 8.74 | | | | | | | |
| 9 | 5.28 | 6.68 | 7.37 | 5.65 | 8.89 | | | | | | | |
| 10 | 3.42 | 6.72 | 7.46 | 5.76 | 9.02 | | | | | | | |
| 11 | 2.02 | 6.81 | 7.59 | 5.94 | | | | | | | | |
| 12 | 2.54 | 6.85 | 7.70 | 6.04 | | | | | | | | |
| 13 | 2.56 | 6.93 | 7.80 | 6.15 | | | | | | | | |
| 14 | 2.58 | 7.02 | 7.93 | 6.30 | | | | | | | | |
| 15 | 2.59 | 7.09 | 8.03 | 6.40 | | | | | | | | |
| 19 | 2.55 | 7.03 | 0.03 | 0.40 | | | | | | | | |
| 16 | 2.61 | 7.16 | 8.07 | 6.46 | | | | | | | | |
| 17 | 2.65 | 7.26 | 8.21 | 6.54 | | | | | | | | |
| 18 | 2.70 | 7.37 | 8.30 | 6.65 | | | | | | | | |
| 19 | 3.40 | 7.49 | 8.43 | 6.78 | | | | | | | | |
| 20 | 4.30 | 7.59 | 8.52 | 6.86 | | | | | | | | |
| 21 | 3.33 | 7.43 | 8.62 | 6.98 | | | | | | | | |
| 22 | 3.93 | 7.36 | 8.62 | 7.14 | | | | | | | | |
| 23 | 4.58 | 7.49 | 8.52 | 7.24 | | | | | | | | |
| 24 | 4.96 | 7.60 | 8.53 | 7.40 | | | | | | | | |
| 25 | 4.98 | 7.66 | 8.61 | 7.51 | | | | | | | | |
| 26 | 4.38 | 7.72 | 8.71 | 7.64 | | | | | | | | |
| 27 | 4.73 | 7.71 | 8.65 | 7.78 | | | | | | | | |
| 28 | 5.09 | 7.72 | 8.31 | 7.90 | | | | | | | | |
| 28 29 | 5.28 | 7.79 | 7.50 | 8.01 | | | | | | | | |
| 30 | 5.41 | 7.50 | 6.96 | 8.12 | | | | | | | | |
| | 5.66 | 7.50 | 6.69 | 8.20 | | | | | | | | |
| 31 | 3.00 | | U. UJ | 0.40 | | | | | | | | |
| LOW | 7.22 | 7.79 | 8.71 | 8.20 | 9.02 | | | | | | | |
| HIGH | 2.02 | 5.84 | 6.69 | 5.49 | 8.21 | | | | | | | |



HIGH

8.13

GROUND-WATER LEVELS

RIO HONDO TO RIO PURRTO NUEVO BASINS

182511066045401. Local number, PN-2. LOCATION.--Lat 18°25'11, long 66°04'54". Owner: U.S. Geological Survey, WRD.

Name: La Esperanza No. 2. AQUIFER.--Alluvium.

MELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-40 ft (0-12.2 m), perforated 30-40 ft ((9.15-12.2 m). Depth 40 ft (12.2 m).

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.17 ft (0.97 m) above land-surface datum.

REMARKS.--Recording observation well.

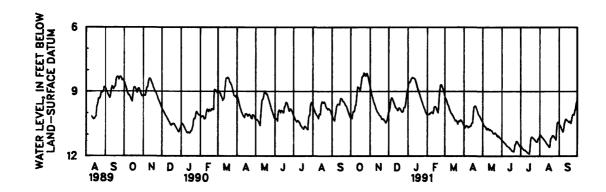
PERIOD OF RECORD .-- July 1989 to current year.

EXTREMES FOR PERIOD OF RECORD. -- Highest water level recorded, 8.12 ft (2.47 m) below land-surface datum, Oct. 22, 1990; lowest water level recorded, 11.90 ft (3.63 m) below land-surface datum, July 15, 16, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200 DEC DAY OCT NOV JAN FRR MAR APR MAY JUN JUI. λUG SRP 10.21 8.78 9.93 8.77 10.06 9.20 10.58 10.44 11.29 11.51 11.04 10.50 8.60 8.58 10.25 9.33 10.67 10.48 11.30 11.54 11.03 10.56 8.93 10.06 10.58 3 10.25 9.07 9.73 10.07 9.37 10.69 11.31 11.59 11.05 10.60 10.62 10.67 11.65 11.12 10.04 9.45 8.55 10.05 11.36 9.19 9.43 10.60 9.92 10.04 9.54 10.58 10.62 11.66 8.49 10.67 11.17 10.82 9.93 9.29 10.61 11.42 11.71 9.41 8.41 9.99 9.62 9.88 9.51 9.34 8.37 9.98 9.67 9.77 10.62 10.75 11.44 11.50 11.72 11.21 11.24 10.88 9.42 9.50 9.57 10.77 10.71 8 9.67 9.58 8.34 9.96 10.69 11.71 10.79 9.63 9.67 8.37 9.97 10.02 9.87 10.63 11.52 11.76 11.29 10.52 9.36 8.38 10.72 10 10.64 9.93 9.85 11.81 11.38 10.32 11 9.00 9.68 8.38 9.89 10.01 10.61 10.77 11.57 11.42 11.46 8.78 9.75 9.72 9.70 10.02 10.80 11.59 11.84 10.28 12 9.92 8.43 10.61 13 9.97 9.78 8.50 10.09 10.51 10.76 11.60 11.86 10.32 14 8.84 10.00 9.81 8.61 9.70 10.11 10.45 10.80 11.66 11.86 11.49 10.34 15 8.90 10.05 9.88 8.72 9.76 10.19 10.46 10.82 11.67 11.90 11.53 10.37 8.96 9.85 11.58 10.41 8.74 8.55 9.76 9.76 17 10.13 8.92 9.91 10.31 9.72 10.90 11.75 11.26 11.56 10.43 10.95 10.96 11.77 11.77 10.16 9.98 9.72 10.37 10.33 11.11 11.11 11.25 10.37 18 8.98 9.69 9.08 9.67 20 10.30 9.85 9.19 9.70 10.95 11.80 11.12 11.14 10.49 9.17 10.36 21 8.26 10.29 9.27 8.93 9.79 10.92 11.65 11.15 11.05 22 8.13 10.27 9.95 9.34 8.71 10.51 9.88 10.96 11.05 10.18 11.46 11.19 23 9.94 9.44 8.67 8.71 10.36 10.36 10.99 11.05 11.44 11.31 11.21 11.26 11.06 11.10 8.15 10.28 9.95 10.07 24 8.25 10.05 10.36 10.06 25 10.38 9.62 8.81 10.40 10.10 11.10 11.31 11.29 10.08 26 9.73 9.70 8.88 9.89 8.18 10.33 11.05 11.35 11.33 11.18 10.46 10.13 27 8.15 10.43 9.73 9.78 8.97 10.32 10.20 11.10 11.41 11.34 11.25 10.68 10.45 10.42 28 8.24 10.36 9.57 9.85 9.09 10.36 10.26 11.13 11.45 11.32 9.56 8.35 9.31 9.07 10.40 11.16 11.19 9.50 29 10.27 9.95 ___ 10.33 11.51 11.20 8.48 30 ---9.32 11.56 10.09 10.00 10.36 11.19 31 10.06 10.25 10.46 8.78 LOW 9.95 10.06 8.34 10.07 11.22 11.80 11.58 10.88 10.54 10.69 11.90

WTR YR 1991 MEAN 10.23 LOW 11.90 HIGH 8.13

8.96



9.20

9.67

10.44

11.29

10.42

11.11

8.67

RIO HONDO TO RIO PUERTO NUEVO BASINS

182435066052700. Local number, PN-5.
LOCATION.--Lat 18°24'35", long 66°05'27".
Owner: U.S. Geological Survey, WRD.
Name: Salud Mental No. 1.
AQUIFER.--Alluvium.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4.0 in (0.10 m), cased 4.0 in (0.10 m), 0-83 ft (0-25.3 m), perforated 73-83 ft (22.2-25.3 m). Depth 83 ft (25.3 m).

DATUM.--Elevation of land-surface datum is about 85 ft (25.9 m) above mean sea level, from topographic map. Measuring point: Hole on well shaft, 2.85 ft (0.87 m) above land-surface datum.

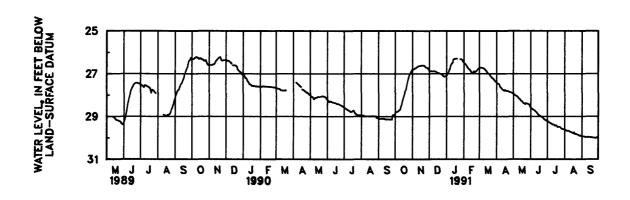
REMARKS.--Recording observation well.

PERIOD OF RECORD.--April 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.20 ft (7.98 m) below land-surface datum, Nov. 21, 22, 1989; lowest water level recorded, 30.01 ft (9.15 m) below land-surface datum, Sept. 24, 25, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | MOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|
| 1 | 28.80 | 26.79 | 26.85 | 27.08 | 26.48 | 26.73 | 27.41 | 27.95 | 28.58 | 29.21 | 29.61 | 29.93 |
| 2 | 28.79 | 26.79 | 26.86 | 27.04 | 26.51 | 26.71 | 27.43 | 27.96 | 28.62 | 29.22 | 29.62 | 29.93 |
| 3 | 28.78 | 26.79 | 26.88 | 27.01 | 26.53 | 26.70 | 27.46 | 27.98 | 28.64 | 29.25 | 29.64 | 29.93 |
| 4 | 28.78 | 26.77 | 26.88 | 26.96 | 26.55 | 26.71 | 27.47 | 28.01 | 28.66 | 29.26 | 29.66 | 29.93 |
| 5 | 28.77 | 26.75 | 26.88 | 26.88 | 26.60 | 26.71 | 27.48 | 28.02 | 28.67 | 29.29 | 29.66 | 29.93 |
| 6 | 28.75 | 26.73 | 26.88 | 26.81 | 26.62 | 26.71 | 27.51 | 28.04 | 28.69 | 29.30 | 29.67 | 29.94 |
| 7 | 28.73 | 26.73 | 26.88 | 26.75 | 26.68 | 26.72 | 27.60 | 28.05 | 28.71 | 29.32 | 29.67 | 29.96 |
| 8 | 28.70 | 26.70 | 26.88 | 26.64 | 26.71 | 26.74 | 27.63 | 28.07 | 28.72 | 29.33 | 29.68 | 29.96 |
| 9 | 28.69 | 26.68 | 26.88 | 26.57 | 26.74 | 26.75 | 27.65 | 28.10 | 28.74 | 29.35 | 29.69 | 29.96 |
| 10 | 28.65 | 26.67 | 26.88 | 26.53 | 26.78 | 26.76 | 27.69 | 28.14 | 28.77 | 29.36 | 29.70 | 29.96 |
| 11 | 28.54 | 26.64 | 26.88 | 26.50 | 26.78 | 26.80 | 27.72 | 28.17 | 28.80 | 29.38 | 29.72 | 29.96 |
| 12 | 28.49 | 26.64 | 26.89 | 26.47 | 26.82 | 26.83 | 27.74 | 28.18 | 28.84 | 29.38 | 29.73 | 29.96 |
| 13 | 28.36 | 26.63 | 26.90 | 26.33 | 26.85 | 26.85 | 27.76 | 28.22 | 28.85 | 29.39 | 29.74 | 29.96 |
| 14 | 28.25 | 26.63 | 26.91 | 26.31 | 26.90 | 26.89 | 27.78 | 28.25 | 28.90 | 29.41 | 29.75 | 29. 9 6 |
| 15 | 28.16 | 26.63 | 26.95 | 26.30 | 26.93 | 26.94 | 27.80 | 28.28 | 28.92 | 29.43 | 29.76 | 29.96 |
| 16 | 28.06 | 26.61 | 26.96 | 26.29 | 26.95 | 26.96 | 27.74 | 28.29 | 28.94 | 29.40 | 29.78 | 29.97 |
| 17 | 27.97 | 26.61 | 26.96 | 26.29 | 26.96 | 27.00 | 27.79 | 28.33 | 28.96 | 29.43 | 29.78 | 29. 9 7 |
| 18 | 27.88 | 26.61 | 26.97 | 26.29 | 26.98 | 27.01 | 27.79 | 28.36 | 28.97 | 29.44 | 29.73 | 29.97 |
| 19 | 27.80 | 26.61 | 26.99 | 26.29 | 26.87 | 27.02 | 27.80 | 28.38 | 29.00 | 29.49 | 29.82 | 29.97 |
| 20 | 27.76 | 26.61 | 27.00 | 26.29 | 26.88 | 27.05 | 27.81 | 28.38 | 29.01 | 29.49 | 29.82 | 29.99 |
| 21 | 27.67 | 26.61 | 27.00 | | 26.93 | 27.11 | 27.81 | 28.41 | 29.02 | 29.49 | 29.82 | 29.99 |
| 22 | 27.54 | 26.61 | 27.01 | | 26.89 | 27.14 | 27.82 | 28.43 | 29.03 | 29.49 | 29.82 | 2 9 .99 |
| 23 | 27.41 | 26.64 | 27.03 | | 26.89 | 27.16 | 27.85 | 28.37 | 29.05 | 29.49 | 29.84 | 29.99 |
| 24 | 27.28 | 26.70 | 27.03 | | 26.86 | 27.19 | 27.86 | 28.39 | 29.09 | 29.50 | 29.85 | 30.00 |
| 25 | 27.18 | 26.70 | 27.06 | 26.31 | 26.83 | 27.22 | 27.86 | 28.40 | 29.12 | 29.53 | 29.86 | 30.01 |
| 26 | 27.09 | 26.70 | 27.11 | 26.31 | 26.79 | 27.23 | 27.87 | 28.40 | 29.14 | 29.57 | 29.88 | 29.99 |
| 27 | 27.04 | 26.72 | 27.12 | 26.31 | 26.76 | 27.27 | 27.88 | 28.42 | 29.16 | 29.57 | 29.90 | 29.99 |
| 28 | 26.99 | 26.72 | 27.13 | 26.33 | 26.74 | 27.30 | 27.89 | 28.43 | 29.17 | 29.58 | 29.88 | 29.96 |
| 29 | 26.91 | 26.76 | 27.12 | 26.35 | | 27.34 | 27.91 | 28.44 | 29.19 | 29.58 | 29.90 | 29.97 |
| 30 | 26.87 | 26.79 | 27.12 | 26.42 | | 27.36 | 27.92 | 28.51 | 29.20 | 29.59 | 29.91 | 29.94 |
| 31 | 26.82 | | 27.12 | 26.45 | | 27.38 | | 28.55 | | 29.60 | 29.92 | |
| LOW | 28.80 | 26.79 | 27.13 | 27.08 | 26.98 | 27.38 | 27.92 | 28.55 | 29.20 | 29.60 | 29.92 | 30.01 |
| HIGH | 26.82 | 26.61 | 26.85 | 26.29 | 26.48 | 26.70 | 27.41 | 27.95 | 28.58 | 29.21 | 29.61 | 29.93 |
| | | | | | | | | | | | | |



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182445066043401. Local number, PN-6. LOCATION.--Lat 18°24'45", long 66°04'34". Owner: U.S. Geological Survey, WRD.

Owner: U.S. Geological Survey, WRD.

Name: Alsacia No. 2.

AQUIFER. --Alluvium.

WELL CHARACTERISTICS. --Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-27 ft (0-8.23 m), perforated 21-27 ft (6.40-8.23 m). Depth 27 ft (8.23 m).

DATUM. --Elevation of land-surface datum is about 10 ft (3.05 m) above mean sea level, from topographic map.

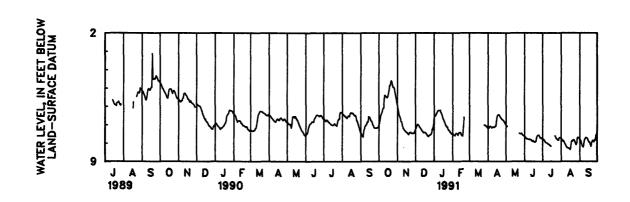
Measuring point: Hole on well shaft, 3.03 ft (0.91 m) above land-surface datum.

REMARKS. --recording observation well.

PERIOD OF RECORD. --July 1989 to current year.

EXTREMES FOR PERIOD OF RECORD. --Highest water level recorded, 3.11 ft (0.95 m) below land-surface datum, Sept. 18, 1989; lowest water level recorded, 8.41 ft (2.56 m) below land-surface datum, Aug. 15, 1991.

| | | WATER LEV | EL, IN FER | T BELOW INS | Land-Surface Tantaneous ob | Datum Servat | , WATER YEA ION AT 120 | AR OCTOBEI | R 1990 TO | SEPTEMBER | 1991 | |
|------|------|-----------|------------|----------------|-------------------------------|-----------------|---------------------------|------------|-----------|-----------|------|------|
| DAY | OCT | NOV | DEC | JAN | PEB | MAR | APR | MAY | JUN | JOL | AUG | SRP. |
| 1 | 7.00 | 6.00 | 7.27 | 6.61 | 7.47 | | 7.17 | 7.02 | 7.62 | 7.75 | 7.74 | 7.81 |
| 2 | 6.93 | 6.21 | 7.19 | 6.54 | 7.54 | | 7.17 | 7.06 | 7.66 | 7.79 | 7.79 | 7.84 |
| 3 | 6.71 | 6.40 | 7.08 | 6.51 | 7.56 | | 7.18 | 7.09 | 7.70 | 7.82 | 7.86 | 7.90 |
| 4 | 6.50 | 6.52 | 7.01 | 6.46 | 7.58 | | 7.09 | | 7.76 | 7.85 | 7.89 | 8.03 |
| 5 | 6.42 | 6.59 | 6.98 | 6.39 | 7.60 | | 7.09 | | 7.76 | 7.92 | 7.86 | 8.13 |
| 6 | 6.32 | 6.71 | 7.02 | 6.32 | 7.49 | | 7.12 | | 7.77 | 7.96 | 7.95 | 8.18 |
| 7 | 6.19 | 6.83 | 7.08 | 6.26 | 7.48 | | 7.18 | | 7.79 | 7.97 | 8.00 | 8.21 |
| 8 | 6.10 | 6.85 | 7.14 | 6.23 | 7.47 | | 7.15 | | 7.80 | 7.99 | 8.06 | 7.97 |
| 9 | 6.10 | 6.99 | 7.17 | 6.23 | 7.51 | | 7.12 | | 7.78 | 8.01 | 8.14 | 7.80 |
| 10 | 5.64 | 7.11 | 7.22 | 6.23 | 7.57 | | 7.13 | | 7.81 | 8.04 | 8.20 | 7.75 |
| 11 | 5.38 | 7.20 | 7.28 | 6.22 | 7.46 | | 7.15 | | 7.82 | 8.06 | 8.24 | 7.69 |
| 12 | 5.42 | 7.24 | 7.33 | 6.33 | 7.42 | | 7.13 | | 7.81 | 8.08 | 8.25 | 7.71 |
| 13 | 5.47 | 7.30 | 7.37 | 6.37 | 7.41 | | 7.07 | | 7.87 | 8.12 | 8.28 | 7.72 |
| 14 | 5.52 | 7.32 | 7.42 | 6.46 | 7.42 | | 7.09 | | 7.90 | 8.13 | 8.28 | 7.78 |
| 15 | 5.54 | 7.37 | 7.44 | 6.59 | 7.50 | | 6.84 | | 7.86 | 8.17 | 8.30 | 7.87 |
| 16 | 5.44 | 7.39 | 7.42 | 6.68 | 7.57 | | 6.57 | | 7.90 | | 8.35 | 7.94 |
| 17 | 5.27 | 7.41 | 7.42 | 6.75 | 7.61 | | 6.48 | | 7.93 | | 8.25 | 7.93 |
| 18 | 5.10 | 7.46 | 7.44 | 6.82 | 7.62 | | 6.47 | | 7.95 | | 7.91 | 8.00 |
| 19 | 4.83 | 7.51 | 7.50 | 6.90 | 7.07 | | 6.46 | | 7.93 | | 7.87 | 8.10 |
| 20 | 4.88 | 7.53 | 7.52 | 7.00 | 6.60 | | 6.50 | | 7.88 | | 7.89 | 8.18 |
| 21 | 4.64 | 7.43 | 7.60 | 7.05 | | | 6.57 | | 7.70 | | 7.81 | 7.97 |
| 22 | 4.58 | 7.40 | 7.62 | 7.10 | | | 6.63 | | 7.62 | 7.61 | 7.83 | 7.89 |
| 23 | 4.70 | 7.40 | 7.65 | 7.13 | | | 6.67 | 7.47 | 7.58 | 7.68 | 7.83 | 7.84 |
| 24 | 4.87 | 7.46 | 7.57 | 7.22 | | | 6.70 | 7.49 | 7.57 | 7.75 | 7.94 | 7.90 |
| 25 | 4.98 | 7.48 | 7.56 | 7.28 | | | 6.75 | 7.49 | 7.57 | 7.77 | 8.01 | 7.93 |
| 26 | 4.96 | 7.49 | 7.55 | 7.32 | | 7.02 | 6.75 | 7.48 | 7.66 | 7.80 | 8.08 | 7.80 |
| 27 | 5.04 | 7.47 | 7.51 | 7.36 | | 7.01 | 6.79 | 7.47 | 7.72 | 7.83 | 7.96 | 7.84 |
| 28 | 5.23 | 7.47 | 7.45 | 7.42 | | 7.06 | 6.85 | 7.53 | 7.71 | 7.82 | 7.70 | 7.58 |
| 29 | 5.41 | 7.46 | 7.27 | 7.45 | | 7.08 | 6.90 | 7.56 | 7.76 | 7.70 | 7.68 | 7.52 |
| 30 | 5.59 | 7.35 | 7.17 | 7.50 | | 7.12 | 6.96 | 7.59 | 7.74 | 7.70 | 7.72 | 7.39 |
| 31 | 5.79 | | 7.04 | 7.51 | | 7.17 | | 7.62 | | 7.70 | 7.74 | |
| LOW | 7.00 | 7.53 | 7.65 | 7.51 | 7.62 | 7.17 | 7.18 | 7.62 | 7.95 | 8.17 | 8.35 | 8.21 |
| HIGH | 4.58 | 6.00 | 6.98 | 6.22 | 6.60 | 7.01 | 6.46 | 7.02 | 7.57 | 7.61 | 7.68 | 7.39 |



RIO HONDO TO RIO PUERTO NUEVO BASINS

182437066040500. Local number, PN-7.
LOCATION.--Lat 18°24'37", long 66°04'05".
Owner: U.S. Geological Survey, WRD.

Name: Parque de las Fuentes No. 1. AQUIFER. -- Alluvium.

AQUIFER.--AILUVIUM.
WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-52 ft (0-15.8 m),
perforated 42-52 ft (12.8-15.8 m). Depth 52 ft (15.8 m).

DATUM.--Elevation of land-surface datum is about 23 ft (7.01 m) above mean sea level, from levels.

Measuring point: Hole on well shelter floor, 3.20 ft (0.98 m) above land-surface datum.

REMARKS.--Recording observation well. Formerly published as 182437066040501, Parque de las Fuentes No. 2, which is

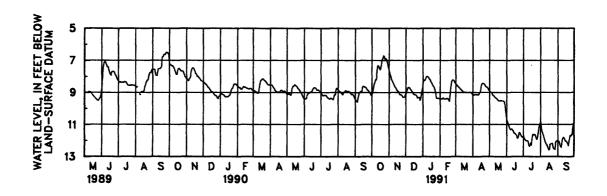
another well.

PERIOD OF RECORD.--February 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.50 ft (1.98 m) below land-surface datum, Sept. 27, 1989; lowest water level recorded, 12.60 ft (3.84 m) below land-surface datum, Aug. 16, 17, 1991.

| WATER LEVEL, | IN FEET | BELOW | LAND-SURFACE | DATUM, | WATER | YEAR | OCTOBER | 1990 | TO | September | 1991 |
|-----------------------------------|---------|-------|--------------|--------|-------|------|---------|------|----|-----------|------|
| INSTANTANEOUS OBSERVATION AT 1200 | | | | | | | | | | | |

| | | | | 111011 | TIT MINOUS | ODDBK VAL. | | •• | | | | |
|------|------|------|------|--------|------------|------------|------|-------|-------|-------|-------|-------|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
| 1 | 9.08 | 7.61 | 9.08 | 8.47 | 9.39 | 8.47 | 9.13 | 8.90 | 10.67 | 11.74 | 10.85 | 12.07 |
| 2 | 9.05 | 7.76 | 9.00 | 8.27 | 9.39 | 8.50 | 9.15 | 8.95 | 10.80 | 11.81 | 11.05 | 12.07 |
| 3 | 8.86 | 7.92 | 8.88 | 8.22 | 9.39 | 8.54 | 9.17 | 8.98 | 10.89 | 11.90 | 11.30 | 12.05 |
| 4 | 8.64 | 8.03 | 8.75 | 8.24 | 9.40 | 8.58 | 9.14 | 9.01 | 11.03 | 11.97 | 11.47 | 12.18 |
| 5 | 8.48 | 8.18 | 8.68 | 8.19 | 9.41 | 8.61 | 9.13 | 9.02 | 11.10 | 11.99 | 11.54 | 12.29 |
| 6 | 8.39 | 8.24 | 8.68 | 8.12 | 9.35 | 8.65 | 9.12 | 9.11 | 11.20 | 12.03 | 11.68 | 12.37 |
| 7 | 8.26 | 8.30 | 8.68 | 8.02 | 9.34 | 8.69 | 9.12 | 9.18 | 11.29 | 12.03 | 11.82 | 12.42 |
| 8 | 8.17 | 8.39 | 8.72 | 7.99 | 9.40 | 8.72 | 9.15 | 9.20 | 11.33 | 12.02 | 11.95 | 12.17 |
| 9 | 8.19 | 8.46 | 8.78 | 7.99 | 9.40 | 8.76 | 9.14 | 9.23 | 11.30 | 12.04 | 12.07 | 11.91 |
| 10 | 7.76 | 8.54 | 8.83 | 8.03 | 9.40 | 8.79 | 9.15 | 9.28 | 11.29 | 12.18 | 12.16 | 11.84 |
| 11 | 7.42 | 8.63 | 8.87 | 8.07 | 9.41 | 8.83 | 9.14 | 9.31 | 11.32 | 12.32 | 12.23 | 11.80 |
| 12 | 7.31 | 8.68 | 8.94 | 8.13 | 9.39 | 8.87 | 9.13 | 9.35 | 11.36 | 12.37 | 12.25 | 11.85 |
| 13 | 7.35 | 8.73 | 8.97 | 8.18 | 9.37 | 8.90 | 9.03 | 9.36 | 11.41 | 12.28 | 12.33 | 11.91 |
| 14 | 7.42 | 8.80 | 9.04 | 8.22 | 9.37 | 8.94 | 8.98 | 9.38 | 11.51 | 12.16 | 12.43 | 12.02 |
| 15 | 7.51 | 8.86 | 9.11 | 8.33 | 9.39 | 8.98 | 8.89 | 9.45 | 11.55 | 12.29 | 12.51 | 12.04 |
| 16 | 7.58 | 8.90 | 9.12 | 8.37 | 9.43 | 8.98 | 8.58 | 9.48 | 11.57 | 11.97 | 12.59 | 12.04 |
| 17 | 7.49 | 8.91 | 9.12 | 8.43 | 9.50 | 8.99 | 8.48 | 9.50 | 11.60 | 11.72 | 12.57 | 12.11 |
| 18 | 7.30 | 8.95 | 9.13 | 8.51 | 9.54 | 8.99 | 8.43 | 9.53 | 11.64 | 11.62 | 12.25 | 12.15 |
| 19 | 6.98 | 9.04 | 9.15 | 8.58 | 9.16 | 8.99 | 8.42 | 9.53 | 11.72 | 11.62 | | 12.23 |
| 20 | 6.92 | 9.13 | 9.18 | 8.62 | 8.72 | 8.99 | 8.43 | 9.54 | 11.86 | 11.65 | 12.20 | 12.32 |
| 21 | 6.82 | 9.13 | 9.23 | 8.68 | 8.48 | 9.00 | 8.45 | 9.50 | 11.87 | 11.63 | 12.20 | 12.03 |
| 22 | 6.70 | 9.13 | 9.33 | 8.78 | 8.27 | 9.00 | 8.49 | 9.51 | 11.76 | 11.63 | 12.18 | 11.84 |
| 23 | 6.75 | 9.17 | 9.32 | 8.89 | 8.22 | 9.00 | 8.56 | 9.53 | 11.63 | 11.73 | 12.34 | 11.68 |
| 24 | 6.87 | 9.19 | 9.31 | 9.07 | 8.21 | 9.01 | 8.62 | 9.53 | 11.51 | 11.84 | 12.49 | 11.67 |
| 25 | 6.93 | 9.25 | 9.30 | 9.29 | 8.24 | 9.01 | 8.65 | 9.54 | 11.52 | 11.92 | 12.52 | 11.70 |
| 26 | 6.89 | 9.31 | 9.32 | 9.38 | 8.27 | 8.98 | 8.66 | 9.54 | 11.61 | 11.89 | 12.50 | 11.64 |
| 27 | 6.90 | 9.30 | 9.48 | 9.37 | 8.36 | 9.00 | 8.68 | 9.56 | 11.70 | 11.66 | 12.56 | 11.61 |
| 28 | 7.03 | 9.29 | 9.41 | 9.37 | 8.40 | 9.01 | 8.74 | 9.61 | 11.77 | 11.55 | 12.11 | 11.20 |
| 29 | 7.15 | 9.28 | 9.22 | 9.37 | | 9.01 | 8.82 | 9.91 | 11.81 | 11.25 | 12.05 | 11.01 |
| 30 | 7.32 | 9.17 | 8.93 | 9.38 | | 9.06 | 8.86 | 10.25 | 11.78 | 11.08 | 12.02 | 10.78 |
| 31 | 7.45 | | 8.78 | 9.39 | | 9.11 | | 10.47 | | 10.97 | 12.06 | |
| LOW | 9.08 | 9.31 | 9.48 | 9.39 | 9.54 | 9.11 | 9.17 | 10.47 | 11.87 | 12.37 | 12.59 | 12.42 |
| HIGH | 6.70 | 7.61 | 8.68 | 7.99 | 8.21 | 8.47 | 8.42 | 8.90 | 10.67 | 10.97 | 10.85 | 10.78 |



RIO HONDO TO RIO PUERTO NUEVO BASINS

182443066041502. Local number, PN-8c. LOCATION.--Lat 18°24'43°, long 66°04'15°. Owner: U.S. Geological Survey, WRD.

Name: Parque Luis Muñoz Marin 1C. AQUIFER. -- Alluvium.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10), 0-33 ft (0-10.06 m), perforated 33-40 ft (10.06-12.2 m). Depth 40 ft (12.2 m).

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m) above mean sea level, from topographic map. Measuring point: Hole on well shaft, 3.66 ft (1.12 m) above land-surface datum.

measuring point: Mole on well shart, 3.86 it (1.12 m) above lang-surface datum.

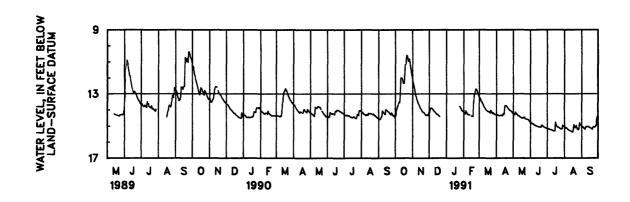
REMARES.--Recording observation well.

PERIOD OF RECORD.--February 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.35 ft (3.15 m) below land-surface datum, Sept. 25, 1989; lowest water level recorded, 15.38 ft (4.69 m) below land-surface datum, Aug. 15, 16, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| | INSTANTANEOUS OBSERVATION AT 1200 | | | | | | | | | | | | | |
|------|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
| DAY | OCT | NOV | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP | | |
| 1 | 14.28 | 12.08 | 14.10 | | 14.15 | 13.22 | 14.31 | 14.22 | 14.77 | 15.12 | 15.03 | 15.03 | | |
| 2 | 14.36 | 12.28 | 14.14 | | 14.18 | 13.26 | 14.32 | 14.24 | 14.78 | 15.16 | 15.07 | 15.03 | | |
| 3 | 13.99 | 12.45 | 13.89 | | 14.22 | 13.33 | 14.31 | 14.25 | 14.81 | 15.19 | 15.09 | 15.05 | | |
| 4 | 13.92 | 12.61 | 13.89 | | 14.26 | 13.41 | 14.33 | 14.30 | 14.85 | 15.17 | 15.13 | 15.09 | | |
| 5 | 13.79 | 12.78 | 13.89 | | 14.04 | 13.48 | 14.34 | 14.13 | 14.85 | 15.20 | 15.11 | 15.13 | | |
| 6 | 13.74 | 12.99 | 13.91 | | 14.14 | 13.53 | 14.35 | 14.21 | 14.88 | 15.22 | 15.16 | 15.17 | | |
| 7 | 13.59 | 13.14 | 13.95 | | 14.22 | 13.59 | 14.36 | 14.26 | 14.90 | 15.23 | 15.20 | 15.20 | | |
| 8 | 13.49 | 13.27 | 14.01 | | 14.26 | 13.66 | 14.35 | 14.27 | 14.94 | 15.23 | 15.22 | 15.08 | | |
| 9 | 13.55 | 13.38 | 14.05 | | 14.30 | 13.73 | 14.32 | 14.33 | 14.96 | 15.23 | 15.25 | 15.03 | | |
| 10 | 12.82 | 13.48 | 14.09 | | 14.30 | 13.81 | 14.34 | 14.36 | 14.96 | 15.26 | 15.27 | 15.05 | | |
| 11 | 11.98 | 13.56 | 14.13 | | 14.29 | 13.88 | 14.36 | 14.36 | 14.99 | 15.29 | 15.29 | 15.03 | | |
| 12 | 11.99 | 13.64 | 14.16 | | 14.31 | 13.94 | 14.36 | 14.37 | 15.00 | 15.30 | 15.30 | 15.03 | | |
| 13 | 12.01 | 13.70 | 14.20 | | | 13.99 | 14.23 | 14.43 | 15.02 | 15.31 | 15.32 | 15.04 | | |
| 14 | 12.12 | 13.80 | 14.25 | | | 14.02 | 14.29 | 14.44 | 15.03 | 15.30 | 15.35 | 15.07 | | |
| 15 | 12.27 | 13.88 | 14.28 | | 14.38 | 14.05 | 14.22 | 14.48 | 15.04 | 15.32 | 15.36 | 15.09 | | |
| 16 | 12.35 | 13.93 | 14.28 | | 14.40 | 14.08 | 13.73 | 14.49 | 15.06 | 14.75 | 15.38 | 15.10 | | |
| 17 | 12.32 | 13.99 | 14.31 | | 14.41 | 14.11 | 13.73 | 14.51 | 15.07 | 14.91 | 15.19 | 15.13 | | |
| 18 | 11.85 | 14.07 | 14.33 | | 14.40 | 14.09 | 13.73 | 14.51 | 15.08 | 15.01 | 14.90 | 15.14 | | |
| 19 | 11.17 | 14.12 | 14.38 | | 13.49 | 14.12 | 13.78 | 14.48 | 15.06 | 15.03 | 15.05 | 15.18 | | |
| 20 | 11.15 | 14.16 | 14.41 | | 13.06 | 14.17 | 13.82 | 14.50 | 15.05 | 15.07 | 15.11 | 15.21 | | |
| 21 | 10.61 | 14.15 | | | 13.03 | 14.19 | 13.86 | 14.43 | 14.96 | 15.08 | 15.03 | 15.07 | | |
| 22 | 10.59 | 14.17 | | | 12.79 | 14.02 | 13.91 | 14.50 | 14.93 | 15.09 | 14.97 | 15.06 | | |
| 23 | 10.73 | 14.25 | | | 12.69 | 14.11 | 13.96 | 14.54 | 15.01 | 15.12 | 15.08 | 15.04 | | |
| 24 | 10.95 | 14.29 | | | 12.72 | 14.17 | 14.01 | 14.56 | 15.03 | 15.15 | 15.18 | 15.07 | | |
| 25 | 10.96 | 14.34 | | 13.78 | 12.80 | 14.22 | 14.04 | 14.57 | 15.06 | 15.18 | 15.20 | 15.06 | | |
| 26 | 10.82 | 14.34 | | 13.85 | 12.92 | 14.17 | 14.04 | 14.58 | 15.08 | 15.20 | 15.24 | 14.98 | | |
| 27 | 11.01 | 14.30 | | 13.91 | 13.00 | 14.22 | 14.08 | 14.58 | 15.11 | 15.17 | 15.17 | 14.97 | | |
| 28 | 11.22 | 14.31 | | 13.97 | 13.10 | 14.26 | 14.12 | 14.60 | 15.11 | 15.17 | 14.79 | 14.50 | | |
| 29 | 11.43 | 14.35 | | 14.05 | | 14.27 | 14.16 | 14.64 | 15.14 | 14.92 | 14.89 | 14.44 | | |
| 30 | 11.65 | 14.24 | | 14.09 | | 14.29 | 14.20 | 14.70 | 15.15 | 15.00 | 14.93 | 14.29 | | |
| 31 | 11.88 | | | 14.09 | | 14.31 | | 14.74 | | 15.01 | 14.99 | | | |
| LOW | 14.36 | 14.35 | 14.41 | 14.09 | 14.41 | 14.31 | 14.36 | 14.74 | 15.15 | 15.32 | 15.38 | 15.21 | | |
| HIGH | 10.59 | 12.08 | 13.89 | 13.78 | 12.69 | 13.22 | 13.73 | 14.13 | 14.77 | 14.75 | 14.79 | 14.29 | | |



RIO HONDO TO RIO PUERTO NUEVO BASINS

182417066042700. Local number, PN-10. LOCATION.--Lat 18°24'17", long 66°04'27". Owner: U.S. Geological Survey, WRD. Name: Las Americas No. 1. AQUIFER.--Alluvium.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, cased 4.0 in (0.10 m), 0-80 ft (0-24.39 m), 4.0 in (0.10 m), perforated pipe 80-90 ft (24.39-27.43 m). Depth 90 ft (27.43 m).

DATUM.--Elevation of land-surface datum is about 16 ft (4.89 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.10 ft (0.95 m) above land-surface datum.

REMARKS.--Recording observation well.

PERIOD OF RECORD.--October 1989 to current year.

EXTREMERS FOR PERIOD OF RECORD.--Highest water level recorded 4.2 04 ft (4.0 62 m) above land-surface datum. Oct

EXTREMES FOR PERIOD OF RECORD. -- Highest water level recorded, +2.04 ft (+0.62 m) above land-surface datum, Oct. 22, 1990; lowest water level recorded, 2.48 ft (0.76 m) below land-surface datum, Oct. 26, 27, 1989.

| WATER LEVEL, | IN | FERT | BELOW | LAND-SURFAC | E DATUM, | WATER | YEAR | OCTOBER | 1990 | TO | SEPTEMBER | 1991 |
|-----------------------------------|----|------|-------|-------------|----------|-------|------|---------|------|----|-----------|------|
| INSTANTANEOUS OBSERVATION AT 1200 | | | | | | | | | | | | |

| DAY | OCT | MOA | DEC | JAN | PRB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
|------|-------|------|--------------|------|------|-------|-------|------|------|------|------|------|
| 1 | +.28 | +.69 | .75 | .51 | .34 | +.28 | +.94 | +.18 | .26 | .28 | +.55 | +.88 |
| 2 | +.43 | +.56 | .73 | .37 | .34 | +.41 | +1.08 | +.14 | . 28 | .30 | +.71 | +.87 |
| 3 | +.42 | +.42 | . 69 | .25 | .34 | +.52 | +1.14 | +.14 | .33 | .31 | +.81 | +.87 |
| 4 | +.52 | +.27 | . 66 | .20 | . 34 | +.60 | +1.27 | +.14 | .39 | .34 | +.91 | +.87 |
| 5 | +.64 | +.14 | . 63 | .15 | . 33 | +.59 | +1.20 | +.12 | .38 | .35 | +.93 | +.85 |
| 6 | +.75 | .01 | . 62 | .11 | .31 | +.67 | +1.30 | +.09 | .47 | .35 | +.94 | +.84 |
| 7 | +.83 | .24 | . 61 | .07 | .28 | +.71 | +1.39 | +.07 | .48 | .36 | +.91 | +.82 |
| 8 | +.96 | .33 | . 62 | .05 | .27 | +.79 | +1.46 | +.06 | .48 | .37 | +.92 | +.81 |
| 9 | +.98 | .35 | . 64 | .04 | .27 | +.84 | +1.47 | +.07 | .49 | .44 | +.97 | +.81 |
| 10 | +1.06 | .38 | . 6 6 | .03 | .27 | +.86 | +1.47 | +.04 | .49 | .41 | +.97 | +.81 |
| 11 | +1.23 | .42 | . 68 | .03 | .27 | +.81 | +1.49 | +.02 | .49 | .43 | +.94 | +.82 |
| 12 | +1.36 | .45 | .70 | .02 | .26 | +.78 | +1.51 | +.01 | .48 | .45 | +.89 | +.85 |
| 13 | +1.43 | .47 | .72 | .02 | . 25 | +.78 | +1.59 | .00 | .51 | .45 | +.42 | +.86 |
| 14 | +1.50 | .49 | .75 | .04 | . 24 | +.80 | +1.60 | +.01 | . 53 | .48 | +.42 | +.86 |
| 15 | +1.47 | .52 | .78 | .06 | .23 | +.78 | +1.62 | .01 | . 57 | .49 | +.36 | +.86 |
| 16 | +1.52 | .55 | .79 | .08 | .21 | +.72 | +.20 | .02 | . 59 | .26 | +.28 | +.86 |
| 17 | +1.65 | .56 | . 81 | .11 | .22 | +.79 | +.21 | .04 | . 62 | .18 | +.26 | +.86 |
| 18 | +1.80 | .60 | . 81 | .14 | .23 | +.35 | +.23 | .07 | .70 | .09 | +.26 | +.85 |
| 19 | +1.90 | . 65 | . 82 | . 15 | .22 | +.36 | +.25 | .07 | .71 | .05 | +.60 | +.85 |
| 20 | +1.94 | .69 | . 83 | .16 | . 22 | +.41 | +.26 | .05 | . 57 | .02 | +.75 | +.84 |
| 21 | +2.00 | .70 | . 84 | .16 | .10 | +.45 | +.27 | .01 | .48 | .00 | +.75 | +.84 |
| 22 | +1.62 | .70 | . 85 | .18 | +.01 | +.50 | +.28 | .02 | .40 | +.04 | +.74 | +.84 |
| 23 | +1.53 | .72 | . 86 | .20 | +.09 | +.58 | +.28 | .06 | . 34 | +.06 | +.74 | +.85 |
| 24 | +1.50 | .74 | . 85 | .21 | +.16 | +1.33 | +.26 | .10 | . 33 | +.07 | +.68 | +.85 |
| 25 | +1.43 | .76 | . 85 | .26 | +.18 | +1.32 | +.23 | .09 | .31 | +.11 | +.70 | +.87 |
| 26 | +1.36 | .78 | . 85 | .27 | +.21 | +1.36 | +.24 | .11 | . 31 | +.17 | +.71 | +.89 |
| 27 | +1.28 | .79 | . 85 | .29 | +.22 | +1.39 | +.24 | .12 | .31 | +.24 | +.72 | +.86 |
| 28 | +1.18 | .80 | . 86 | .31 | +.22 | +1.40 | +.24 | .14 | .30 | +.25 | +.80 | +.86 |
| 29 | +1.07 | .80 | . 84 | .33 | | +1.40 | +.23 | .17 | .30 | +.30 | +.84 | +.88 |
| 30 | +.96 | .78 | .78 | .33 | | +1.39 | +.20 | .21 | .31 | +.34 | +.86 | +.87 |
| 31 | +.83 | | . 67 | .34 | | +1.38 | | .23 | | +.40 | +.87 | |
| LOW | +.28 | .80 | . 86 | .51 | .34 | +.28 | +.20 | .23 | .71 | .49 | +.26 | +.81 |
| HIGH | +2.00 | +.69 | .61 | .02 | +.22 | +1.40 | +1.62 | +.18 | .26 | +.40 | +.97 | +.89 |

WTR YR 1991 MEAN +.19 LOW .86 HIGH +2.00



⁺ Above land-surface datum

RIO HONDO TO RIO PUERTO NUEVO BASINS

182349066032600. Local number, PN-13. LOCATION.--Lat 18°23'49", long 66°03'26". Owner: U.S. Geological Survey, WRD.

Name: Jardin Botánico No. 1. AQUIFER.--Alluvium.

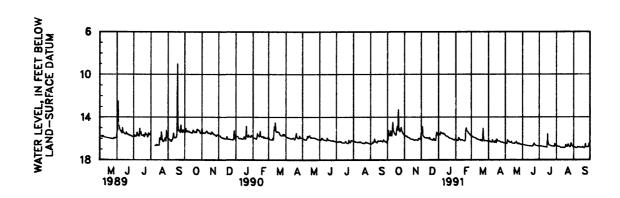
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m) cased 4.0 in (0.10 m), 0-45 ft (0-13.72 m),
perforated 35-45 ft (10.67-13.72 m). Depth 45 ft (13.72 m).

DATUM.--Elevation of land-surface datum is about 32 ft (9.75 m) above mean sea level, from topographic map.
Measuring point: Hole on well shaft, 2.84 ft (0.86 m) above land-surface datum.
REMARKS.--Recording observation well.
PERIOD OF RECORD.--March 1989 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.75 ft (2.67 m) below land-surface datum, Sept. 18,
1989; lowest water level recorded, 16.88 ft (5.14 m) below land-surface datum, Sept. 20, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 16.12 | 15.69 | 15.35 | 15.38 | 16.10 | 15.74 | 16.23 | 16.44 | 16.56 | 16.66 | 16.70 | 16.79 |
| 2 | 16.10 | 15.72 | 15.50 | 15.53 | 16.17 | 15.75 | 16.25 | 16.44 | 16.57 | 16.70 | 16.73 | 16.78 |
| 3 | 15.19 | 15.74 | 14.83 | 15.68 | 16.13 | 15.83 | 16.19 | 16.44 | 16.58 | 16.71 | 16.71 | 16.81 |
| 4 | 15.71 | 15.79 | 15.72 | 15.65 | 16.17 | 15.85 | 16.29 | 16.46 | 16.59 | 16.68 | 16.75 | 16.84 |
| 5 | 15.74 | 15.75 | 15.79 | 15.37 | 16.20 | 15.88 | 16.28 | 16.12 | 16.59 | 16.72 | 16.73 | 16.86 |
| 6 | 15.72 | 15.87 | 15.85 | 15.51 | 15.89 | 15.90 | 16.32 | 16.24 | 16.63 | 16.73 | 16.75 | 16.87 |
| 7 | 15.23 | 15.88 | 15.89 | 15.46 | 15.96 | 15.91 | 16.34 | 16.29 | 16.63 | 16.74 | 16.77 | 16.86 |
| 8 | 15.64 | 15.90 | 15.91 | 15.55 | 16.09 | 15.94 | 16.10 | 16.26 | 16.64 | 16.75 | 16.82 | 16.76 |
| 9 | 15.75 | 15.93 | 15.93 | 15.53 | 16.11 | 15.96 | 16.27 | 16.34 | 16.65 | 16.74 | 16.82 | 16.79 |
| 10 | 15.26 | 15.94 | 15.93 | 15.48 | 16.14 | 16.00 | 16.30 | 16.35 | 16.65 | 16.77 | 16.85 | 16.81 |
| 11 | 14.45 | 16.00 | 15.95 | 15.60 | 16.10 | 16.05 | 16.35 | 16.33 | 16.67 | 16.78 | 16.85 | 16.79 |
| 12 | 15.28 | 16.03 | 15.93 | 15.56 | 16.09 | 16.06 | 16.36 | 16.27 | 16.67 | 16.79 | 16.82 | 16.82 |
| 13 | 15.36 | 16.05 | 15.95 | 15.68 | 16.12 | 16.08 | 16.16 | 16.42 | 16.68 | 16.79 | 16.84 | 16.81 |
| 14 | 15.49 | 16.06 | 15.95 | 15.74 | 16.16 | 16.09 | 16.32 | 16.43 | 16.69 | 16.79 | 16.84 | 16.83 |
| 15 | 15.55 | 16.06 | 16.01 | 15.76 | 16.18 | 16.11 | 16.37 | 16.44 | 16.68 | 16.81 | 16.82 | 16.85 |
| 16 | 15.66 | 16.09 | 15.89 | 15.78 | 16.20 | 16.13 | 16.04 | 16.43 | 16.70 | 15.55 | 16.85 | 16.84 |
| 17 | 15.67 | 16.07 | 16.05 | 15.78 | 16.21 | 16.17 | 16.20 | 16.46 | 16.71 | 16.40 | 16.74 | 16.74 |
| 18 | 15.17 | 16.14 | 16.06 | 15.85 | 16.12 | 16.08 | 16.21 | 16.41 | 16.71 | 16.54 | 16.55 | 16.83 |
| 19 | 14.85 | 16.14 | 16.10 | 15.89 | 15.17 | 16.17 | 16.22 | 16.37 | 16.65 | 16.60 | 16.71 | 16.86 |
| 20 | 15.22 | 16.15 | 16.11 | 15.92 | 14.95 | 16.21 | 16.22 | 16.39 | 16.67 | 16.62 | 16.76 | 16.88 |
| 21 | 13.25 | 16.11 | 16.14 | 15.95 | 15.29 | 16.22 | 16.24 | 16.26 | 16.50 | 16.65 | 16.67 | 16.81 |
| 22 | 15.01 | 16.09 | 16.14 | 15.97 | 15.31 | 15.02 | 16.27 | 16.40 | 16.42 | 16.67 | 16.51 | 16.47 |
| 23 | 15.28 | 16.13 | 16.00 | 15.98 | 15.37 | 16.10 | 16.31 | 16.46 | 16.58 | 16.69 | 16.62 | 16.78 |
| 24 | 15.36 | 16.15 | 15.99 | 16.00 | 15.49 | 16.19 | 16.33 | 16.49 | 16.60 | 16.71 | 16.75 | 16.80 |
| 25 | 15.16 | 16.17 | 16.17 | 16.02 | 15.53 | 16.22 | 16.35 | 16.41 | 16.64 | 16.71 | 16.77 | 16.79 |
| 26 | 14.95 | 15.97 | 16.18 | 16.05 | 15.58 | 16.17 | 16.31 | 16.50 | 16.66 | 16.73 | 16.79 | 16.76 |
| 27 | 15.29 | 15.98 | 16.15 | 16.09 | 15.68 | 16.16 | 16.36 | 16.48 | 16.67 | 16.71 | 16.42 | 16.78 |
| 28 | 15.37 | 16.03 | 15.58 | 16.10 | 15.72 | 16.19 | 16.39 | 16.52 | 16.68 | 16.75 | 16.43 | 16.62 |
| 29 | 15.50 | 16.09 | 15.36 | 16.13 | | 16.19 | 16.40 | 16.53 | 16.69 | 16.46 | 16.66 | 16.39 |
| 30 | 15.56 | 15.93 | 15.71 | 16.13 | | 16.22 | 16.42 | 16.54 | 16.69 | 16.63 | 16.72 | 16.43 |
| 31 | 15.65 | | 15.65 | 16.05 | | 16.23 | | 16.56 | | 16.67 | 16.77 | |
| LOW | 16.12 | 16.17 | 16.18 | 16.13 | 16.21 | 16.23 | 16.42 | 16.56 | 16.71 | 16.81 | 16.85 | 16.88 |
| HIGH | 13.25 | 15.69 | 14.83 | 15.37 | 14.95 | 15.02 | 16.04 | 16.12 | 16.42 | 15.55 | 16.42 | 16.39 |

WTR YR 1991 MEAN 16.19 LOW 16.88 HIGH 13.25



RIO HONDO TO RIO PUERTO NUEVO BASINS

182406066034700. Local number, PN-19.
LOCATION.--Lat 18°24'06", long 66°03'47".
Owner: U.S. Geological Survey, WRD.
Name: Jardin Botánico No. 3.
AQUIFER.--Alluvium.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m) cased 4.0 in (0.10 m), 0-48 ft (0-14.6 m), perforated 38-48 ft (11.6-14.6 m). Depth 48 ft. (14.6 m).

DATUM.--Elevation of land-surface datum is about 32 ft (9.75 m) above mean sea level, from topographic map. Measuring point: Hole on well shaft, 2.91 ft (0.88 m) above land-surface datum.

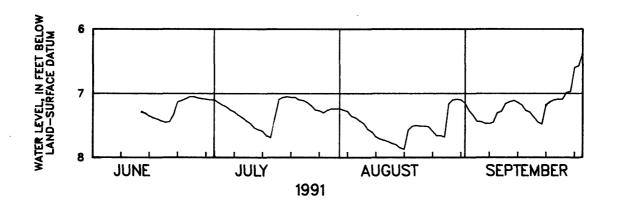
REMARKS.--Observation well. Automatic digital recording installed on June 13, 1991.

PERIOD OF RECORD.--June 1991 to September 1991

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.37 ft (1.94 m) below land-surface datum, Sept. 30, 1991; lowest water level recorded, 7.87 ft (2.40 m) below land-surface datum, Aug. 17, 1991.

| WATER LEVEL, | IN | PERT | BELOW | LAND | - Surface | DATUM, | WATER | YEAR | OCTOBER | 1990 | TO | SEPTEMBER | 1991 |
|--|----|------|-------|------|-----------|--------|-------|------|---------|------|----|-----------|------|
| THE THE NEW PARTS OF THE PROPERTY AND AND ADDRESS OF THE PROPERTY ADDRESS OF T | | | | | | | | | | | | | |

| | | | | | | 4000 | | • | | | | |
|------|-----|-----|-----|-----|-----|------|-----|-----|--------------|--------------|--------------|--------------|
| DAY | OCT | MOA | DEC | JAN | FKB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | | | | | | | | | | 7.10 | 7.24 | 7.15 |
| 2 | | | | | | | | | | 7.14 | 7.26 | 7.27 |
| 3 | | | | | | | | | | 7.18 | 7.28 | 7.34 |
| 4 | | | | | | | | | | 7.21 | 7.36 | 7.44 |
| 5 | | | | | | | | | | 7.26 | 7.38 | 7.44 |
| _ | | | | | | | | | | | | |
| 6 | | | | | | | | | | 7.29 | 7.43 | 7.47 |
| 7 | | | | | | | | | | 7.34 | 7.47 | 7.47 |
| 8 | | | | | | | | | | 7.38 | 7.56 | 7.45 |
| 9 | | | | | | | | | | 7.43 | 7.60 | 7.30 |
| 10 | | | | | | | | | | 7.47 | 7.68 | 7.28 |
| 11 | | | | | | | | | | 7.54 | 7.71 | 7.16 |
| 12 | | | | | | | | | | 7.57 | 7.73 | 7.13 |
| 13 | | | | | | | | | 7.29 | 7.59 | 7.75 | 7.11 |
| 14 | | | | | | | | | 7.31 | 7.66 | 7.78 | 7.14 |
| 15 | | | | | | | | | 7.35 | 7.69 | 7.80 | 7.18 |
| | | | | | | | | | | | | |
| 16 | | | | | | | | | 7.38 | 7.38 | 7.85 | 7.27 |
| 17 | | | | | | | | | 7.40 | 7.09 | 7.87 | 7.29 |
| 18 | | | | | | | | | 7.43 | 7.06 | 7.57 | 7.37 |
| 19 | | | | | | | | | 7.45 | 7.05 | 7.51 | 7.45 |
| 20 | | | | | | | | | 7.44 | 7.06 | 7.50 | 7.48 |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | 7.33 | 7.06 | 7.51 | 7.18 |
| 23 | | | | | | | | | 7.13 | 7.10 7.11 | 7.51 | 7.13 |
| 24 | | | | | | | | | 7.11 7.08 | 7.14 | 7.52 7.59 | 7.10 7.09 |
| 25 | | | | | | | | | | 7.19 | | |
| 43 | | | | | | | | | 7.05 | 7.19 | 7.66 | 7.09 |
| 26 | | | | | | | | | 7.05 | 7.26 | 7.66 | 6.98 |
| 27 | | | | | | | | | 7.07 | 7.27 | 7.68 | 6.97 |
| 28 | | | | | | | | | 7.08 | 7.30 | 7.16 | 6.59 |
| 29 | | | | | | | | | 7.09 | 7.26 | 7.10 | 6.57 |
| 30 | | | | | | | | | 7.10 | 7.24 | 7.09 | 6.39 |
| 31 | | | | | | | | | | 7.24 | 7.10 | |
| | | | | | | | | | | | | |
| LOW | | | | | | | | | 7.45 | 7.69 | 7.87 | 7.48 |
| HIGH | | | | | | | | | 7.05 | 7.05 | 7.09 | 6.39 |
| | | | | | | | | | | | | |



RIO GRANDE DE LOIZA BASIN

182515065594100. Local number, 222. LOCATION.--Lat 18°25'15", long 65°59'41". Owner: U.S. Geological Survey. Name: Campo Rico Tw-1. AQUIFER.--Surficial Deposits.

MUSLI CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m). Depth 100 ft (30.5 m).

DATUM.--Elevation of land-surface datum is about 10.0 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 0.80 ft (0.24 m) above land-surface datum. Prior July 28, 1986, top of shelter floor, 3.10 ft (0.94 m) above land-surface datum.

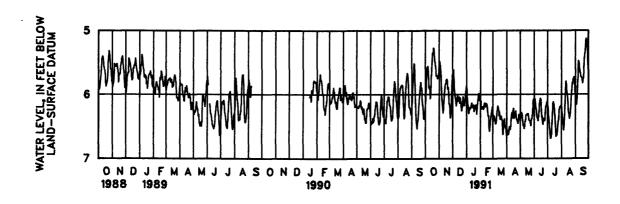
REMARKS.--Recording observation well.

PERIOD OF RECORD.--February 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.42 ft (1.35 m) below land-surface datum, Aug. 31, 1986; lowest water level recorded, 7.42 ft (2.26 m) below land-surface datum, Feb. 9, 1986.

| | | WATER LEV | EL, IN FER | T BELOW ! INST | Land-Surfa Antaneous | CE DATUM, OBSERVATI | WATER Y | BAR OCTOBER 00 | 1990 | TO SEPTEMBER | 1991 | |
|--------|------|-----------|------------|-------------------|-------------------------|------------------------|---------|-------------------|------|--------------|------|------|
| DAY | OCT | NOA | DRC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 6.20 | 5.56 | 5.67 | 5.85 | 6.09 | 6.31 | 6.66 | 6.35 | 6.09 | 6.16 | 6.17 | 6.04 |
| 2 | 6.09 | 5.47 | 5.69 | 5.93 | 6.10 | 6.33 | 6.61 | 6.37 | 6.06 | 6.20 | 6.25 | 6.06 |
| 2 3 | 5.87 | 5.51 | 5.61 | 6.08 | 6.23 | 6.40 | 6.59 | 6.36 | 6.08 | 6.32 | 6.35 | 6.15 |
| 4 | 5.62 | 5.55 | 5.80 | 6.16 | 6.22 | 6.33 | 6.56 | 6.28 | 6.15 | 6.37 | 6.40 | 6.16 |
| 5 | 5.60 | 5.71 | 5.94 | 6.19 | 6.19 | 6.37 | 6.63 | 6.31 | 6.23 | 6.45 | 6.45 | 6.02 |
| 6 | 5.56 | 5.91 | 5.99 | 6.30 | 6.19 | 6.41 | 6.58 | 6.39 | 6.23 | 6.54 | 6.56 | 5.83 |
| 7 | 5.56 | 6.06 | 6.06 | 6.28 | 6.19 | 6.46 | 6.50 | 6.44 | 6.33 | 6.62 | 6.47 | 5.69 |
| 8 | 5.75 | 6.12 | 6.07 | 6.23 | 6.23 | 6.45 | 6.51 | 6.50 | 6.37 | 6.69 | 6.31 | 5.47 |
| 9 | 5.90 | 6.20 | 6.18 | 6.20 | 6.20 | 6.40 | 6.55 | 6.48 | 6.38 | 6.67 | 6.10 | 5.49 |
| 10 | 5.91 | 6.29 | 6.12 | 6.22 | 6.14 | 6.28 | 6.50 | 6.54 | 6.41 | 6.62 | 5.88 | 5.53 |
| 11 | 5.88 | 6.20 | 6.10 | 6.20 | 6.13 | 6.23 | 6.38 | 6.49 | 6.35 | 6.45 | 5.79 | 5.65 |
| 12 | 6.07 | 6.09 | 6.00 | 6.16 | 6.18 | 6.18 | 6.31 | 6.42 | 6.26 | 6.29 | 5.86 | 5.67 |
| 13 | 5.98 | 5.97 | 6.11 | 6.13 | 6.19 | 6.21 | 6.28 | 6.41 | 6.13 | 6.14 | 5.98 | 5.73 |
| 14 | 5.72 | 5.86 | 6.04 | 6.18 | 6.18 | 6.25 | 6.37 | 6.32 | 6.10 | 6.11 | 6.01 | 5.73 |
| 15 | 5.63 | 5.83 | 6.05 | 6.21 | 6.14 | 6.34 | 6.26 | 6.32 | 6.06 | 6.16 | 6.07 | 5.74 |
| 16 | 5.52 | 5.83 | 6.04 | 6.18 | 6.16 | 6.27 | 6.21 | 6.31 | 6.08 | 6.22 | 6.22 | 5.78 |
| 17 | 5.35 | 5.77 | 6.14 | 6.16 | 6.20 | 6.38 | 6.38 | 6.32 | 6.23 | 6.29 | 6.29 | 5.83 |
| 18 | 5.38 | 5.76 | 6.05 | 6.27 | 6.29 | 6.39 | 6.34 | 6.30 | 6.36 | 6.39 | 6.31 | 5.77 |
| 19 | 5.27 | 5.79 | 6.11 | 6.24 | 6.34 | 6.34 | 6.35 | 6.30 | 6.33 | 6.52 | 6.38 | 5.74 |
| 20 | 5.28 | 5.92 | 6.19 | 6.17 | 6.33 | 6.34 | 6.29 | 6.36 | 6.44 | 6.66 | 6.33 | 5.59 |
| 21 | 5.38 | 5.89 | 6.26 | 6.19 | 6.53 | 6.39 | 6.26 | 6.41 | 6.47 | 6.64 | 6.28 | 5.45 |
| 22 | 5.47 | 5.97 | 6.21 | 6.16 | 6.58 | 6.41 | 6.34 | 6.41 | 6.37 | 6.63 | 6.15 | 5.37 |
| 23 | 5.50 | 6.15 | 6.17 | 6.17 | 6.49 | 6.60 | 6.39 | 6.42 | 6.38 | 6.58 | 6.01 | 5.33 |
| 24 | 5.56 | 6.14 | 6.03 | 6.31 | 6.40 | 6.63 | 6.40 | 6.45 | 6.41 | 6.47 | 5.92 | 5.18 |
| 25 | 5.71 | 6.20 | 6.08 | 6.19 | 6.35 | 6.52 | 6.42 | 6.49 | 6.40 | 6.42 | 5.81 | 5.12 |
| 26 | 5.71 | 6.37 | 6.15 | 6.13 | 6.28 | 6.40 | 6.45 | 6:38 | 6.28 | 6.39 | 5.84 | 5.15 |
| 27 | 5.71 | 6.34 | 6.18 | 6.06 | 6.24 | 6.38 | 6.40 | 6.38 | 6.18 | 6.23 | 5.75 | 5.21 |
| 28 | 5.75 | 6.21 | 6.14 | 5.98 | 6.19 | 6.47 | 6.31 | 6.33 | 6.18 | 6.21 | 5.75 | 5.30 |
| 29 | 5.72 | 5.97 | 6.04 | 6.09 | | 6.51 | 6.36 | 6.26 | 6.13 | 6.19 | 5.73 | 5.51 |
| 30 | 5.70 | 5.71 | 5.97 | 6.03 | | 6.52 | 6.35 | 6.09 | 6.11 | 6.20 | 5.80 | 5.60 |
| 31 | 5.66 | | 5.90 | 6.10 | | 6.60 | | 6.07 | | 6.17 | 5.95 | |
| LOW | 6.20 | 6.37 | 6.26 | 6.31 | 6.58 | 6.63 | 6.66 | 6.54 | 6.47 | 6.69 | 6.56 | 6.16 |
| HIGH | 5.27 | 5.47 | 5.61 | 5.85 | 6.09 | 6.18 | 6.21 | 6.07 | 6.06 | 6.11 | 5.73 | 5.12 |

WTR YR 1991 MEAN 6.13 LOW 6.69 HIGH 5.12



RIO HUMACAO TO RIO SECO BASINS

175858066100200. Local number, 6.
LOCATION.--Lat 17°58'58", long 66°10'02".
Owner: Doctor Bruno.
Name: Juana 5.
AQUIFER.--Alluvium of Quaternary Age.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m). Depth 173 ft (52.74 m) reported, 110 ft (33.54 m) measured.

DATUM.--Elevation of land-surface datum is about 127 ft (38.7 m) above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum. After Aug. 7, 1981, top of 16 in (0.41 m) casing, 1.55 ft (0.47 m) above land-surface datum.

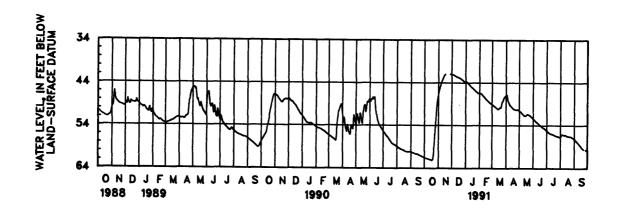
REMARKS.--Recording observation well.

PERIOD OF RECORD.--November 1960 to current year.

EXTREMES FOR PERIOD OF RECORD. -- Highest water level recorded, 26.20 ft (7.99 m) below land-surface datum, Dec. 10, 1979; lowest water level recorded, 65.95 ft (20.10 m) below land-surface datum, June 2, 1968.

| WATER | LEVEL, | IN | FRET | BELOW | LAND- | SURFACE | DATUM, | WATER | YEAR | OCTOBER | 1990 | TO | September | 1991 |
|-------|--------|----|------|-------|---------|----------|--------|------------|------|---------|------|----|-----------|------|
| | | | | TNO | PANTIAN | ROTTE OR | PDVAMT | - MAK 146- | 1200 | | | | | |

| 1 61.53 46.79 41.95 43.73 46.52 49.06 46.97 50.50 52.40 55.17 56.65 57.17 2 61.58 46.20 41.98 43.74 46.48 49.14 46.91 50.57 52.51 55.26 56.45 57.28 3 61.62 45.67 42.03 43.76 46.48 49.11 46.81 50.64 52.62 55.38 56.21 57.38 4 61.66 45.20 42.08 43.81 46.51 49.29 47.39 50.74 52.73 55.48 56.08 57.48 56.16 44.79 42.13 43.93 46.57 49.37 48.02 50.86 52.83 55.56 56.07 57.61 6 61.72 44.43 42.18 44.05 46.66 49.45 48.37 50.97 52.94 55.64 56.12 57.72 7 61.75 44.07 42.25 44.16 46.78 49.54 48.63 51.10 53.05 55.72 56.17 57.83 8 61.78 43.75 42.31 44.28 46.91 49.62 48.87 51.23 53.14 55.79 56.16 57.94 9 61.81 43.46 42.38 44.40 47.03 49.71 49.09 51.35 53.22 55.85 56.17 58.04 10 61.86 43.22 42.45 44.52 47.15 49.79 49.27 51.47 53.31 55.89 56.21 58.16 11 61.88 43.00 42.53 44.84 47.39 49.97 49.49 51.67 53.50 55.97 56.18 58.27 12 61.91 42.67 42.60 44.74 47.39 49.97 49.49 51.67 53.50 55.97 56.19 58.40 13 61.95 42.51 42.63 44.96 47.63 50.14 49.68 51.74 53.60 55.99 56.22 58.55 14 61.98 42.35 42.63 44.96 47.63 50.14 49.68 51.74 53.69 56.02 56.34 58.65 15 62.02 42.21 42.68 45.50 47.75 50.16 49.79 51.67 53.99 56.02 56.34 58.65 15 62.02 42.21 42.68 45.50 47.75 50.16 49.79 51.67 53.99 56.02 56.45 58.78 16 62.06 42.09 42.73 45.16 47.86 50.07 49.90 51.57 53.89 56.21 56.62 58.78 16 62.01 42.94 45.57 48.07 49.80 50.15 51.35 54.23 56.31 56.55 59.32 59.55 56.17 58.04 56.10 50.99 56.25 56.42 58.78 16 62.01 42.94 45.57 48.07 49.80 50.15 51.35 54.23 56.23 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 56.62 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 56.62 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 59.32 59.55 56.42 56.50 59.52 | DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
|---|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------|
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| 7 61.75 44.07 42.25 44.16 46.78 49.54 48.63 51.10 53.05 55.72 56.17 57.83 8 61.78 43.75 42.31 44.28 46.91 49.62 48.87 51.23 53.14 55.79 56.16 57.94 10 61.86 43.22 42.45 44.52 47.15 49.79 49.27 51.47 53.31 55.89 56.21 58.16 10 61.86 43.22 42.45 44.52 47.15 49.79 49.27 51.47 53.31 55.89 56.21 58.16 11 61.88 43.00 42.53 44.63 47.28 49.88 49.40 51.57 53.50 55.97 56.19 58.40 11 61.81 42.67 42.60 44.74 47.39 49.97 49.49 51.67 53.50 55.97 56.19 58.40 11 61.91 42.67 42.60 44.74 47.39 49.97 49.49 51.67 53.50 55.97 56.25 58.55 14 61.98 42.35 42.63 44.96 47.51 50.06 49.58 51.74 53.60 55.99 56.25 58.55 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.06 42.09 42.73 45.16 47.86 50.07 49.90 51.57 53.88 56.09 56.46 58.90 17 62.10 42.02 42.78 45.26 47.97 49.96 50.00 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 61.72 42.91 45.47 48.18 49.80 50.15 51.35 54.23 56.31 56.53 59.45 19 62.01 42.94 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 19 62.01 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.55 59.45 19 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.46 56.59 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.55 59.80 19 58.27 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.55 59.58 10.55 54.44 56.44 56.45 56.59 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.55 59.80 19 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.44 56.45 56.56 57.50 56.66 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.45 56.55 56.66 57.90 56.66 56.90 56.00 10 48.64 48.41 50.33 51.96 54.66 56.50 56.66 56.90 60.00 10 48.64 48.41 50.33 51.96 54.86 56.65 56.66 56.90 60.00 10 48.64 48.41 50.33 51.96 54.86 56.65 56.66 56.90 60.00 10 48.64 48.41 50.33 52.17 55.07 56.70 56.98 60.1 | | | | | | 10.57 | 43.37 | 40.02 | 30.00 | 32.03 | 33.30 | 30.07 | 37.01 |
| 7 61.75 44.07 42.25 44.16 46.79 49.54 48.63 51.10 53.05 55.72 56.17 57.83 8 61.78 43.75 42.31 44.28 46.91 49.62 48.97 51.23 53.14 55.79 56.16 57.94 10 61.86 43.22 42.45 44.52 47.15 49.79 49.27 51.47 53.31 55.89 56.21 58.16 10 61.86 43.22 42.45 44.52 47.15 49.79 49.27 51.47 53.31 55.89 56.21 58.16 11 61.88 43.00 42.53 44.63 47.28 49.88 49.40 51.57 53.50 55.97 56.19 58.40 12 61.91 42.67 42.60 44.74 47.39 49.97 49.49 51.67 53.50 55.97 56.19 58.40 61.95 42.51 42.63 44.86 47.51 50.06 49.58 51.74 53.60 55.99 56.25 58.55 14 61.98 42.35 42.63 44.96 47.63 50.14 49.68 51.74 53.69 56.02 56.34 58.55 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.02 42.21 42.68 45.07 47.97 49.96 50.00 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.46 58.90 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 61.72 42.91 45.47 48.18 49.80 50.15 51.35 54.23 56.31 56.53 59.45 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.23 56.31 56.53 59.45 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.23 56.31 56.53 59.45 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.23 56.31 56.55 59.58 12 59.59 58.22 59.53 43.12 45.79 48.47 48.18 49.80 50.15 51.35 54.23 56.31 56.55 59.58 12 59.59 54.06 56.19 56.48 59.20 61.72 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.55 59.58 12 59.59 54.44 43.37 46.09 48.64 48.41 50.31 51.60 54.51 56.46 56.59 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.46 56.57 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.41 56.57 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.41 56.57 43.55 46.24 48.89 47.66 50.38 51.69 54.59 56.50 56.66 56.90 56.66 56.90 60.00 48.64 48.41 50.33 51.96 54.86 56.61 56.50 56.66 56.90 60.00 48.64 48.41 50.33 51.96 54.86 56.65 56.66 56.90 60.00 48.64 48.41 50.33 51.96 54.86 56.66 56.90 60.00 48.64 48.41 50.33 51.96 54.86 56.65 56.66 56.90 60.00 48.68 48.99 47.66 50.33 51.96 54.86 56.66 5 | 6 | 61.72 | 44.43 | 42.18 | 44.05 | 46.66 | 49.45 | 48.37 | 50.97 | 52.94 | 55.64 | 56.12 | 57.72 |
| 8 61.78 43.75 42.31 44.28 46.91 49.62 48.87 51.23 53.14 55.79 56.16 57.94 9 61.81 43.46 42.38 44.40 47.03 49.71 49.09 51.35 53.22 55.85 56.17 58.04 61.86 43.22 42.45 44.52 47.15 49.79 49.27 51.47 53.31 55.89 56.21 58.16 11 61.88 43.00 42.53 44.63 47.28 49.88 49.40 51.57 53.40 55.94 56.18 58.27 12 61.91 42.67 42.60 44.74 47.39 49.97 49.49 51.67 53.50 55.97 56.19 58.40 13 61.95 42.51 42.63 44.86 47.51 50.06 49.58 51.74 53.60 55.99 56.25 58.55 14 61.98 42.35 42.63 44.96 47.63 50.14 49.68 51.74 53.60 55.99 56.25 58.55 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.97 56.14 56.47 59.07 18 62.10 42.02 42.78 45.26 47.97 49.96 50.00 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.35 54.15 56.25 56.55 59.32 50.61 17 52.01 42.98 45.57 48.27 49.83 50.17 51.35 54.15 56.25 56.50 59.32 50.61 17 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 19 62.01 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 19 62.01 43.28 45.00 48.64 49.34 50.28 51.46 54.38 56.41 56.57 43.28 45.00 48.54 48.41 50.31 51.50 54.51 56.48 56.47 56.59 59.32 59.53 58.27 43.20 45.90 48.55 48.27 50.32 51.53 54.44 56.45 56.55 59.80 25 54.44 43.37 46.09 48.54 48.41 50.31 51.50 54.51 56.48 56.61 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.61 43.28 46.00 48.64 48.41 50.33 51.56 54.55 56.50 56.66 43.28 46.00 48.64 48.41 50.33 51.56 54.59 56.50 56.66 43.28 46.00 48.64 48.41 50.33 51.56 54.59 56.50 56.66 43.28 46.00 48.64 48.41 50.33 51.96 54.59 56.50 56.66 43.28 46.00 48.64 48.41 50.33 51.96 54.59 56.50 56.66 56.90 60.00 48.64 48.41 50.33 51.96 54.86 56.65 56.50 56.66 56.90 60.00 48.64 48.41 50.33 51.96 54.86 56.65 56.50 56.66 56.90 60.00 48.64 48.99 47.66 50.33 51.96 54.96 56.66 56.90 60.00 48.64 48.99 47.66 50.33 51.96 54.96 56.66 | 7 | 61.75 | 44.07 | | | | | | | | | | |
| 9 61.81 43.46 42.38 44.40 47.03 49.71 49.09 51.35 53.22 55.85 56.17 58.04 10 61.86 43.22 42.45 44.52 47.15 49.79 49.27 51.47 53.31 55.89 56.21 58.16 11 61.88 43.00 42.53 44.63 47.28 49.88 49.40 51.57 53.40 55.94 56.18 58.26 12 58.40 13 61.95 42.51 42.60 44.74 47.39 49.97 49.49 51.67 53.50 55.97 56.19 58.40 13 61.95 42.51 42.63 44.86 47.51 50.06 49.58 51.74 53.60 55.99 56.25 58.55 14 61.98 42.35 42.63 44.86 47.51 50.06 49.58 51.74 53.60 55.99 56.25 58.55 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.06 42.09 42.78 45.26 47.97 49.96 50.00 51.46 53.97 56.14 56.47 55.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.35 54.06 56.19 56.48 59.20 61.72 42.94 45.37 48.07 49.86 50.09 51.35 54.23 56.31 56.53 59.45 19 62.01 42.94 45.37 48.07 49.80 50.15 51.35 54.15 56.25 56.55 59.32 20 61.72 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 12 60.89 43.05 45.67 48.37 49.82 50.23 51.39 54.06 56.19 56.48 59.20 61.72 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 12 60.89 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 12 60.89 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.55 59.58 12.57 58.44 43.20 45.90 48.55 48.72 50.32 51.53 54.45 56.45 56.55 59.58 12.57 54.44 43.37 46.09 48.72 48.23 50.28 51.66 54.55 56.50 56.64 43.20 45.90 48.55 48.72 50.32 51.53 54.46 54.59 56.50 56.64 43.20 45.90 48.55 48.72 50.32 51.53 54.46 54.56 56.57 56.76 57.95 59.80 12.57 51.55 54.67 56.57 56.76 56.59 59.80 12.57 51.55 54.67 56.57 56.76 56.59 59.80 12.57 51.55 54.67 56.57 56.76 56.59 59.80 12.57 51.55 54.67 56.57 56.76 56.59 50.00 12.57 51.57 56.70 56.68 50.00 12.57 51.57 56.70 56.68 50.00 12.57 51.57 50.48 52.17 55.07 56.70 56.98 60.10 12.57 51.57 50.48 52.17 55.07 56.70 56.98 60.10 12.57 51.57 50.48 52.17 55.07 56.70 56.98 60.10 12.57 51.57 | 8 | | | | | | | | | | | | |
| 10 61.86 43.22 42.45 44.52 47.15 49.79 49.27 51.47 53.31 55.89 56.21 58.16 11 61.88 43.00 42.53 44.63 47.28 49.88 49.40 51.57 53.40 55.94 56.18 58.27 12 61.91 42.67 42.60 44.74 47.39 49.97 49.49 51.67 53.50 55.97 56.19 58.40 13 61.95 42.51 42.63 44.86 47.51 50.06 49.58 51.74 53.60 55.99 56.25 58.55 14 61.98 42.35 42.63 44.96 47.63 50.14 49.68 51.74 53.69 56.02 56.34 58.65 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.06 42.09 42.73 45.16 47.86 50.07 49.90 51.57 53.88 56.09 56.46 58.90 17 62.10 42.02 42.78 45.26 47.97 49.96 50.00 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.15 56.25 56.50 59.32 20 61.72 42.98 45.57 48.27 49.83 50.17 51.35 54.15 56.25 56.50 59.32 21 60.89 43.05 45.67 48.37 49.83 50.17 51.35 54.15 56.25 56.50 59.32 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.44 56.45 56.59 24 56.06 43.38 46.00 48.64 48.41 50.31 51.60 54.51 56.45 56.59 25 54.44 43.37 46.09 48.72 48.23 50.28 51.69 54.55 56.50 56.64 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.55 56.50 56.64 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.55 56.50 56.64 27 51.54 43.35 46.24 48.89 47.66 50.30 51.86 54.76 56.55 56.50 56.64 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.90 60.00 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.91 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.90 60.00 | 9 | 61.81 | | | | | | | | | | | |
| 11 61.88 43.00 42.53 44.63 47.28 49.88 49.40 51.57 53.40 55.94 56.18 58.27 12 61.91 42.67 42.60 44.74 47.39 49.97 49.49 51.67 53.50 55.97 56.19 58.40 13 61.95 42.51 42.63 44.96 47.51 50.06 49.58 51.74 53.60 55.99 56.25 58.55 14 61.98 42.35 42.63 44.96 47.63 50.14 49.68 51.74 53.69 56.02 56.34 58.65 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.06 42.09 42.73 45.16 47.86 50.07 49.90 51.57 53.88 56.09 56.46 58.90 17 62.10 42.02 42.78 45.26 47.97 49.96 50.00 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.15 56.25 56.50 59.32 20.61.72 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 19.60 19.70 | 10 | 61.86 | 43.22 | | | | | | | | | | |
| 12 61.91 42.67 42.60 44.74 47.39 49.97 49.49 51.67 53.50 55.97 56.19 58.40 13 61.95 42.51 42.63 44.86 47.51 50.06 49.58 51.74 53.60 55.99 56.25 58.55 14 61.98 42.35 42.63 44.96 47.65 50.16 49.79 51.67 53.79 56.05 56.42 58.78 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.06 42.09 42.73 45.16 47.86 50.07 49.90 51.57 53.88 56.09 56.46 58.90 17 62.10 42.02 42.78 45.26 47.97 49.96 50.00 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.15 56.25 56.50 59.32 20 61.72 42.99 45.57 48.27 49.83 50.17 51.35 54.15 56.36 56.55 59.45 21 60.89 43.05 45.67 48.37 49.82 50.23 51.39 54.06 56.19 56.45 56.57 59.45 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.14 56.45 56.59 24 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.61 25 54.44 43.37 46.09 48.72 48.23 50.28 51.69 54.55 56.50 56.64 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | | | | | | | 23.73 | | 32.4. | 33.31 | 33.03 | 30.21 | 30.10 |
| 12 61.91 42.67 42.60 44.74 47.39 49.97 49.49 51.67 53.50 55.97 56.19 58.40 13 61.95 42.51 42.63 44.86 47.51 50.06 49.58 51.74 53.60 55.99 56.25 58.55 14 61.98 42.35 42.63 44.96 47.63 50.14 49.68 51.74 53.69 56.02 56.34 58.65 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.06 42.09 42.73 45.16 47.86 50.07 49.90 51.57 53.88 56.09 56.46 58.90 17 62.10 42.02 42.78 45.26 47.97 49.96 50.00 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.15 56.25 56.50 59.32 20 61.72 42.99 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 21 60.89 43.05 45.67 48.37 49.82 50.23 51.39 54.31 56.36 56.55 59.45 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.44 56.45 56.59 24 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.61 25 54.44 43.37 46.09 48.72 48.23 50.28 51.60 54.51 56.48 56.61 25 54.44 43.37 46.09 48.72 48.23 50.28 51.60 54.51 56.48 56.61 25 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | 11 | 61.88 | 43.00 | 42.53 | 44.63 | 47.28 | 49.88 | 49.40 | 51.57 | 53.40 | 55.94 | 56.18 | 58.27 |
| 13 61.95 42.51 42.63 44.86 47.51 50.06 49.58 51.74 53.60 55.99 56.25 58.55 14 61.98 42.35 42.63 44.96 47.63 50.14 49.68 51.74 53.69 56.02 56.34 58.65 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.06 42.09 42.73 45.16 47.86 50.07 49.90 51.57 53.88 56.09 56.46 58.90 17 62.10 42.02 42.78 45.26 47.97 49.96 50.00 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.15 56.25 56.50 59.32 20 61.72 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 16 60.89 43.05 45.67 48.47 49.82 50.23 51.39 54.06 56.19 56.46 56.59 59.58 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.44 56.45 56.59 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.50 25 54.44 43.37 46.09 48.72 48.23 50.28 51.69 54.59 56.50 56.64 25 54.44 43.37 46.09 48.72 48.23 50.28 51.69 54.59 56.50 56.64 25 54.44 43.37 46.09 48.72 48.23 50.28 51.55 54.67 56.53 56.70 59.70 27 51.54 43.64 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 55.07 56.70 56.98 60.10 | 12 | 61.91 | 42.67 | | | | | | | | | | |
| 14 61.98 42.35 42.63 44.96 47.63 50.14 49.68 51.74 53.69 56.02 56.34 58.65 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.06 42.09 42.73 45.16 47.86 50.07 49.90 51.57 53.88 56.09 56.46 58.90 17 62.10 42.02 42.78 45.26 47.97 49.96 50.00 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.15 56.25 56.50 59.32 20 61.72 42.98 45.67 48.37 49.82 50.23 51.35 54.31 56.53 56.53 59.58 <t< td=""><td>13</td><td>61.95</td><td>42.51</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<> | 13 | 61.95 | 42.51 | | | | | | | | | | |
| 15 62.02 42.21 42.68 45.07 47.75 50.16 49.79 51.67 53.79 56.05 56.42 58.78 16 62.06 42.09 42.73 45.16 47.86 50.07 49.90 51.57 53.88 56.09 56.46 58.90 17 62.10 42.02 42.78 45.26 47.97 49.96 50.00 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.15 56.25 56.55 59.32 20 61.72 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 21 60.89 43.05 45.67 48.37 49.82 50.23 51.39 54.31 56.36 56.55 59.58 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.44 56.45 56.55 24 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.61 25 54.44 43.37 46.09 48.72 48.23 50.28 51.69 54.59 56.50 56.66 26 52.92 43.46 46.15 48.79 48.02 50.28 51.69 54.59 56.50 56.66 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | 14 | 61.98 | 42.35 | | | | | | | | | | |
| 16 62.06 42.09 42.73 45.16 47.86 50.07 49.90 51.57 53.88 56.09 56.46 58.90 17 62.10 42.02 42.78 45.26 47.97 49.96 50.00 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.15 56.25 56.50 59.32 20 61.72 42.98 45.57 48.27 49.83 50.17 51.35 54.15 56.25 56.50 59.32 21 60.89 43.05 45.67 48.37 49.82 50.23 51.39 54.31 56.36 56.55 59.58 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 </td <td>15</td> <td>62.02</td> <td>42.21</td> <td>42.68</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | 15 | 62.02 | 42.21 | 42.68 | | | | | | | | | |
| 17 62.10 42.02 42.78 45.26 47.97 49.96 50.00 51.46 53.97 56.14 56.47 59.07 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.15 56.25 56.55 59.32 20 61.72 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 21 60.89 43.05 45.67 48.37 49.82 50.23 51.39 54.31 56.36 56.55 59.58 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.44 56.45 56.59 24 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.61 25 54.44 43.37 46.09 48.72 48.23 50.28 51.60 54.51 56.48 56.61 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.86 56.66 56.90 60.00 30 40.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 55.70 56.70 56.98 60.10 | | | | | | | | | | | | 20132 | 20110 |
| 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.15 56.25 56.50 59.32 20 61.72 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 21 60.89 43.05 45.67 48.37 49.82 50.23 51.39 54.31 56.36 56.55 59.58 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.44 56.45 56.57 24 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.51 25 | | | 42.09 | 42.73 | 45.16 | 47.86 | 50.07 | 49.90 | 51.57 | 53.88 | 56.09 | 56.46 | 58.90 |
| 18 62.11 42.84 45.37 48.07 49.86 50.09 51.39 54.06 56.19 56.48 59.20 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.15 56.25 56.50 59.32 20 61.72 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 21 60.89 43.05 45.67 48.37 49.82 50.23 51.39 54.31 56.36 56.55 59.58 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 58.27 43.20 48.55 48.72 50.32 51.53 54.44 56.45 56.59 24 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.61 25 54.44 | | | 42.02 | 42.78 | 45.26 | 47.97 | 49.96 | 50.00 | 51.46 | 53.97 | 56.14 | 56.47 | 59.07 |
| 19 62.01 42.91 45.47 48.18 49.80 50.15 51.35 54.15 56.25 56.50 59.32 20 61.72 42.98 45.57 48.27 49.83 50.17 51.35 54.23 56.31 56.53 59.45 21 60.89 43.05 45.67 48.37 49.82 50.23 51.39 54.31 56.36 56.55 59.58 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.44 56.45 56.59 24 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.61 25 54.44 43.37 46.09 48.72 48.23 50.28 51.69 54.59 56.50 56.64 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 </td <td></td> <td>62.11</td> <td></td> <td>42.84</td> <td>45.37</td> <td>48.07</td> <td>49.86</td> <td>50.09</td> <td>51.39</td> <td>54.06</td> <td>56.19</td> <td>56.48</td> <td></td> | | 62.11 | | 42.84 | 45.37 | 48.07 | 49.86 | 50.09 | 51.39 | 54.06 | 56.19 | 56.48 | |
| 21 60.89 43.05 45.67 48.37 49.82 50.23 51.39 54.31 56.36 56.55 59.58 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.44 56.45 56.59 24 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.61 25 54.44 43.37 46.09 48.72 48.23 50.28 51.69 54.59 56.50 56.64 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.99 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | | | | 42.91 | 45.47 | 48.18 | 49.80 | 50.15 | 51.35 | 54.15 | | | |
| 21 60.89 43.05 45.67 48.37 49.82 50.23 51.39 54.31 56.36 56.55 59.58 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.44 56.45 56.59 24 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.61 25 54.44 43.37 46.09 48.72 48.23 50.28 51.69 54.59 56.50 56.64 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.86 56.66 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | 20 | 61.72 | | 42.98 | 45.57 | 48.27 | 49.83 | 50.17 | 51.35 | 54.23 | 56.31 | 56.53 | 59.45 |
| 22 59.53 43.12 45.79 48.46 49.34 50.28 51.46 54.38 56.41 56.57 23 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.44 56.45 56.59 24 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.61 25 54.44 43.37 46.09 48.72 48.23 50.28 51.69 54.59 56.50 56.64 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | | | | | | | | | | | | | |
| 23 58.27 43.20 45.90 48.55 48.72 50.32 51.53 54.44 56.45 56.59 24 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.61 25 54.44 43.37 46.09 48.72 48.23 50.28 51.69 54.59 56.50 56.64 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | | | | | 45.67 | 48.37 | 49.82 | 50.23 | 51.39 | 54.31 | 56.36 | 56.55 | 59. 58 |
| 24 56.06 43.28 46.00 48.64 48.41 50.31 51.60 54.51 56.48 56.61 25 54.44 43.37 46.09 48.72 48.23 50.28 51.69 54.59 56.50 56.64 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.88 60.10 | | | | | 45.79 | 48.46 | 49.34 | 50.28 | 51.46 | 54.38 | 56.41 | 56.57 | |
| 25 54.44 43.37 46.09 48.72 48.23 50.28 51.69 54.59 56.50 56.64 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | | | | 43.20 | 45.90 | 48.55 | 48.72 | 50.32 | 51.53 | 54.44 | 56.45 | 56.59 | |
| 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | | | | 43.28 | 46.00 | 48.64 | 48.41 | 50.31 | 51.60 | 54.51 | 56.48 | 56.61 | |
| 26 52.92 43.46 46.15 48.79 48.02 50.28 51.75 54.67 56.53 56.70 59.70 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | 25 | 54.44 | | 43.37 | 46.09 | 48.72 | 48.23 | 50.28 | 51.69 | 54.59 | | | |
| 27 51.54 43.55 46.24 48.89 47.66 50.30 51.86 54.76 56.57 56.76 59.80 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | | | | | | | | | | | | | |
| 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | | | | 43.46 | 46.15 | 48.79 | 48.02 | 50.28 | 51.75 | 54.67 | 56.53 | 56.70 | 59.70 |
| 28 50.36 41.97 43.64 46.33 48.97 47.41 50.33 51.96 54.86 56.61 56.83 59.90 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | | 51.54 | | 43.55 | 46.24 | 48.89 | 47.66 | 50.30 | 51.86 | 54.76 | 56.57 | 56.76 | 59.80 |
| 29 48.91 41.93 43.68 46.43 47.27 50.38 52.06 54.96 56.66 56.90 60.00 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | | 50.36 | 41.97 | 43.64 | 46.33 | 48.97 | 47.41 | 50.33 | 51.96 | 54.86 | | 56.83 | 59.90 |
| 30 48.08 41.92 43.70 46.51 47.16 50.43 52.17 55.07 56.70 56.98 60.10 | | | | 43.68 | 46.43 | | 47.27 | 50.38 | 52.06 | 54.96 | 56.66 | 56.90 | |
| | | 48.08 | 41.92 | 43.70 | 46.51 | | 47.16 | 50.43 | 52.17 | 55.07 | 56.70 | | |
| | 31 | 47.39 | | 43.72 | 46.53 | | | | | | | | |
| | | | | | | | | | | | | | |
| LOW 62.11 46.79 43.72 46.53 48.97 50.16 50.43 52.28 55.07 56.73 57.07 60.10 | | | | | 46.53 | 48.97 | 50.16 | 50.43 | 52.28 | 55.07 | 56.73 | 57.07 | 60.10 |
| HIGH 47.39 41.92 41.95 43.73 46.48 47.05 46.81 50.50 52.40 55.17 56.07 57.17 | HÍCH | 47.39 | 41.92 | 41.95 | 43.73 | 46.48 | 47.05 | 46.81 | 50.50 | 52.40 | 55.17 | 56.07 | |



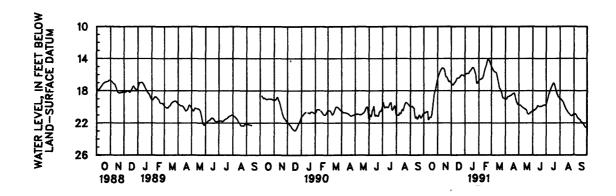
RIO HUMACAO TO RIO SECO BASINS

180415065513900. Local number, 96.
LOCATION.--Lat 18°04'15", long 65°51'39".
Owner: P.R. Aqueduct and Sewer Authority.
Name: USGS TW-2 or Yabucoa 7.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 16 in (0.41 m), cased 0-10 ft (0-3.05 m),
diameter 6 in (0.15 m), cased about 0-183 ft (0-55.79 m), perforated 56-81 ft (17.07-24.70 m), 102-123 ft
(31.10-37.50 m), 144-181 ft (43.90-55.18 m). Depth 181 ft (55.18 m).
DATUM.--Elevation of land-surface datum is about 25 ft (7.62 m) above mean sea level, from topographic map.
Measuring point: Top of shelter floor, 4.00 ft (1.22 m) above land-surface.
REMARKS.--Recording observation well.
PERIOD OF RECORD.--April 25, 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.10 ft (3.99 m) below land-surface datum, Dec. 2,
1987; lowest water level recorded, 28.29 ft (8.62 m) below land-surface datum, Sept. 20, 1980.

| WATER LEVEL, | IN FEET | BELOW | LAND-SURI | ACE | DATUM, | WATER | YEAR | OCTOBER | 1990 | TO | September | 1991 | |
|--------------|----------------------------------|-------|-----------|-----|--------|-------|------|---------|------|----|-----------|------|--|
| | THOMANDADOUS ODSPRIAMTON AM 1200 | | | | | | | | | | | | |

| DAY | OCT | NOV | DEC | Jan | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 20.81 | 16.44 | 17.07 | 16.05 | 16.72 | 14.94 | 18.99 | 19.76 | 20.53 | 19.73 | 18.92 | 20.92 |
| 2 | 20.78 | 16.24 | 17.21 | 15.95 | 16.63 | 15.06 | 19.00 | 19.76 | 20.50 | 19.55 | 18.95 | 20.90 |
| 3 | 20.76 | 16.07 | 17.18 | 15.88 | 16.61 | 15.18 | 19.02 | 19.75 | 20.45 | 19.38 | 19.01 | 20.87 |
| 4 | 20.73 | 15.92 | 17.27 | 15.86 | 16.59 | 15.28 | 19.00 | 19.76 | 20.39 | 19.17 | 19.08 | 20.86 |
| 5 | 20.69 | 15.78 | 17.26 | 15.87 | 16.56 | 15.40 | 18.86 | 19.80 | 20.35 | 18.94 | 19.14 | 20.89 |
| 6 | 20.64 | 15.64 | 17.18 | 15.85 | 16.53 | 15.50 | 18.75 | 19.84 | 20.32 | 18.70 | 19.21 | 20.96 |
| 7 | 20.61 | 15.51 | 17.11 | 15.82 | 16.51 | 15.58 | 18.70 | 19.90 | 20.26 | 18.49 | 19.27 | 21.07 |
| 8 | 20.58 | 15.39 | 17.01 | 15.86 | 16.46 | 15.63 | 18.70 | 19.96 | 20.23 | 18.25 | 19.37 | 21.19 |
| 9 | 20.55 | 15.31 | | 15.85 | 16.41 | 15.66 | 18.68 | 20.02 | 20.17 | 18.07 | 19.48 | 21.28 |
| 10 | 20.62 | 15.25 | 16.90 | 15.75 | 16.37 | 15.68 | 18.64 | 20.07 | 20.07 | 17.90 | 19.65 | 21.34 |
| 11 | 21.59 | 15.18 | 16.78 | 15.63 | 16.16 | 15.72 | 18.63 | 20.10 | 19.95 | 17.76 | 19.79 | 21.46 |
| 12 | 21.59 | 15.18 | 16.68 | 15.56 | 15.94 | 15.80 | 18.58 | 20.13 | 19.84 | 17.62 | 19.94 | 21.47 |
| 13 | 21.45 | 15.20 | 16.55 | 15.50 | 15.69 | 16.05 | 18.55 | 20.17 | 19.83 | 17.51 | 20.06 | 21.48 |
| 14 | 21.31 | 15.23 | 16.44 | 15.45 | 15.44 | 16.32 | 18.55 | 20.22 | 19.87 | 17.37 | 20.17 | 21.55 |
| 15 | 21.27 | 15.28 | 16.41 | 15.35 | 15.21 | 16.53 | 18.51 | 20.26 | 19.92 | 17.25 | 20.28 | 21.62 |
| 16 | 21.29 | 15.40 | 16.40 | 15.26 | 15.07 | 16.84 | 18.45 | 20.28 | 19.95 | 17.14 | 20.39 | 21.73 |
| 17 | 21.29 | 15.65 | 16.41 | 15.18 | 14.91 | 17.22 | 18.39 | 20.33 | 19.95 | 17.05 | 20.49 | 21.81 |
| 18 | 21.14 | 15.94 | 16.40 | 15.11 | 14.68 | 17.53 | 18.34 | 20.39 | 19.95 | 17.05 | 20.56 | 21.85 |
| 19 | 20.88 | 16.21 | 16.36 | 15.10 | 14.42 | 17.69 | 18.30 | 20.51 | 19.91 | 17.15 | 20.66 | 21.89 |
| 20 | 20.48 | 16.27 | 16.29 | 15.17 | 14.22 | 17.75 | 18.28 | 20.70 | 19.91 | 17.28 | 20.74 | 21.93 |
| 21 | 20.06 | 16.31 | 16.22 | 15.28 | 14.13 | 17.84 | 18.32 | 20.82 | 19.91 | 17.52 | 20.79 | 21.98 |
| 22 | 19.53 | 16.37 | 16.16 | 15.42 | 14.06 | 18.02 | 18.44 | 20.87 | 19.90 | 17.76 | 20.85 | 22.08 |
| 23 | 19.07 | 16.50 | 16.09 | 15.63 | 14.12 | 18.15 | 18.67 | 20.88 | 19.86 | 17.97 | 20.92 | 22.19 |
| 24 | 18.61 | 16.65 | 16.03 | 15.80 | 14.24 | 18.33 | 18.89 | 20.86 | 19.80 | 18.16 | 20.98 | 22.29 |
| 25 | 18.19 | 16.79 | 16.03 | 16.06 | 14.38 | 18.54 | 19.12 | 20.80 | 19.77 | 18.32 | 21.03 | 22.39 |
| 26 | 17.95 | 16.87 | 16.04 | 16.78 | 14.53 | 18.75 | 19.33 | 20.75 | 19.77 | 18.46 | 21.06 | 22.48 |
| 27 | 17.88 | 16.82 | 16.05 | 17.04 | 14.69 | 18.86 | 19.47 | 20.70 | 19.75 | 18.55 | 21.09 | 22.52 |
| 28 | 17.54 | 16.82 | 16.06 | 17.08 | 14.83 | 18.89 | 19.56 | 20.66 | 19.73 | 18.68 | 21.08 | 22.53 |
| 29 | 17.21 | 16.88 | 16.14 | 16.98 | | 18.92 | 19.67 | 20.61 | 19.74 | 18.76 | 21.02 | 22.52 |
| 30 | 16.95 | 16.93 | 16.15 | 16.89 | | 18.94 | 19.73 | 20.57 | 19.79 | 18.84 | 20.97 | 22.47 |
| 31 | 16.68 | | 16.13 | 16.83 | | 18.95 | | 20.55 | | 18.90 | 20.94 | |
| LOW | 21.59 | 16.93 | 17.27 | 17.08 | 16.72 | 18.95 | 19.73 | 20.88 | 20.53 | 19.73 | 21.09 | 22.53 |
| HIGH | 16.68 | 15.18 | 16.03 | 15.10 | 14.06 | 14.94 | 18.28 | 19.75 | 19.73 | 17.05 | 18.92 | 20.86 |

WTR YR 1991 MEAN 18.32 LOW 22.53 HIGH 14.06



RIO SALINAS TO RIO JACAGUAS BASINS

175829066232200. Local number, 87. LOCATION.--Lat 17°58'29", long 66°23'22". Owner: Francisco Alomar.

Owner: Francisco Alomar.

Name: Alomar 1.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), iron cased. Depth 112 ft (34.14 m).

DATUM.--Elevation of land-surface datum is 35.32 ft (10.77 m) above mean sea level.

Measuring point: Bottom of clean-out shelter door, 2.50 ft (0.76 m) above land-surface datum. Prior to August 1981, top of recorder shelter floor, 4.00 ft (1.22 m) above land-surface datum.

REMARKS.--Recording observation well.

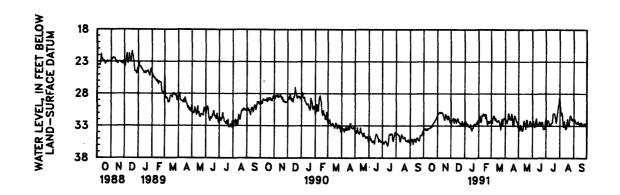
PERIOD OF RECORD.--April 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.45 ft (2.58 m) below land-surface datum, Dec. 10, 1970; lowest water level recorded, 49.18 ft (14.99 m) below land-surface datum, July 27, 1974.

| WATER LEVEL, | in fret | BELOW LAND-SUR | FACE DATUM | , WATER | YEAR | OCTOBER | 1990 | TO | September | 1991 | | |
|-----------------------------------|---------|----------------|------------|---------|------|---------|------|----|-----------|------|--|--|
| INSTANTANEOUS OBSERVATION AT 1200 | | | | | | | | | | | | |

| DAY | OCT | NOA | DEC | Jan | PRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 33.66 | 31.32 | 32.13 | 32.32 | 31.98 | 31.97 | 31.93 | 33.12 | 32.65 | 31.83 | 29.17 | 31.82 |
| 2 | 33.58 | 31.18 | 32.72 | 32.24 | 31.77 | 32.51 | 32.04 | 33.44 | 32.34 | 32.69 | 30.05 | 31.89 |
| 3 4 | 33.53 | 31.13 | 32.04 | 32.39 | 31.45 | 32.57 | 32.31 | 33.67 | 32.21 | 33.04 | 30.76 | 32.06 |
| 4 | 33.47 | 31.01 | 32.11 | 32.87 | 31.55 | 31.93 | 32.25 | 33.62 | 32.98 | 32.19 | 30.78 | 32.28 |
| 5 | 33.44 | 30.90 | 32.14 | 32.98 | 32.39 | 31.73 | 32.57 | 32.81 | 32.89 | 32.19 | 31.41 | 32.47 |
| 6 | 33.69 | 30.85 | 31.79 | 32.61 | 32.43 | 31.45 | 32.07 | 33.01 | 33.17 | 32.16 | 30.99 | 32.61 |
| 7 | 33.71 | 30.95 | 32.08 | 32.69 | 32.13 | 31.46 | 31.91 | 33.38 | 32.94 | 32.41 | 31.61 | 32.53 |
| 8 | 33.51 | 31.03 | 32.57 | 33.03 | 31.37 | 31.88 | 31.01 | 33.72 | 32.35 | 32.70 | 32.66 | 32.49 |
| 9 | 33.46 | 30.87 | 32.05 | 33.09 | 31.33 | 32.11 | 31.34 | 33.43 | 32.01 | 32.95 | 32.96 | 32.66 |
| 10 | 33.69 | 30.85 | 31.87 | 33.11 | 31.45 | 31.73 | 31.50 | 33.72 | 31.84 | 33.04 | 33.17 | 32.30 |
| 11 | 33.45 | 30.96 | 32.25 | 33.17 | 31.08 | 31.93 | 32.06 | 33.50 | 32.99 | 32.90 | 32.25 | 32.43 |
| 12 | 33.44 | 31.04 | 32.08 | 33.13 | 31.38 | 32.33 | 32.06 | 32.39 | 32.95 | 32.77 | 32.81 | 32.60 |
| 13 | 33.43 | 31.25 | 32.56 | 32.89 | 31.22 | 32.17 | 31.99 | 32.19 | 32.77 | 32.57 | 33.22 | 32.74 |
| 14 | 33.37 | 31.43 | 32.18 | 32.77 | 31.17 | 32.34 | 32.04 | 32.65 | 32.92 | 32.52 | 33.50 | 32.79 |
| 15 | 33.33 | 31.68 | 31.96 | 33.57 | 31.19 | 32.38 | 31.10 | 32.98 | 32.51 | 32.53 | 33.39 | 32.54 |
| 16 | 33.28 | 31.99 | 31.86 | 33.39 | 31.88 | 32.28 | 31.30 | 32.90 | 32.36 | 31.81 | 33.28 | 32.79 |
| 17 | 33.21 | 32.12 | 31.97 | 33.76 | 31.15 | 32.14 | 31.89 | 33.52 | 32.35 | 31.08 | 32.35 | 32.53 |
| 18 | 33.21 | 31.78 | 32.40 | 33.41 | 31.65 | 32.28 | 32.77 | 32.40 | 32.74 | 31.02 | 31.96 | 32.47 |
| 19 | 33.19 | 31.18 | 32.41 | 33.33 | 32.17 | 32.49 | 33.06 | 32.02 | 32.99 | 31.06 | 32.50 | 32.52 |
| 20 | 33.08 | 31.66 | 32.45 | 33.07 | 32.77 | 32.85 | 32.90 | 32.16 | 32.79 | 31.11 | 32.91 | 32.78 |
| 21 | 32.87 | 31.46 | 32.64 | 32.67 | 32.82 | 33.07 | 31.94 | 33.12 | 32.39 | 31.41 | 33.06 | 32.97 |
| 22 | 32.65 | 31.47 | 33.00 | 32.99 | 32.24 | 33.63 | 31.39 | 33.05 | 32.57 | 31.63 | 32.79 | 32.93 |
| 23 | 32.57 | 32.04 | 32.70 | 32.87 | 32.32 | 32.54 | 31.49 | 32.88 | 32.43 | 32.30 | 31.80 | 32.78 |
| 24 | 32.48 | 31.97 | 32.58 | 32.67 | 32.32 | 32.11 | 31.71 | 33.06 | 32.87 | 32.60 | 31.38 | 32.64 |
| 25 | 32.37 | 31.43 | 32.99 | 32.78 | 32.59 | 31.90 | 31.95 | 32.72 | 33.55 | 31.95 | 31.47 | 32.90 |
| 26 | 32.19 | 31.72 | 32.25 | 32.72 | 32.42 | 33.07 | 32.24 | 32.21 | 33.48 | 31.43 | 31.59 | 32.62 |
| 27 | 32.13 | 32.09 | 32.73 | 32.61 | 32.22 | 32.19 | 32.36 | 32.28 | 33.49 | 30.82 | 32.05 | 32.68 |
| 28 | 32.01 | 32.10 | 32.96 | 32.36 | 32.23 | 32.03 | 32.50 | 32.43 | 33.46 | 30.26 | 31.87 | 32.68 |
| 29 | 31.87 | 32.53 | 32.57 | 32.74 | | 31.81 | 32.80 | 32.89 | 32.67 | 29.72 | 32.16 | 32.64 |
| 30 | 31.68 | 32.31 | 32.97 | 32.17 | | 31.89 | 33.26 | 32.97 | 32.28 | 29.63 | 32.08 | 32.58 |
| 31 | 31.47 | | 32.52 | 32.16 | | 31.75 | | 33.01 | | 28.72 | 32.15 | |
| FOM | 33.71 | 32.53 | 33.00 | 33.76 | 32.82 | 33.63 | 33.26 | 33.72 | 33.55 | 33.04 | 33.50 | 32.97 |
| HIGH | 31.47 | 30.85 | 31.79 | 32.16 | 31.08 | 31.45 | 31.01 | 32.02 | 31.84 | 28.72 | 29.17 | 31.82 |

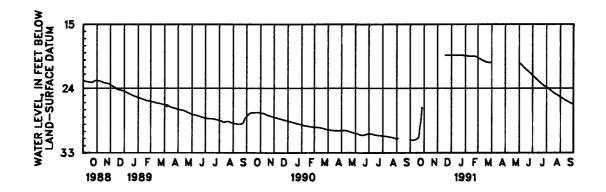
WTR YR 1991 MRAN 32.33 LOW 33.76 HIGH 28.72



RIO SALINAS TO RIO JACAGUAS BASINS

180002066132200. Local number, HW-TW-01.
LOCATION.--Lat 18°00'02", long 66°13'22".
Owner: U.S. Geological Survey, WRD.
Name: HW-TW-01.
AQUIFER.--Fractured, volcanic rock, water-table aquifer.
WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-39.5 ft (0-12.0 m), cased 4 in (0.10 m),
0-38.2 ft (0-11.6 m), screened 32-37 ft (9.75-11.3 m). Depth 39.5 ft (12.0 m).
DATUM.--Elevation of land-surface datum is 190 ft (58.0 m) above mean sea level.
Measuring point: Hole on side of 4 in (0.10 m) casing, 2.84 ft (0.87 m) above land-surface datum. Prior October
13, 1988, top of shelter floor, 3.48 ft (1.06 m) above land-surface datum.
REMARKS.--Recording observation well.
PERIOD OF RECORD.--April 14, 1988 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.34 ft (5.89 m) below land-surface datum, Dec. 18,
1990 to Jan. 26, 1991; lowest water level recorded, 31.24 ft (9.52 m) below land-surface datum, Oct. 1-11, 1990.

| | | WATER LEVEL, | IN | | | | | | R 1990 | TO SEPTEMB | RR 1991 | |
|-------|-------|--------------|------|---------|------------|-----------|------------|-----|--------|------------|---------|-------|
| | | | | INS | Tantaneous | OBSERVATI | ON AT 1200 |) | | | | |
| DAY | OCT | NOV | DEC | e jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 31.24 | | | - 19.34 | 19.42 | 19.68 | | | 20.38 | 22.16 | 23.80 | 25.21 |
| 2 | 31.24 | | | 19.34 | 19.42 | 19.77 | | | 20.47 | 22.26 | 23.86 | 25.24 |
| 3 | 31.24 | | | - 19.34 | 19.42 | 19.79 | | | 20.51 | 22.32 | 23.91 | 25.28 |
| 4 | 31.24 | | | - 19.34 | 19.42 | 19.81 | | | 20.58 | 22.36 | 23.95 | 25.32 |
| 5 | 31.24 | | | 19.34 | 19.45 | 19.82 | | | 20.62 | 22.44 | 24.00 | 25.37 |
| 6 | 31.24 | | | - 19.34 | 19.45 | 19.82 | | | 20.64 | 22.51 | 24.06 | 25.41 |
| 7 | 31.24 | | | - 19.34 | 19.46 | 19.83 | | | 20.75 | 22.55 | 24.11 | 25.44 |
| 8 | 31.24 | | | 19.34 | 19.46 | 19.88 | | | 20.78 | 22.58 | 24.15 | 25.48 |
| 9 | 31.24 | | | - 19.34 | 19.46 | 19.99 | | | 20.89 | 22.70 | 24.20 | 25.52 |
| 10 | 31.24 | | | 19.34 | 19.46 | 20.00 | | | 20.93 | 22.74 | 24.27 | 25.56 |
| 11 | 31.21 | | | - 19.34 | 19.47 | 20.02 | | | 21.01 | 22.77 | 24.32 | 25.59 |
| 12 | 31.17 | | | | 19.47 | 20.04 | | | 21.06 | 22.82 | 24.35 | 25.63 |
| 13 | 31.15 | | | - 19.34 | 19.47 | 20.10 | | | 21.14 | 22.93 | 24.40 | 25.68 |
| 14 | 31.14 | | | 19.34 | 19.47 | 20.13 | | | 21.19 | 22.97 | 24.48 | 25.71 |
| 15 | 31.10 | | | 19.34 | 19.47 | 20.17 | | | 21.23 | 23.01 | 24.53 | 25.74 |
| 16 | 31.04 | | | - 19.34 | 19.47 | 20.20 | | | 21.31 | 23.06 | 24.57 | 25.79 |
| 17 | 30.99 | | | - 19.34 | 19.47 | 20.23 | | | 21.36 | 23.14 | 24.61 | 25.82 |
| 18 | 30.93 | 1 | 9.34 | 19.34 | 19.48 | 20.25 | | | 21.42 | 23.19 | 24.66 | 25.85 |
| 19 | 30.90 | 1 | 9.34 | 19.34 | 19.48 | 20.28 | | | 21.46 | 23.23 | 24.71 | 25.90 |
| 20 | 30.86 | 1 | 9.34 | 19.34 | 19.48 | 20.31 | | | 21.47 | 23.27 | 24.76 | 25.93 |
| 21 | 30.47 | 1 | 9.34 | 19.34 | 19.48 | 20.34 | | | 21.60 | 23.36 | 24.81 | 25.96 |
| 22 | 29.76 | | 9.34 | | 19.49 | 20.34 | | | 21.64 | 23.41 | 24.85 | 26.00 |
| 23 | 29.25 | 1 | 9.34 | 19.34 | 19.51 | 20.34 | | | 21.68 | 23.45 | 24.85 | 26.03 |
| 24 | 28.87 | 1 | 9.34 | 19.34 | 19.53 | 20.34 | | | 21.78 | 23.49 | 24.88 | 26.06 |
| 25 | 28.43 | 1 | 9.34 | 19.34 | 19.54 | 20.36 | | | 21.82 | 23.53 | 24.91 | 26.09 |
| 26 | 27.70 | 1 | 9.34 | 19.35 | 19.55 | 20.36 | | | 21.86 | 23.63 | 24.95 | 26.12 |
| 27 | 26.87 | 1 | 9.34 | 19.36 | 19.60 | 20.36 | | | 21.91 | 23.67 | 25.01 | 26.15 |
| 28 | 26.66 | 1 | 9.34 | 19.37 | 19.64 | 20,36 | | | 22.02 | 23.68 | 25.05 | 26.19 |
| 29 | | | 9.34 | | | 20.36 | | | 22.07 | 23.68 | 25.08 | 26.22 |
| 30 | | | 9.34 | | | 20.36 | | | 22.10 | 23.70 | 25.12 | 26.25 |
| 31 | | | 9.34 | | | | | | | 23.75 | 25.16 | |
| LOW | 31.24 | 1 | 9.34 | 19.42 | 19.64 | 20.36 | | | 22.10 | 23.75 | 25.16 | 26.25 |
| HI GH | 26.66 | 1 | 9.34 | 19.34 | 19.42 | 19.68 | | | 20.38 | 22.16 | 23.80 | 25.21 |



RIO SALINAS TO RIO JACAGUAS BASINS

180017066132100 Local number, HW-TW-02.

LOCATION.--Lat 18°00'17", long 66°13'21".

Owner: U.S. Geological Survey, WRD.

Name: HW-TW-02.

ACQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-74 ft (0-22.6 m), cased 4 in (0.10 m), 0-70 ft (0-21.3 m), screened 60-65 ft (18.3-19.8 m). Depth 74 ft (22.6 m).

DATUM.--Elevation of land-surface datum is 224 ft (68.3 m) above mean sea level.

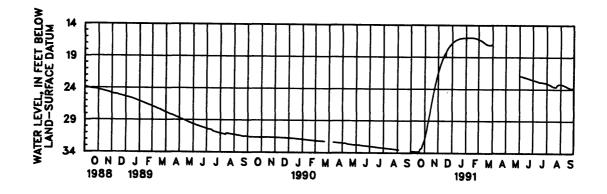
Measuring point: Hole on side of 4 in (0.10 m) casing, 3.15 ft (0.96 m) above land-surface datum. Prior October 13, 1988, top of shelter floor, 3.60 ft (1.10 m) above land-surface datum.

PERIOD OF RECORD.--March 30, 1988 to September 30, 1991, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 15.44 ft (4.71 m) below land-surface datum, Mar. 30, 1988, lowest water level recorded, 33.82 ft (10.3 m) below land-surface datum, Oct. 16, 1990.

WATER LEVEL, IN FRET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| | | | | THE | WILLWIDOON | ODSBAARII | OET IN POO. | v | | | | |
|------|-------|-------|-------|-------|------------|-----------|-------------|-----|-------|-------|-------|---------------|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
| 1 | 33.74 | 31.84 | 21.49 | 16.81 | 15.98 | 16.25 | | | 21.89 | 22.55 | 23.04 | 23.17 |
| 2 | 33.74 | 31.53 | 21.23 | 16.73 | 15.96 | 16.27 | | | 21.92 | 22.57 | 23.07 | 23.18 |
| 3 | 33.75 | 31.22 | 21.00 | 16.67 | 15.96 | 16.30 | | | 21.93 | 22.58 | 23.10 | 23.19 |
| 4 | 33.76 | 30.91 | 20.76 | 16.61 | 15.96 | 16.33 | | | 21.95 | 22.59 | 23.13 | 23.21 |
| 5 | 33.76 | 30.57 | 20.51 | 16.55 | 15.96 | 16.36 | | | 21.96 | 22.60 | 23.16 | 23.23 |
| 6 | 33.77 | 30.20 | 20.28 | 16.50 | 15.96 | 16.39 | | | 21.98 | 22.62 | 23.19 | 23.26 |
| 7 | 33.77 | 29.80 | 20.09 | 16.44 | 15.95 | 16.43 | | | 22.00 | 22.64 | 23.22 | 23.28 |
| 8 | 33.78 | 29.42 | 19.88 | 16.40 | 15.95 | 16.48 | | | 22.02 | 22.66 | 23.24 | 23.31 |
| 9 | 33.80 | 29.05 | 19.67 | 16.36 | 15.94 | 16.51 | | | 22.04 | 22.68 | 23.28 | 23.35 |
| 10 | 33.80 | 28.67 | 19.47 | 16.32 | 15.94 | 16.57 | | | 22.06 | 22.70 | 23.33 | 23.38 |
| 11 | 33.80 | 28.30 | 19.29 | 16.29 | 15.95 | 16.62 | | | 22.08 | 22.72 | 23.37 | 23.41 |
| 12 | 33.81 | 27.93 | 19.12 | 16.25 | 15.94 | 16.68 | | | 22.11 | 22.75 | 23.41 | 23.42 |
| 13 | 33.81 | 27.54 | 18.94 | 16.21 | 15.94 | 16.72 | | | 22.14 | 22.77 | 23.45 | 23.47 |
| 14 | 33.81 | 27.17 | 18.78 | 16.19 | 15.94 | 16.79 | | | 22.15 | 22.80 | 23.48 | 23.51 |
| 15 | 33.81 | 26.80 | 18.62 | 16.16 | 15.95 | 16.83 | | | 22.17 | 22.83 | 23.53 | 23.54 |
| 16 | 33.82 | 26.40 | 18.48 | 16.14 | 15.97 | 16.87 | | | 22.19 | 22.86 | 23.55 | 23.58 |
| 17 | 33.80 | 26.00 | 18.32 | 16.11 | 15.98 | 16.91 | | | 22.21 | 22.87 | 23.56 | 23.63 |
| 18 | 33.79 | 25.63 | 18.75 | 16.10 | 15.99 | 16.97 | | | 22.24 | 22.87 | 23.57 | 23.66 |
| 19 | 33.78 | 25.26 | 18.07 | 16.08 | 16.00 | 16.99 | | | 22.26 | 22.87 | 23.58 | 23.69 |
| 20 | 33.74 | 24.89 | 17.95 | 16.04 | 16.01 | 17.04 | | | 22.28 | 22.88 | 23.60 | 23.72 |
| 21 | 33.64 | 24.51 | 17.82 | 16.03 | 16.01 | 17.07 | | | 22.30 | 22.88 | 23.61 | 23.75 |
| 22 | 33.41 | 24.16 | 17.69 | 16.03 | 16.04 | 17.08 | | | 22.33 | 22.89 | 23.62 | 23.7 7 |
| 23 | 33.33 | 23.83 | 17.58 | 16.03 | 16.07 | 17.08 | | | 22.35 | 22.89 | 23.45 | 23.79 |
| 24 | 33.30 | 23.50 | 17.47 | 16.02 | 16.09 | 17.09 | | | 22.38 | 22.91 | 23.35 | 23.80 |
| 25 | 33.27 | 23.17 | 17.38 | 16.01 | 16.10 | 17.11 | | | 22.40 | 22.93 | 23.27 | 23.82 |
| 26 | 33.12 | 22.88 | 17.29 | 16.00 | 16.12 | 17.11 | | | 22.42 | 22.94 | 23.23 | 23.84 |
| 27 | 32.86 | 22.58 | 17.20 | 15.99 | 16.17 | 17.11 | | | 22.46 | 22.95 | 23.19 | 23.85 |
| 28 | 32.66 | 22.27 | 17.12 | 15.99 | 16.21 | 17.10 | | | 22.47 | 22.97 | 23.18 | 23.87 |
| 29 | 32.47 | 22.00 | 17.04 | 15.99 | | 17.10 | | | 22.49 | 22.99 | 23.17 | 23.90 |
| 30 | 32.27 | 21.74 | 16.96 | 15.98 | | 17.10 | | | 22.53 | 23.00 | 23.16 | 23.90 |
| 31 | 32.12 | | 16.87 | 15.98 | | | | | | 23.02 | 23.16 | |
| LOW | 33.82 | 31.84 | 21.49 | 16.81 | 16.21 | 17.11 | | | 22.53 | 23.02 | 23.62 | 23.90 |
| HIGH | 32.12 | 21.74 | 16.87 | 15.98 | 15.94 | 16.25 | | | 21.89 | 22.55 | 23.04 | 23.17 |



RIO SALINAS TO RIO JACAGUAS BASINS

180001066122000 Local number, HW-TW-03.
LOCATION.--Lat 18°00'01", long 66°12'20".

Owner: U.S. Geological Survey, WRD.

Name: HW-TW-03.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-60 ft (0-18.3 m), cased 4 in (0.10 m), 0-59 ft (0-18.0 m), screened 53-58 ft (16.2-17.7 m). Depth 60 ft (18.3 m).

DATUM.--Elevation of land-surface datum is 271 ft (82.6 m) above mean sea level.

Measuring point: Hole on side of 4 in (0.10 m) casing, 3.11 ft (0.95 m) above land-surface datum. Prior October 14, 1989, top of shelter floor, 3.42 ft (1.04 m) above land-surface datum.

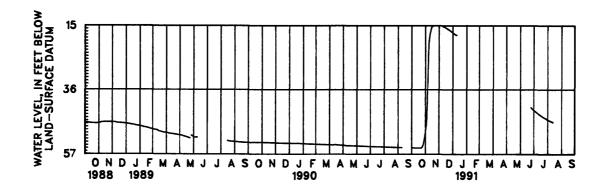
REMARKS.--Recording observation well. Aquifer test on Dec. 7, 1988 and May 24, 25, 1989.

PERIOD OF RECORD.--March 31, 1988 to August 1991, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 15.11 ft (4.60 m) below land-surface datum, Dec. 9, 1990, lowest water level recorded, 54.97 ft (16.7 m) below land-surface datum, Oct. 14-22, 1990.

| | WATER LEVEL, | IN FERT | | nd-Surface Paneous ob | | | OCTOBER | 1990 T | O SEPTEMBER | 1991 |
|---|--------------|---------|-----|--------------------------|-----|-----|---------|--------|-------------|------|
| 1 | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG |

| 1 54.90 49.58 17.44 42.65 45.77 2 54.90 48.54 17.44 42.89 45.84 3 54.91 47.33 17.55 43.89 45.86 4 54.91 44.94 17.66 43.01 45.96 5 54.91 40.22 17.77 43.13 46.03 6 54.91 33.38 17.86 43.24 46.11 7 54.92 26.11 17.95 43.34 46.16 8 54.92 21.89 18.07 43.34 46.16 9 54.93 19.78 15.16 18.13 43.55 46.22 10 54.93 19.78 15.16 18.13 43.55 46.29 11 54.93 17.73 15.31 43.87 46.47 12 54.95 16.95 15.40 43.87 46.47 13 54.96 15.72 15.55 44.08 14 54.96 15.72 15.55 44.08 15 54.97 15.16 15.80 44.08 17 54.97 15.16 15.80 44.09 18 54.97 15.13 15.86 44.61 1 20 54.97 16.14 44.78 21 54.97 16.07 44.61 1 22 54.97 16.07 44.61 1 23 54.95 16.07 44.61 1 24 54.92 16.44 44.87 25 54.97 16.14 44.61 1 27 53.92 16.64 44.87 44.78 27 53.92 16.64 44.87 45.04 45.70 45.70 | DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
|---|------|-------|-------|-------|-------|-----|-----|-----|-----|-------|-------|-------|-----|
| \$ 54.91 47.33 17.55 42.89 45.90 4 54.91 44.94 17.66 43.01 45.96 5 54.91 40.22 17.77 43.01 45.96 7 54.92 26.11 17.95 43.24 46.11 7 54.92 26.11 17.95 43.24 46.16 8 54.93 19.78 15.16 18.13 43.46 46.22 9 54.93 19.78 15.16 18.13 43.55 46.29 10 54.93 19.56 15.21 18.13 43.67 46.35 11 54.93 17.73 15.31 43.67 46.47 12 54.95 16.95 15.40 43.87 46.47 13 54.96 15.72 15.55 43.98 46.55 14 54.96 15.72 15.55 44.90 15 54.97 15.10 15.86 44.90 17 54.97 15.16 15.80 44.90 19 54.97 15.98 44.90 20 54.97 16.07 44.50 44.50 21 54.97 16.07 44.50 44.50 22 54.97 16.07 44.90 44.90 23 54.93 16.14 44.90 44.90 24 54.97 16.07 44.50 44.90 44.50 44.90 44.90 44.90 44.90 44.90 | 1 | 54.90 | 49.58 | | 17.35 | | | | | | 42.65 | 45.77 | |
| 4 54.91 44.94 | 2 | 54.90 | 48.54 | | 17.44 | | | | | | 42.78 | 45.84 | |
| 5 54.91 40.22 | 3 | 54.91 | 47.33 | | 17.55 | | | | | | 42.89 | 45.90 | |
| 6 | 4 | 54.91 | 44.94 | | 17.66 | | | | | | 43.01 | 45.96 | |
| 7 54.92 26.11 17.95 43.34 46.16 8 54.92 21.89 18.07 43.46 46.22 43.55 46.29 10 54.93 19.78 15.16 18.13 43.67 46.35 11 54.93 17.73 15.31 43.67 46.35 11 54.93 17.73 15.31 43.87 46.47 13 54.96 16.21 15.47 43.89 46.55 14 54.96 15.72 15.55 44.98 46.55 15 54.97 15.39 15.64 44.19 44.19 15 54.97 15.30 15.86 44.39 44.19 18 54.97 15.16 15.80 44.50 44.50 15 54.97 15.13 15.86 44.50 44.70 | 5 | 54.91 | 40.22 | | 17.77 | | | • | | | 43.13 | 46.03 | |
| 7 54.92 26.11 17.95 43.34 46.16 8 54.92 21.89 18.07 43.46 46.22 9 54.93 19.78 15.16 18.13 43.55 46.29 10 54.93 17.73 15.31 43.67 46.35 11 54.93 17.73 15.31 43.87 46.47 12 54.95 16.95 15.40 43.87 46.47 13 54.96 16.21 15.47 43.98 46.55 14 54.96 15.72 15.55 44.08 15 54.97 15.39 15.64 44.19 16 54.97 15.16 15.80 44.30 17 54.97 15.16 15.80 44.39 18 54.97 15.13 15.86 44.50 20 54.97 16.07 44.70 21 54.97 16.14 44.70 22 54.97 16.14 44.70 23 54.93 16.34 44.93 24 54.82 16.44 44.93 25 54.97 16.22 44.93 26 54.30 16.55 44.93 27 53.92 16.77 44.93 28 53.34 16.54 44.93 29 52.49 17.02 42.50 45.52 29 52.49 17.02 42.50 45.55 20 54.97 49.58 17.23 18.13 42.50 45.70 46.55 20 54.97 49.58 17.23 18.13 42.50 45.70 46.55 20 54.97 49.58 17.23 18.13 42.50 45.70 46.55 20 54.97 49.58 17.23 18.13 42.50 45.70 46.55 21 54.97 49.58 17.23 18.13 42.50 45.70 46.55 22 54.97 16.24 44.93 44.93 44.93 44.93 44.93 44.93 44.93 44.93 44.93 44.93 44.93 44.93 | | | | | | | | | | | | | |
| 8 54.92 21.89 18.07 43.16 46.22 9 54.93 19.78 15.16 18.13 43.55 46.29 10 54.93 17.73 15.31 43.67 46.35 11 54.93 17.73 15.31 43.87 46.47 12 54.95 16.95 15.40 43.87 46.47 13 54.96 16.21 15.47 43.98 46.55 15 54.97 15.39 15.64 44.19 16 54.97 15.20 15.73 44.19 17 54.97 15.16 15.80 44.30 19 54.97 15.13 15.86 44.59 19 54.97 16.07 44.70 20 54.97 16.07 44.70 21 54.97 16.04 44.70 21 54.97 16.04 44.70 22 54.97 16.04 44.70 23 54.93 16.04 44.70 24 54.82 16.04 44.70 25 54.61 16.54 45.04 26 54.30 16.65 45.04 27 53.92 16.07 43.76 46.42 28 53.34 16.65 44.93 29 52.49 17.02 44.50 29 52.49 17.02 42.50 45.70 20 54.97 49.58 17.23 18.13 42.50 45.70 21 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 6 | 54.91 | 33.38 | | 17.86 | | | | | | 43.24 | 46.11 | |
| 9 54.93 19.78 15.16 19.13 43.67 46.29 10 54.93 17.73 15.31 43.67 46.35 11 54.93 17.73 15.31 43.67 46.42 12 54.95 16.95 15.40 43.87 46.47 13 54.96 16.21 15.47 43.98 46.55 14 54.96 15.72 15.55 44.08 15 54.97 15.39 15.64 44.19 16 54.97 15.16 15.80 44.39 17 54.97 15.16 15.80 44.39 19 54.97 15.98 44.61 20 54.97 16.07 44.61 21 54.97 16.07 44.61 22 54.97 16.34 44.93 23 54.93 16.34 44.93 24 54.93 16.34 44.93 25 54.61 16.54 44.93 27 53.92 16.65 45.04 29 52.49 17.02 42.23 45.35 29 52.49 17.02 42.50 45.70 46.55 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 7 | 54.92 | 26.11 | | 17.95 | | | | | | 43.34 | 46.16 | |
| 10 54.93 18.56 15.21 18.13 43.67 46.35 11 54.93 17.73 15.31 43.87 46.47 12 54.95 16.95 15.40 43.87 46.47 13 54.96 16.21 15.47 43.98 46.55 14 54.96 15.72 15.55 44.08 15 54.97 15.39 15.64 44.30 16 54.97 15.16 15.80 44.30 18 54.97 15.13 15.86 44.50 19 54.97 15.98 44.50 20 54.97 16.07 44.78 21 54.97 16.14 44.87 22 54.97 16.34 44.87 23 54.93 16.34 44.93 24 54.82 16.44 44.93 25 54.61 16.54 44.93 26 54.30 16.65 44.93 27 53.92 16.77 44.93 44.93 29 52.49 17.02 44.87 45.04 29 52.49 17.02 42.50 45.70 46.55 10 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 8 | 54.92 | 21.89 | | 18.07 | | | | | | 43.46 | 46.22 | |
| 11 54.93 17.73 15.31 43.76 46.42 12 54.95 16.95 15.40 43.87 46.47 13 54.96 16.21 15.47 43.98 46.55 14 54.96 15.72 15.55 44.08 44.19 44.19 - | 9 | 54.93 | 19.78 | 15.16 | 18.13 | | | | | | 43.55 | 46.29 | |
| 12 54.95 16.95 15.40 43.87 46.47 13 54.96 16.21 15.47 43.98 46.55 14 54.96 15.72 15.55 44.08 15 54.97 15.39 15.64 44.19 16 54.97 15.16 15.80 44.30 17 54.97 15.15 15.86 44.39 18 54.97 15.13 15.86 44.50 19 54.97 15.98 44.61 20 54.97 16.07 44.70 21 54.97 16.14 44.70 22 54.97 16.34 44.87 23 54.93 16.34 44.93 24 54.82 16.44 44.93 25 54.61 16.54 45.04 27 53.92 16.77 45.04 28 53.34 16.88 42.93 45.23 29 52.49 17.02 42.50 45.23 31 50.70 17.23 42.50 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 10 | 54.93 | 18.56 | 15.21 | 18.13 | | | | | | 43.67 | 46.35 | |
| 12 54.95 16.95 15.40 43.87 46.47 13 54.96 16.21 15.47 43.98 46.55 14 54.96 15.72 15.55 44.08 15 54.97 15.39 15.64 44.19 16 54.97 15.16 15.80 44.30 17 54.97 15.16 15.80 44.39 18 54.97 15.13 15.86 44.50 19 54.97 15.98 44.61 20 54.97 16.07 44.61 21 54.97 16.14 44.70 22 54.97 16.34 44.87 23 54.93 16.34 44.93 24 54.82 16.44 44.93 25 54.61 16.54 45.04 27 53.92 16.77 45.04 28 53.34 16.88 42.93 45.23 29 52.49 17.02 42.95 45.43 31 50.70 17.23 42.50 45.70 46.55 | | | | | | | | | | | | | |
| 13 54.96 16.21 15.47 43.98 46.55 14 54.96 15.72 15.55 44.08 15 54.97 15.39 15.64 44.19 16 54.97 15.20 15.73 44.39 17 54.97 15.16 15.80 44.50 18 54.97 15.13 15.86 44.50 19 54.97 15.98 44.61 20 54.97 16.07 44.61 21 54.97 16.14 44.70 22 54.97 16.22 44.93 23 54.93 16.34 44.93 24 54.82 16.44 44.93 25 54.61 16.54 44.93 26 54.30 16.65 41.80 45.13 27 53.92 16.77 41.80 45.23 28 53.34 16.88 42.09 45.29 29 52.49 17.02 42.50 45.70 31 50.70 17.23 42.50 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 11 | 54.93 | 17.73 | 15.31 | | | | | | | 43.76 | 46.42 | |
| 14 54.96 15.72 15.55 44.08 15.55 44.19 44.19 44.19 44.19 44.19 44.19 44.19 44.19 44.30 44.30 44.30 44.30 44.50 44.50 44.50 44.50 44.61 44.61 | 12 | 54.95 | 16.95 | 15.40 | | | | | | | 43.87 | 46.47 | |
| 15 54.97 15.39 15.64 44.19 16 54.97 15.20 15.73 44.30 17 54.97 15.16 15.80 44.39 18 54.97 15.13 15.86 44.50 19 54.97 15.98 44.61 20 54.97 16.07 44.70 21 54.97 16.14 44.87 22 54.97 16.22 44.87 23 54.93 16.34 44.93 24 54.82 16.44 44.93 25 54.61 16.54 41.80 45.13 26 54.30 16.65 41.80 45.13 27 53.92 16.77 41.80 45.13 28 53.34 16.88 42.23 45.35 29 52.49 17.02 42.23 45.35 29 52.49 17.02 42.23 45.35 20 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 13 | 54.96 | 16.21 | 15.47 | | | | | | | 43.98 | 46.55 | |
| 16 54.97 15.20 15.73 44.30 17 54.97 15.16 15.80 44.50 18 54.97 15.13 15.86 44.50 19 54.97 15.98 44.61 20 54.97 16.07 44.70 21 54.97 16.14 44.97 22 54.97 16.22 44.97 23 54.93 16.34 44.93 24 54.93 16.44 44.93 25 54.61 16.54 45.04 25 54.61 16.54 41.80 45.13 26 54.30 16.65 41.80 45.13 27 53.92 16.77 42.09 45.29 28 53.34 16.88 42.09 45.29 29 52.49 17.02 42.50 45.55 30 51.58 17.10 45.70 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 14 | 54.96 | 15.72 | 15.55 | | | | | | | 44.08 | | |
| 17 54.97 15.16 15.80 44.39 18 54.97 15.13 15.86 44.50 19 54.97 15.98 44.61 20 54.97 16.07 44.70 21 54.97 16.14 44.70 22 54.97 16.22 44.87 23 54.93 16.34 44.93 24 54.82 16.34 44.93 25 54.61 16.54 44.93 25 54.61 16.54 44.80 45.13 26 54.30 16.65 41.80 45.13 27 53.92 16.77 41.80 45.13 28 53.34 16.88 42.09 45.29 29 52.49 17.02 42.23 45.35 29 52.49 17.02 42.50 45.52 30 51.58 17.10 42.50 45.52 31 50.70 17.23 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 15 | 54.97 | 15.39 | 15.64 | | | | | | | 44.19 | | |
| 17 54.97 15.16 15.80 44.39 18 54.97 15.13 15.96 44.50 19 54.97 15.98 44.61 20 54.97 16.07 44.70 21 54.97 16.14 44.78 22 54.97 16.34 44.87 23 54.93 16.34 44.93 24 54.82 16.44 44.93 25 54.61 16.54 44.80 45.13 26 54.30 16.54 41.80 45.13 27 53.92 16.77 41.94 45.23 28 53.34 16.88 42.09 45.29 29 52.49 17.02 42.23 45.35 20 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | | | | | | | | | | | | | |
| 18 54.97 15.13 15.86 44.50 19 54.97 15.98 44.61 44.70 45.04 45.04 45.04 45.04 45.04 | 16 | 54.97 | 15.20 | 15.73 | | | | | | | 44.30 | | |
| 19 54.97 15.98 44.61 20 54.97 16.07 44.70 21 54.97 16.14 44.87 22 54.97 16.22 44.97 23 54.93 16.34 44.93 24 54.82 16.44 44.93 25 54.61 16.54 45.04 25 54.61 16.55 41.80 45.13 26 54.30 16.65 41.80 45.13 27 53.92 16.77 41.94 45.23 28 53.34 16.88 42.09 45.29 29 52.49 17.02 42.23 45.35 30 51.58 17.10 42.35 45.43 31 50.70 17.23 42.50 45.52 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 17 | 54.97 | 15.16 | 15.80 | | | | | | | 44.39 | | |
| 20 54.97 16.07 44.70 21 54.97 16.14 44.78 22 54.97 16.32 44.87 23 54.93 16.34 44.93 24 54.82 16.44 45.04 25 54.61 16.54 41.80 45.13 26 54.30 16.65 41.94 45.23 27 53.92 16.77 41.94 45.23 28 53.34 16.88 42.09 45.29 29 52.49 17.02 42.23 45.35 29 52.49 17.02 42.50 45.52 31 50.70 17.23 42.50 45.52 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 18 | 54.97 | 15.13 | 15.86 | | | | | | | 44.50 | | |
| 21 54.97 16.14 44.78 22 54.97 16.22 44.87 23 54.93 16.34 44.93 24 54.82 16.44 45.04 25 54.61 16.54 41.80 45.13 26 54.30 16.65 41.80 45.13 27 53.92 16.77 42.09 45.29 28 53.34 16.88 42.09 45.29 29 52.49 17.02 42.35 45.43 30 51.58 17.10 42.50 45.52 31 50.70 17.23 45.70 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 19 | 54.97 | | 15.98 | | | | | | | 44.61 | | |
| 22 54.97 16.22 44.87 23 54.93 16.34 44.93 24 54.82 16.44 45.04 25 54.61 16.54 41.80 45.13 26 54.30 16.65 41.94 45.23 27 53.92 16.77 42.09 45.29 28 53.34 16.88 42.09 45.29 29 52.49 17.02 42.23 45.35 29 52.49 17.02 42.50 45.52 30 51.58 17.10 42.50 45.52 31 50.70 17.23 42.50 45.70 | 20 | 54.97 | | 16.07 | | | | | | | 44.70 | | |
| 22 54.97 16.22 44.87 23 54.93 16.34 44.93 24 54.82 16.44 45.04 25 54.61 16.54 41.80 45.13 26 54.30 16.65 41.94 45.23 27 53.92 16.77 42.09 45.29 28 53.34 16.88 42.09 45.29 29 52.49 17.02 42.23 45.35 29 52.49 17.02 42.50 45.52 30 51.58 17.10 42.50 45.52 31 50.70 17.23 42.50 45.70 | | | | | | | | | | | | | |
| 23 54.93 16.34 44.93 24 54.82 16.44 45.04 25 54.61 16.54 41.80 45.13 26 54.30 16.65 41.94 45.23 27 53.92 16.77 42.09 45.29 28 53.34 16.88 42.09 45.29 29 52.49 17.02 42.33 45.35 30 51.58 17.10 42.50 45.52 31 50.70 17.23 42.50 45.52 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | | 54.97 | | | | | | | | | | | |
| 24 54.82 16.44 45.04 25 54.61 16.54 41.80 45.13 26 54.30 16.65 41.94 45.23 27 53.92 16.77 42.09 45.29 28 53.34 16.88 42.09 45.29 29 52.49 17.02 42.23 45.35 30 51.58 17.10 42.50 45.43 31 50.70 17.23 42.50 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | | | | | | | | | | | | | |
| 25 54.61 16.54 41.80 45.13 26 54.30 16.65 41.94 45.23 27 53.92 16.77 42.09 45.29 28 53.34 16.88 42.23 45.35 29 52.49 17.02 42.23 45.35 30 51.58 17.10 42.50 45.52 31 50.70 17.23 42.50 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 23 | 54.93 | | 16.34 | | | | | | | 44.93 | | |
| 26 54.30 16.65 41.94 45.23 27 53.92 16.77 42.09 45.29 28 53.34 16.88 42.23 45.35 29 52.49 17.02 42.35 45.43 30 51.58 17.10 42.50 45.52 31 50.70 17.23 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 24 | 54.82 | | 16.44 | | | | | | | 45.04 | | |
| 27 53.92 16.77 42.09 45.29 28 53.34 16.88 42.23 45.35 29 52.49 17.02 42.35 45.43 30 51.58 17.10 42.50 45.52 31 50.70 17.23 42.50 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | 25 | 54.61 | | 16.54 | | | | | | 41.80 | 45.13 | | |
| 27 53.92 16.77 42.09 45.29 28 53.34 16.88 42.23 45.35 29 52.49 17.02 42.35 45.43 30 51.58 17.10 42.50 45.52 31 50.70 17.23 42.50 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | | | | | | | | | | | | | |
| 28 53.34 16.88 42.23 45.35 29 52.49 17.02 42.35 45.43 30 51.58 17.10 42.50 45.52 31 50.70 17.23 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | | | | | | | | | | | | | |
| 29 52.49 17.02 42.35 45.43 30 51.58 17.10 42.50 45.52 31 50.70 17.23 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | | | | | | | | | | | | | |
| 30 51.58 17.10 42.50 45.52 31 50.70 17.23 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | | | | | | | | | | | | | |
| 31 50.70 17.23 45.70 LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | | | | | | | | | | | | | |
| LOW 54.97 49.58 17.23 18.13 42.50 45.70 46.55 | | | | | | | | | | 42.50 | | | |
| | 31 | 50.70 | | 17.23 | | | | | | | 45.70 | | |
| | | | | | | | | | | | | | |
| HIGH 50.70 15.13 15.16 17.35 41.80 42.65 45.77 | | | | | | | | | | | | | |
| | HIGH | 50.70 | 15.13 | 15.16 | 17.35 | | | | | 41.80 | 42.65 | 45.77 | |



RIO SALINAS TO RIO JACAGUAS BASINS

180001066122002 Local number, HW-TW-03C. LOCATION.--Lat 18°00'01", long 66°12'20". Owner: U.S. Geological Survey, WRD.

Owner: U.S. Geological Survey, WRD.

Name: HW-TW-03C.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-220 ft (0-67.0 m), cased 4 in (0.10 m), 0-150 ft (0-45.7 m), open hole 150-220 ft (45.7-67.0 m). Depth 220 ft (67.0 m).

DATUM.--Elevation of land-surface datum is 270 ft (82.6 m) above mean sea level.

Measuring point: Top of shelter floor, 3.32 ft (1.01 m) above land-surface datum.

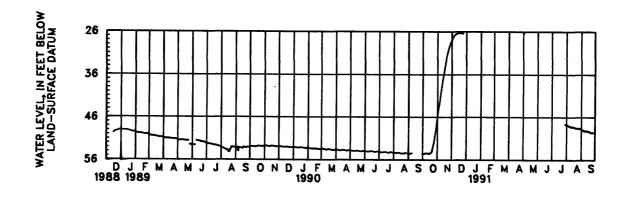
REMARKS.--Recording observation well. Aquifer test performed during May 24, 25, 26, 1989.

PERIOD OF RECORD.--December 15, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.29 ft (8.01 m) below land-surface datum, Dec. 15, 1990; lowest water level recorded, 54.60 ft (16.6 m) below land-surface datum, Oct. 3-4, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | ост | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|----------------|-----|-----|-----|-----|-----|-----|-------|-------|-------|
| 1 | 54.55 | 45.96 | 27.97 | | | | | | | | 47.65 | 48.74 |
| 2 | 54.57 | 45.08 | 27.71 | | | | | | | | 47.72 | 48.78 |
| 3 | 54.58 | 44.26 | 27.43 | | | | | | | | 47.78 | 48.86 |
| Ă | 54.56 | 43.48 | 27.29 | | | | | | | | 47.84 | 48.92 |
| 5 | 54.50 | 42.83 | 27.07 | | | | | | | | 47.91 | 48.99 |
| | | | | | | | | | | | | |
| 6 | 54.47 | 42.14 | 26.94 | | | | | | | | 48.00 | 49.05 |
| 7 | 54.37 | 41.29 | 26.82 | | | | | | | | 48.04 | 49.07 |
| 8 | 54.37 | 40.37 | 26.72 | | | | | | | | 48.09 | 49.09 |
| 9 | 54.40 | 39.54 | 26.62 | | | | | | | | 48.13 | 49.07 |
| 10 | 54.40 | 38.76 | 26.54 | | | | | | | | 48.17 | 49.09 |
| 11 | 54.40 | 38.03 | 26.48 | | | | | | | | 48.18 | 49.08 |
| 12 | 54.43 | 37.35 | 26.44 | | | | | | | | 48.16 | 49.08 |
| 13 | 54.46 | 36.67 | 26.39 | | | | | | | | 48.15 | 49.12 |
| 14 | 54.48 | 36.01 | 26.35 | | | | | | | | 48.16 | 49.18 |
| 15 | 54.46 | 35.34 | 26.33 26.32 | | | | | | | | 48.18 | 49.21 |
| 13 | 34.46 | 35.34 | 46.34 | | | | | | | | 40.10 | 47.21 |
| 16 | 54.45 | 34.63 | 26.32 | | | | | | | | 48.23 | 49.24 |
| 17 | 54.38 | 33.96 | 26.32 | | | | | | | | 48.26 | 49.25 |
| 18 | 54.33 | 33.32 | 26.32 | | | | | | | | 48.31 | 49.30 |
| 19 | 54.21 | 32.76 | 26.33 | | | | | | | | 48.38 | 49.36 |
| 20 | 54.12 | 32.17 | 26.34 | | | | | | | | 48.45 | 49.40 |
| 21 | 53.81 | 31.62 | 26.36 | | | | | | | | 48.49 | 49.47 |
| 22 | 53.26 | 31.09 | 26.36 | | | | | | | | 48.52 | 49.50 |
| 23 | 52.79 | 30.64 | 26.37 | | | | | | | | 48.46 | 49.49 |
| 24 | 52.35 | 30.22 | 26.41 | | | | | | | | 48.51 | 49.50 |
| 25 | 51.82 | 29.83 | 26.45 | | | | | | | | 48.51 | 49.50 |
| | | | | | | | | | | | | |
| 26 | 51.11 | 29.46 | | | | | | | | | 48.53 | 49.50 |
| 27 | 50.35 | 29.11 | | | | | | | | | 48.55 | 49.49 |
| 28 | 49.56 | 28.82 | | | | | | | | | 48.55 | 49.51 |
| 29 | 48.71 | 28.47 | | | | | | | | | 48.57 | 49.56 |
| 30 | 47.78 | 28.23 | | | | | | | | | 48.58 | 49.58 |
| 31 | 46.86 | | | | | | | | | 47.62 | 48.67 | |
| LOW | 54.58 | 45.96 | 27.97 | | | | | | | 47.62 | 48.67 | 49.58 |
| HIGH | 46.86 | 28.23 | 26.32 | | | | | | | 47.62 | 47.65 | 48.74 |
| HIGH | 40.80 | 45.23 | 46.32 | | | | | | | #1.04 | 47.00 | 40./4 |



RIO SALINAS TO RIO JACAGUAS BASINS

180001066122004 Local number, HW-TW-03E.
LOCATION.--Lat 18°00'01", long 66°12'20".

Owner: U.S. Geological Survey, WRD.

Name: HW-TW-03E.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-70 ft (0.27.4 m), cased 4 in (0.10 m), 0-89 ft (0-27.1 m), screened 79-89 ft (24.1-27.1 m). Depth 90 ft (27.4 m).

DATUM.--Elevation of land-surface datum is 271 ft (82.6 m) above mean sea level.

Measuring point: Top of shelter floor, 3.08 ft (0.94 m) above land-surface datum.

REMARKS.--Recording observation well. Aquifer test performed on May 24, 25, and 26, 1989.

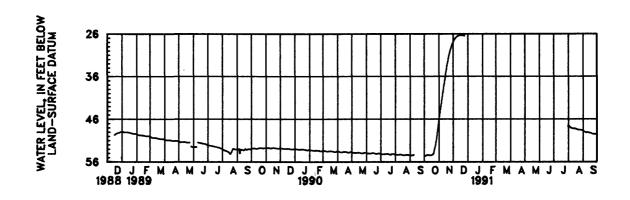
PERIOD OF RECORD.--December 15, 1988 to August 1991, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 31.30 ft (9.54 m) below land-surface datum, Nov. 10, 1990; lowest water level recorded, 51.30 (15.6 m) below land-surface datum, Oct. 9-12, 1990.

1990; lowest water level recorded, 51.30 (15.6 m) below land-surface datum, Oct. 9-12, 1990.

| WATER | LEVEL, | IN | FRET | BELOW | LAND. | SURFACE | DATUM, | WATER | YEAR | OCTOBER | 1990 | TO | SEPTEMBER | 1991 |
|-------|--------|----|------|-------|-------|---------|--------|-------|------|---------|------|----|-----------|------|
| | | | | | | | | | | | | | | |

| | Instantanbous observation at 1200 Day oct nov dec jan feb mar apr may jun jul aug sep | | | | | | | | | | | | | |
|------|--|-------|-----|-----|-----|-----|-----|-----|-------|-------|-------|-----|--|--|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP | | |
| 1 | 51.28 | 36.67 | | | | | | | | 44.70 | 45.67 | | | |
| 2 | 51.29 | 35.89 | | | | | | | | 44.74 | 45.70 | | | |
| 3 | 51.29 | 35.09 | | | | | | | | 44.76 | 45.73 | | | |
| 4 | 51.29 | 34.44 | | | | | | | | 44.79 | 45.76 | | | |
| 5 | 51.29 | 34.11 | | | | | | | | 44.81 | 45.78 | | | |
| 6 | 51.29 | 33.73 | | | | | | | | 44.83 | 45.82 | | | |
| 7 | 51.29 | 33.24 | | | | | | | | 44.88 | 45.84 | | | |
| 8 | 51.29 | 32.51 | | | | | | | | 44.91 | 45.86 | | | |
| 9 | 51.30 | 31.83 | | | | | | | | 44.95 | 45.89 | | | |
| 10 | 51.30 | | | | | | | | | 44.98 | 45.93 | | | |
| 11 | 51.30 | | | | | | | | | 45.01 | 45.97 | | | |
| 12 | 51.30 | | | | | | | | | 45.05 | 46.00 | | | |
| 13 | 51.28 | | | | | | | | | 45.08 | 46.02 | | | |
| 14 | 51.22 | | | | | | | | | 45.11 | 46.05 | | | |
| 15 | 51.18 | | | | | | | | | 45.14 | 46.07 | | | |
| 16 | 51.14 | | | | | | | | | 45.18 | 46.10 | | | |
| 17 | 51.06 | | | | | | | | | 45.21 | 46.13 | | | |
| 18 | 50.96 | | | | | | | | | 45.24 | 46.18 | | | |
| 19 | 50.82 | | | | | | | | | 45.27 | 46.21 | | | |
| 20 | 50.63 | | | | | | | | | 45.31 | 46.24 | | | |
| 21 | 50.41 | | | | | | | | | 45.34 | 46.26 | | | |
| 22 | 49.30 | | | | | | | | | 45.37 | 46.29 | | | |
| 23 | 48.30 | | | | | | | | | 45.40 | | | | |
| 24 | 47.51 | | | | | | | | | 45.44 | | | | |
| 25 | 46.64 | | | | | | | | 44.52 | 45.47 | | | | |
| 26 | 45.61 | | | | | | | | 44.54 | 45.50 | | | | |
| 27 | 43.97 | | | | | | | | 44.57 | 45.53 | | | | |
| 28 | 42.22 | | | | | | | | 44.60 | 45.56 | | | | |
| 29 | 40.64 | | | | | | | | 44.64 | 45.60 | | | | |
| 30 | 39.27 | | | | | | | | 44.67 | 45.63 | | | | |
| 31 | 37.91 | | | | | | | | | 45.66 | | | | |
| LOW | 51.30 | 36.67 | | | | | | | 44.67 | 45.66 | 46.29 | | | |
| HIGH | 37.91 | 31.83 | | | | | | | 44.52 | 44.70 | 45.67 | | | |



RIO SALINAS TO RIO JACAGUAS BASINS

180000066125200 Local number, HW-TW-04.
LOCATION.--Lat 18°00'00", long 66°12'52".

Owner: U.S. Geological Survey, WRD.

Name: HW-TW-04.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-48.5 ft (0-14.8 m) cased 4 in (0.10 m), 0-48 ft (0-14.6 m), screened 42-47 ft (12.8-14.3 m). Depth 48.5 ft (14.8 m).

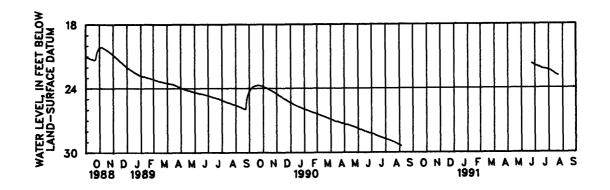
DATUM.--Elevation of land-surface datum is 177 ft (53.9 m) above mean sea level.

Measuring point: Hole on side of casing, 2.69 ft (0.82 m) above land-surface datum. Prior October 13, 1989 top of shelter floor, 3.50 ft (1.07 m) above land-surface datum.

REMARKS.--Recording observation well.

REMARKS.--Recording observation well.
PERIOD OF RECORD.--April 5, 1988 to August 1991, discontinued.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.39 ft (5.60 m) below land-surface datum, Apr. 5, 1988; lowest water level recorded, 29.40 ft (8.96 m) below land-surface datum, Sept. 5, 1990.

| | , | VATER LEVEL, | IN FEET | | | | WATER YEAR ON AT 1200 | OCTOBER | 1990 | TO SEPTEMB | ER 1991 | |
|------|-----|--------------|---------|-----|-----|-----|--------------------------|---------|-------|------------|---------|-----|
| DAY | OCT | NOA | DEC | Jan | PRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | | | | | | | | | | 21.87 | 22.34 | |
| 2 | | | | | | | | | | 21.89 | 22.35 | |
| 3 | | | | | | | | | | 21.92 | 22.35 | |
| 4 | | | | | | | | | | 21.92 | 22.36 | |
| 5 | | | | | | | | | | 21.94 | 22.38 | |
| 6 | | | | | | | | | | 21.95 | 22.41 | |
| 7 | | | | | | | | | | 21.97 | 22.46 | |
| 8 | | | | | | | | | | 21.99 | 22.47 | |
| 9 | | | | | | | | | | 22.01 | 22.51 | |
| 10 | | | | | | | | | | 22.02 | 22.52 | |
| 11 | | | | | | | | | | 22.04 | 22.55 | |
| 12 | | | | | | | | | | 22.07 | 22.59 | |
| 13 | | | | | | | | | | 22.09 | 22.62 | |
| 14 | | | | | | | | | | 22.12 | 22.64 | |
| 15 | | | | | | | | | | 22.14 | 22.68 | |
| 16 | | | | | | | | | | 22.17 | 22.72 | |
| 17 | | | | | | | | | | 22.19 | 22.74 | |
| 18 | | | | | | | | | | 22.19 | 22.77 | |
| 19 | | | | | | | | | | 22.21 | 22.78 | |
| 20 | | | | | | | | | | 22.21 | 22.80 | |
| 21 | | | | | | | | | | 22.22 | 22.81 | |
| 22 | | | | | | | | | | 22.22 | 22.83 | |
| 23 | | | | | | | | | | 22.23 | | |
| 24 | | | | | | | | | 21.71 | 22.23 | | |
| 25 | | | | | | | | | 21.72 | 22.23 | | |
| 26 | | | | | | | | | 21.75 | 22.25 | | |
| 27 | | | | | | | | | 21.77 | 22.25 | | |
| 28 | | | | | | | | | 21.80 | 22.27 | | |
| 29 | | | | | | | | | 21.81 | 22.28 | | |
| 30 | | | | | | | | | 21.86 | 22.30 | | |
| 31 | | | | | | | | | | 22.34 | | |
| LOW | | | | | | | | | 21.86 | 22.34 | 22.83 | |
| HIGH | | | | | | | | | 21.71 | 21.87 | 22.34 | |



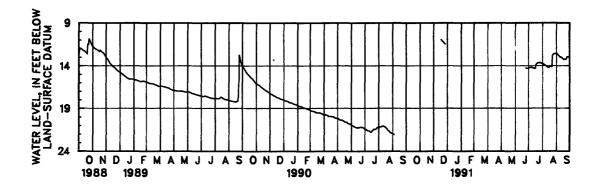
RIO SALINAS TO RIO JACAGUAS BASINS

175947066130601 Local number, HW-TW-05B.
LOCATION.--Lat 17°59'47*, long 66°13'06*.
Owner: U.S. Geological Survey, WRD.
Name: HW-TW-05B.
ACUIFER.--Fractured, volcanic rock, water-table aquifer.
WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-52 ft (0-15.8 m), cased 4 in (0.10 m),
0-51 ft (0-15.5 m), screened 41-46 ft (12.5-14.0 m). Depth 52 ft (15.8 m).

DATUM.--Elevation of land-surface datum is 145 ft (44.2 m) above mean sea level.
Measuring point: Hole on side of casing, 3.00 ft (0.91 m) above land-surface datum. Prior October 13, 1989 top
of shelter floor, 3.47 ft (1.06 m) above land-surface datum.
REMARKS.--Recording observation well.
PERIOD OF RECORD.--April 13, 1988 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.40 ft (2.86 m) below land-surface datum, Aug. 25,
1988; lowest water level recorded, 22.14 ft (6.75 m) below land-surface datum, Sept. 5, 1990.

| WATER | LEVEL, | IN | FEET | BRLOW | LAND-SURF | ACE | DATUM, | WATER | YEAR | OCTOBER | 1990 | TO | September | 1991 |
|-------|--------|----|------|-------|------------|-----|---------|---------|------|---------|------|----|-----------|------|
| | | | | INS | Tantaneous | OB | Servati | ON AT : | 1200 | | | | • | |

| DAY | OCT | MOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | DUA | SEP |
|------|-----|-----|-------|-----|-----|-----|-----|-----|-------|-------|-------|-------|
| 1 | | | | | | | | | | 14.27 | 13.72 | 12.60 |
| 2 | | | | | | | | | | 14.23 | 13.76 | 12.60 |
| 3 | | | | | | | | | | 14.21 | 13.79 | 12.62 |
| 4 | | | | | | | | | | 14.19 | 13.83 | 12.66 |
| 5 | | | | | | | | | | 14.17 | 13.85 | 12.74 |
| 6 | | | | | | | | | | 14.17 | 13.90 | 12.80 |
| 7 | | | | | | | | | | 14.17 | 13.94 | 12.86 |
| 8 | | | | | | | | | | 14.19 | 13.98 | 12.92 |
| 9 | | | | | | | | | | 14.20 | 14.01 | 12.98 |
| 10 | | | | | | | | | | 14.22 | 14.06 | 12.97 |
| 11 | | | | | | | | | | 14.23 | 14.10 | 12.98 |
| 12 | | | | | | | | | | 14.25 | 14.14 | 13.01 |
| 13 | | | | | | | | | | 14.29 | 14.17 | 13.06 |
| 14 | | | | | | | | | | 14.30 | 14.20 | 13.10 |
| 15 | | | | | | | | | | 14.32 | 14.17 | 13.15 |
| 16 | | | | | | | | | | 14.24 | 14.14 | 13.19 |
| 17 | | | | | | | | | | 13.92 | 14.10 | 13.25 |
| 18 | | | 10.95 | | | | | | | 13.92 | 14.08 | 13.25 |
| 19 | | | 10.99 | | | | | | | 13.73 | 14.08 | 13.24 |
| 20 | | | 11.08 | | | | | | | 13.73 | 14.08 | 13.23 |
| | | | 11.00 | | | | | | | 13.03 | 14.00 | 13.23 |
| 21 | | | 11.12 | | | | | | | 13.65 | 14.09 | 13.25 |
| 22 | | | 11.16 | | | | | | | 13.64 | 14.09 | 13.26 |
| 23 | | | 11.23 | | | | | | | 13.62 | 12.81 | 13.15 |
| 24 | | | 11.28 | | | | | | | 13.62 | 12.72 | 12.99 |
| 25 | | | 11.34 | | | | | | 14.26 | 13.61 | 12.65 | 12.96 |
| 26 | | | 11.41 | | | | | | 14.27 | 13.63 | 12.62 | 12.95 |
| 27 | | | 11.45 | | | | | | 14.28 | 13.63 | 12.60 | 12.95 |
| 28 | | | | | | | | | 14.29 | 13.65 | 12.58 | 12.96 |
| 29 | | | | | | | | | 14.30 | 13.67 | 12.56 | 13.00 |
| 30 | | | | | | | | | 14.31 | 13.69 | 12.55 | 13.00 |
| 31 | | | | | | | | | | 13.70 | 12.56 | |
| LOW | | | 11.45 | | | | | | 14.31 | 14.32 | 14.20 | 13.26 |
| HIGH | | | 10.95 | | | | | | 14.26 | 13.61 | 12.55 | 12.60 |



RIO SALINAS TO RIO JACAGUAS BASINS

180006066123700 Local number, HW-TW-07.
LOCATION.--Lat 18°00'06*, long 66°12'37*.

Owner: U.S. Geological Survey, WRD.

Name: HW-TW-07.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-88 ft (0-26.8 m), cased 4 in (0.10 m), 0-82 ft (0-25.0 m), screened 69-77 ft (21.0-29.5 m). Depth 88 ft (26.8 m).

DATUM.--Elevation of land-surface datum is 240 ft (73.2 m) above mean sea level.

Measuring point: Hole on side of casing, 2.99 ft (0.91 m) above land-surface datum. Prior October 13, 1988 top of shelter floor, 3.48 ft (1.06 m) above land-surface datum.

REMARKS.--Recording observation well.

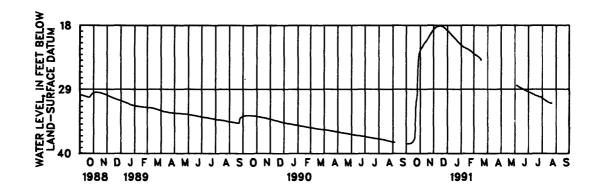
PERIOD OF RECORD.--April 1988 to August 1991, discontinued.

PERIOD OF RECORD. --April 1988 to August 1991, discontinued.

EXTREMES FOR PERIOD OF RECORD. --Highest water level recorded, 18.04 ft (5.50 m) below land-surface datum, Dec. 16-18, 1990; lowest water level recorded, 38.36 ft (11.7 m) below land-surface datum, Oct. 1-7, 1990

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

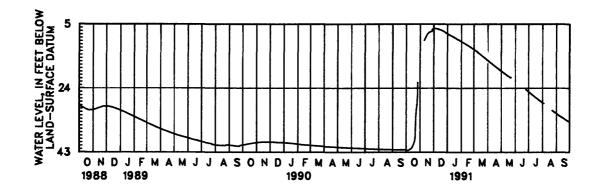
| DAY | OCT | NOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-----|-----|-------|-------|-------|-----|
| 1 | 38.35 | 22.37 | 18.73 | 18.90 | 21.38 | 22.82 | | | | 29.42 | 30.59 | |
| 2 | 38.35 | 22.17 | 18.64 | 18.96 | 21.44 | 22.93 | | | | 29.47 | 30.64 | |
| 3 | 38.35 | 22.03 | 18.55 | 19.03 | 21.55 | 22.97 | | | | 29.50 | 30.68 | |
| 4 | 38.35 | 21.91 | 18.48 | 19.10 | 21.59 | 23.00 | | | | 29.53 | 30.72 | |
| 5 | 38.35 | 21.82 | 18.40 | 19.17 | 21.64 | 23.06 | | | 28.32 | 29.55 | 30.77 | |
| 6 | 38.36 | 21.69 | 18.34 | 19.26 | 21.75 | 23.15 | | | 28.35 | 29.58 | 30.83 | |
| 7 | 38.35 | 21.59 | 18.28 | 19.34 | 21.76 | 23.17 | | | 28.40 | 29.62 | 30.87 | |
| 8 | 38.33 | 21.38 | 18.26 | 19.42 | 21.77 | 23.20 | | | 28.44 | 29.68 | 30.91 | |
| 9 | 38.32 | 21.25 | 18.22 | 19.52 | 21.79 | 23.27 | | | 28.49 | 29.73 | 30.97 | |
| 10 | 38.31 | 21.14 | 18.18 | 19.60 | 21.82 | 23.34 | | | 28.55 | 29.77 | 31.03 | |
| 11 | 38.31 | 21.03 | 18.15 | 19.68 | 21.94 | 23.38 | | | 28.59 | 29.82 | 31.07 | |
| 12 | 38.26 | 20.94 | 18.14 | 19.76 | 21.96 | 23.41 | | | 28.63 | 29.85 | 31.11 | |
| 13 | 38.20 | 20.84 | 18.11 | 19.84 | 21.97 | 23.57 | | | 28.68 | 29.89 | 31.15 | |
| 14 | 38.15 | 20.74 | 18.09 | 19.92 | 21.98 | 23.60 | | | 28.72 | 29.93 | 31.20 | |
| 15 | 38.09 | 20.66 | 18.07 | 20.01 | 22.02 | 23.67 | | | 28.76 | 29.99 | 31.26 | |
| 16 | 37.95 | 20.53 | 18.07 | 20.08 | 22.09 | 23.77 | | | 28.82 | 30.03 | 31.29 | |
| 17 | 37.83 | 20.42 | 18.06 | 20.18 | 22.16 | 23.98 | | | 28.86 | 30.05 | 31.33 | |
| 18 | 37.72 | 20.30 | 18.07 | 20.26 | 22.19 | | | | 28.90 | 30.08 | 31.36 | |
| 19 | 37.56 | 20.20 | 18.13 | 20.35 | 22.22 | | | | 28.93 | 30.11 | 31.38 | |
| 20 | 37.20 | 20.06 | 18.17 | 20.39 | 22.27 | | | | 28.98 | 30.13 | 31.40 | |
| 21 | 35.27 | 19.91 | 18.19 | 20.50 | 22.36 | | | | 29.02 | 30.15 | 31.42 | |
| 22 | 32.06 | 19.78 | 18.24 | 20.58 | 22.39 | | | | 29.06 | 30.18 | 31.43 | |
| 23 | 31.07 | 19.66 | 18.29 | 20.68 | 22.43 | | | | 29.12 | 30.21 | | |
| 24 | 30.51 | 19.53 | 18.34 | 20.77 | 22.54 | | | | 29.16 | 30.27 | | |
| 25 | 29.79 | 19.40 | 18.40 | 20.81 | 22.57 | | | | 29.18 | 30.31 | | |
| 26 | 27.03 | 19.26 | 18.48 | 20.94 | 22.61 | | | | 29.19 | 30.33 | | |
| 27 | 24.63 | 19.18 | 18.55 | 20.98 | 22.75 | | | | 29.29 | 30.34 | | |
| 28 | 23.66 | 19.03 | 18.64 | 21.06 | 22.79 | | | | 29.32 | 30.34 | | |
| 29 | 23.15 | 18.92 | 18.72 | 21.17 | | | | | 29.35 | 30.37 | | |
| 30 | 22.83 | 18.82 | 18.77 | 21.21 | | | | | 29.38 | 30.38 | | |
| 31 | 22.57 | | 18.84 | 21.34 | | | | | | 30.56 | | |
| LOW | 38.36 | 22.37 | 18.84 | 21.34 | 22.79 | 23.98 | | | 29.38 | 30.56 | 31.43 | |
| HIGH | 22.57 | 18.82 | 18.06 | 18.90 | 21.38 | 22.82 | | | 28.32 | 29.42 | 30.59 | |



RIO SALINAS TO RIO JACAGUAS BASINS

175939066121400 Local number, HW-TW-08.
LOCATION.--Lat 17659'39', long 66'12'14'.
Owner: U.S. Geological Survey, WRD.
Name: HW-TW-08.
AQUIFER.--Fractured, volcanic rock, water-table aquifer.
WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-49 ft (0-14.9 m), cased 4 in (0.10 m),
0-49 ft (0-14.9 m), screened 43-48 ft (13.1-14.6 m). Depth 49 ft (14.9 m).
DATUM.--Elevation of land-surface datum is 172 ft (52.4 m) above mean sea level.
Measuring point: Hole on side of casing, 2.83 ft (0.86 m) above land-surface datum. Prior October 7, 1988 top
of shelter floor, 3.55 ft (1.08 m) above land-surface datum.
REMARKS.--Recording observation well.
PERIOD OF RECORD.--April 13, 1988 to August 1991, discontinued.
REXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.23 ft (1.90 m) below land-surface datum, Dec. 5,
1990; lowest water level recorded, 42.43 ft (12.9 m) below land-surface datum, Oct. 3-6, 1990.

| | | WATER LEVEL | , in fert | | Land-Surf Tantaneous | | | YEAR OCTOBER 200 | 1990 | TO SEPTEMB | ER 1991 | |
|------|-------|-------------|-----------|-------|-------------------------|-------|-------|---------------------|-------|------------|---------|---------------|
| DAY | oct | NOA | DEC | JAN | PEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 42.42 | | 6.29 | 7.81 | 10.20 | 12.53 | 15.74 | 18.86 | | 24.99 | 28.27 | 31.45 |
| 2 | 42.42 | | 6.26 | 7.88 | 10.27 | 12.62 | 15.82 | 18.95 | | 25.10 | 28.38 | 31.54 |
| 3 | 42.42 | | 6.27 | 7.96 | 10.35 | 12.70 | 15.94 | 19.05 | | 25.21 | 28.45 | 31.64 |
| 4 | 42.43 | | 6.27 | 8.04 | 10.43 | 12.80 | 16.05 | 19.16 | | 25.32 | 28.46 | 31.73 |
| 5 | 42.43 | | 6.26 | 8.12 | 10.50 | 12.90 | 16.16 | 19.26 | | 25.42 | | 31.86 |
| 6 | 42.42 | | 6.26 | 8.19 | 10.59 | 12.98 | 16.25 | 19.35 | | 25.53 | | 31.95 |
| 7 | 42.35 | | 6.30 | 8.26 | 10.66 | 13.08 | 16.36 | 19.44 | | 25.64 | | 32.05 |
| 8 | 42.24 | | 6.34 | 8.34 | 10.73 | 13.17 | 16.48 | 19.54 | | 25.75 | | 32.14 |
| 9 | 42.15 | | 6.38 | 8.42 | 10.81 | 13.27 | 16.59 | 19.64 | | 25.88 | | 32.22 |
| 10 | 42.07 | 9.79 | 6.40 | 8.50 | 10.90 | 13.37 | 16.70 | 19.76 | | 25.98 | | 32.33 |
| 11 | 42.01 | 9.47 | 6.44 | 8.57 | 11.00 | 13.48 | 16.79 | 19.85 | | 26.08 | | 32.40 |
| 12 | 41.91 | 9.18 | 6.50 | 8.63 | 11.08 | 13.59 | 16.90 | 19.96 | | 26.19 | | 32.48 |
| 13 | 41.73 | 8.89 | 6.53 | 8.71 | 11.16 | 13.68 | 17.00 | 20.06 | | 26.30 | | 32.56 |
| 14 | 41.52 | 8.62 | 6.59 | 8.79 | 11.24 | 13.79 | 17.12 | 20.15 | | 26.42 | | 32.65 |
| 15 | 41.33 | 8.36 | 6.63 | 8.84 | 11.33 | 13.89 | 17.24 | 20.25 | | 26.51 | | 32.73 |
| 16 | 41.01 | 8.14 | 6.71 | 8.95 | 11.41 | 13.98 | 17.35 | 20.34 | | 26.62 | | 32.81 |
| 17 | 40.70 | 7.93 | 6.76 | 9.03 | 11.49 | 14.08 | 17.42 | 20.44 | | 26.71 | | 32.90 |
| 18 | 40.39 | 7.77 | 6.80 | 9.11 | 11.57 | 14.21 | 17.52 | 20.53 | | 26.83 | | 32.97 |
| 19 | 40.01 | 7.63 | 6.87 | 9.19 | 11.65 | 14.31 | 17.64 | 20.62 | | 26.94 | | 33.07 |
| 20 | 39.53 | 7.48 | 6.93 | 9.25 | 11.75 | 14.44 | 17.74 | 20.65 | | 27.05 | | 33.15 |
| 21 | 38.48 | 7.37 | 6.98 | 9.32 | 11.82 | 14.54 | 17.83 | 20.80 | | 27.15 | | 33.24 |
| 22 | 34.14 | 7.33 | 7.04 | 9.41 | 11.92 | 14.66 | 17.94 | 20.82 | | 27.25 | | 33.30 |
| 23 | 31.32 | 7.26 | 7.11 | 9.49 | 12.01 | 14.75 | 18.05 | 20.84 | | 27.35 | 30.57 | 33.39 |
| 24 | 29.94 | 7.20 | 7.19 | 9.56 | 12.09 | 14.85 | 18.16 | | | 27.45 | 30.68 | 33.49 |
| 25 | 28.95 | 7.14 | 7.27 | 9.64 | 12.17 | 14.96 | 18.24 | | 24.34 | 27.56 | 30.76 | 33 .55 |
| 26 | 26.61 | 7.08 | 7.35 | 9.72 | 12.26 | 15.07 | 18.35 | | 24.43 | | 30.86 | 33.64 |
| 27 | 22.23 | 7.05 | 7.44 | 9.78 | 12.35 | 15.18 | 18.44 | | 24.55 | | 30.95 | 33.71 |
| 28 | | 6.44 | 7.51 | 9.86 | 12.45 | 15.28 | 18.56 | | 24.65 | | 31.04 | 33.79 |
| 29 | | 6.39 | 7.60 | 9.96 | | 15.40 | 18.66 | | 24.76 | | 31.15 | 33.89 |
| 30 | | 6.34 | | 10.03 | | 15.51 | 18.77 | | 24.88 | 28.07 | 31.23 | 33.96 |
| 31 | | | 7.74 | 10.12 | | 15.64 | | | | 28.19 | 31.35 | |
| LOW | 42.43 | 9.79 | | 10.12 | 12.45 | 15.64 | 18.77 | | 24.88 | | 31.35 | 33.96 |
| HIGH | 22.23 | 6.34 | 6.26 | 7.81 | 10.20 | 12.53 | 15.74 | 18.86 | 24.34 | 24.99 | 28.27 | 31.45 |

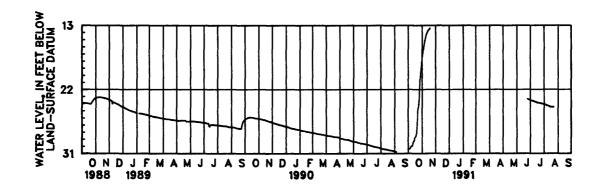


RIO SALINAS TO RIO JACAGUAS BASINS

175950066125200 Local number, HW-TW-10.
LOCATION.--Lat 17°59'50', long 66°12'52'.
Owner: U.S. Geological Survey, WRD.
Name: HW-TW-10.
AQUIFER.--Fractured, volcanic rock, water-table aquifer.
WELL CHRACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-55 ft (0-16.8 m), cased 4 in (0.10 m),
0-54 ft (0-16.4 m), screened 48-53 ft (14.6-16.2 m). Depth 55 ft (16.8 m).
DATUM.--Elevation of land-surface datum is 159 ft (48.5 m) above mean sea level.
Measuring point: Hole on side of casing, 2.98 ft (0.91 m) above land-surface datum. Prior October 14, 1988 top
of shelter floor, 3.61 ft (1.10 m) above land-surface datum.
REMARKS.--Recording observation well. Pumping test on Dec. 8, 1988, May 22, 1989, and July 13, 1989.
PERIOD OF RECORD.--April 5, 1988 to August 1991, discontinued.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.40 ft (4.08 m) below land-surface datum, Nov. 19,
1990; lowest water level recorded, 30.76 ft (9.38 m) below land-surface datum, Sept. 5, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| | | | | THOIR | MINIOUS | ODSERVATI | ON AT 12 | ,, | | | | |
|------|-------|-------|-----|-------|---------|-----------|----------|-----|-------|-------|-------|-----|
| DAY | OCT | MOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 30.38 | 17.65 | | | | | | | | 23.51 | 24.09 | |
| 2 | 30.36 | 17.17 | | | | | | | | 23.54 | 24.11 | |
| 3 | 30.35 | 16.76 | | | | | | | | 23.56 | 24.11 | |
| 4 | 30.32 | 16.36 | | | | | | | | 23.57 | 24.15 | |
| 5 | 30.32 | 15.95 | | | | | | | | 23.58 | 24.15 | |
| | | | | | | | | | | 23.30 | 24.17 | |
| 6 | 30.21 | 15.52 | | | | | | | | 23.60 | 24.22 | |
| 7 | 30.04 | 15.21 | | | | | | | | 23.63 | 24.25 | |
| 8 | 29.98 | 14.93 | | | | | | | | 23.65 | 24.26 | |
| 9 | 29.95 | 14.72 | | | | | | | | 23.67 | 24.28 | |
| 10 | 29.92 | 14.41 | | | | | | | | 23.70 | 24.31 | |
| | | | | | | | | | | -5170 | 24.52 | |
| 11 | 29.80 | 14.24 | | | | | | | | 23.73 | 24.34 | |
| 12 | 29.48 | 14.04 | | | | | | | | 23.75 | 24.35 | |
| 13 | 29.35 | 13.90 | | | | | | | | 23.77 | 24.39 | |
| 14 | 29.28 | 13.80 | | | | | | | | 23.80 | 24.42 | |
| 15 | 29.08 | 13.70 | | | | | | | | 23.83 | 24.45 | |
| | | | | | | | | | | | | |
| 16 | 28.77 | 13.59 | | | | | | | | 23.89 | 24.46 | |
| 17 | 28.67 | 13.53 | | | | | | | | 23.89 | 24.47 | |
| 18 | 28.54 | 13.46 | | | | | | | | 23.89 | 24.48 | |
| 19 | 28.28 | 13.42 | | | | | | | | 23.89 | 24.48 | |
| 20 | 28.06 | | | | | | | | | 23.91 | 24.49 | |
| | | | | | | | | | | | | |
| 21 | 26.95 | | | | | | | | | 23.92 | 24.49 | |
| 22 | 25.33 | | | | | | | | | 23.93 | 24.48 | |
| 23 | 24.64 | | | | | | | | | 23.94 | | |
| 24 | 24.30 | | | | | | | | | 23.95 | | |
| 25 | 23.57 | | | | | | | | 23.35 | 23.98 | | |
| | | | | | | | | | | | | |
| 26 | 22.24 | | | | | | | | 23.35 | 23.99 | | |
| 27 | 20.92 | | | | | | | | 23.40 | 24.00 | | |
| 28 | 20.08 | | | | | | | | 23.44 | 24.02 | | |
| 29 | 19.40 | | | | | | | | 23.46 | 24.04 | | |
| 30 | 18.84 | | | | | | | | 23.49 | 24.06 | | |
| 31 | 18.14 | | | | | | | | | 24.10 | | |
| | | | | | | | | | | | | |
| LOW | 30.38 | 17.65 | | | | | | | 23.49 | 24.10 | 24.49 | |
| HIGH | 18.14 | 13.42 | | | | | | | 23.35 | 23.51 | 24.09 | |
| | | | | | | | | | | | | |

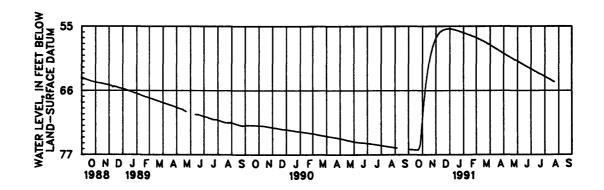


RIO SALINAS TO RIO JACAGUAS BASINS

180012066125500 Local number, HW-TW-11.
LOCATION.--Lat 18°00'12", long 66'12'55".
Owner: U.S. Geological Survey, WRD.
Name: HW-TW-11.
AQUIFER.--Fractured, volcanic rock, water-table aquifer.
WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-94.9 ft (0-28.9 m), cased 4 in (0.10 m), 0-94 ft (0-28.6 m), screened 79-89 ft (24.1-27.1 m). Depth 94.9 ft (28.9 m).
DATUM.--Elevation of land-surface datum is 240 ft (73.2 m) above mean sea level.
Measuring point: Hole on side of casing, 3.04 ft (0.96 m) above land-surface datum. Prior October 13, 1988 top of shelter floor, 3.74 ft (1.14 m) above land-surface datum.
REMARKS.--Recording observation well. Aquifer test performed on Dec. 9, 1988 and May 23, 1989.
PERIOD OF RECORD.--April 14, 1988 to August 1991, discontinued.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 55.45 ft (16.9 m) below land-surface datum, Dec. 31, 1990, Jan. 1, 1991; lowest water level recorded, 76.20 ft (23.2 m) below land-surface datum, Oct. 16-22, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | Sep |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| 1 | 76.09 | 70.86 | 57.07 | 55.46 | 56.15 | 57.00 | 58.23 | 59.67 | 61.00 | 62.29 | 63.61 | |
| 2 | 76.10 | 70.00 | 56.92 | 55.46 | 56.18 | 57.02 | 58.28 | 59.71 | 61.04 | 62.33 | 63.65 | |
| 3 | 76.11 | 69.12 | 56.78 | 55.47 | 56.19 | 57.05 | 58.34 | 59.75 | 61.07 | 62.36 | 63.68 | |
| 4 | 76.12 | 68.33 | 56.67 | 55.48 | 56.21 | 57.08 | 58.39 | 59.81 | 61.12 | 62.39 | 63.72 | |
| 5 | 76.13 | 67.55 | 56.53 | 55.50 | 56.25 | 57.11 | 58.44 | 59.86 | 61.15 | 62.44 | 63.77 | |
| 6 | 76.13 | 66.84 | 56.41 | 55.51 | 56.28 | 57.15 | 58.48 | 59.93 | 61.19 | 62.49 | 63.81 | |
| ž | 76.14 | 66.13 | 56.31 | 55.52 | 56.31 | 57.20 | 58.53 | 59.97 | 61.25 | 62.53 | 63.85 | |
| 8 | 76.14 | 65.46 | 56.21 | 55.54 | 56.34 | 57.24 | 58.59 | 60.00 | 61.29 | 62.57 | 63.88 | |
| 9 | 76.15 | 64.85 | 56.12 | 55.56 | 56.38 | 57.27 | 58.63 | 60.04 | 61.34 | 62.62 | 63.92 | |
| 10 | 76.15 | 64.25 | 56.03 | 55.58 | 56.40 | 57.29 | 58.68 | 60.09 | 61.38 | 62.66 | 63.97 | |
| 10 | 70.13 | 04.43 | 56.03 | 33.38 | 20.40 | 57.49 | 28.08 | 60.03 | 61.36 | 64.66 | 63.77 | |
| 11 | 76.16 | 63.68 | 55.96 | 55.60 | 56.45 | 57.32 | 58.72 | 60.13 | 61.42 | 62.71 | 64.01 | |
| 12 | 76.16 | 63.12 | 55.92 | 55.62 | 56.46 | 57.37 | 58.78 | 60.17 | 61.45 | 62.74 | 64.05 | |
| 13 | 76.17 | 62.59 | 55.85 | 55.63 | 56.49 | 57.41 | 58.82 | 60.22 | 61.51 | 62.79 | 64.09 | |
| 14 | 76.19 | 62.09 | 55.81 | 55.66 | 56.52 | 57.46 | 58.85 | 60.27 | 61.56 | 62.83 | 64.13 | |
| 15 | 76.19 | 61.61 | 55.75 | 55.68 | 56.56 | 57.50 | 58.91 | 60.30 | 61.60 | 62.89 | 64.20 | |
| 16 | 76.20 | 61.17 | 55.71 | 55.70 | 56.59 | 57.53 | 58.96 | 60.34 | 61.64 | 62.94 | 64.23 | |
| 17 | 76.20 | 60.74 | 55.67 | 55.73 | 56.62 | 57.58 | 59.00 | 60.37 | 61.69 | 62.97 | 64.29 | |
| 18 | 76.20 | 60.35 | 55.62 | 55.76 | 56.65 | 57.62 | 59.03 | 60.41 | 61.73 | 63.02 | 64.33 | |
| 19 | 76.20 | 60.02 | 55.60 | 55.78 | 56.68 | 57.66 | 59.09 | 60.44 | 61.77 | 63.05 | 64.37 | |
| 20 | 76.20 | 59.67 | 55.58 | 55.79 | 56.72 | 57.70 | 59.14 | 60.48 | 61.81 | 63.11 | 64.41 | |
| | 70.20 | 33.07 | 33.36 | 55.75 | 30.72 | 57.70 | 33.14 | 00.40 | 01.61 | 03.11 | 04.41 | |
| 21 | 76.20 | 59.32 | 55.55 | 55.81 | 56.74 | 57.74 | 59.19 | 60.54 | 61.85 | 63.13 | 64.47 | |
| 22 | 76.20 | 59.02 | 55.52 | 55.85 | 56.77 | 57.77 | 59.23 | 60.60 | 61.89 | 63.17 | 64.50 | |
| 23 | 76.10 | 58.75 | 55.50 | 55.89 | 56.80 | 57.81 | 59.29 | 60.65 | 61.94 | 63.21 | | |
| 24 | 75.97 | 58.49 | 55.48 | 55.93 | 56.82 | 57.88 | 59.34 | 60.69 | 62.01 | 63.23 | | |
| 25 | 75.79 | 58.23 | 55.49 | 55.95 | 56.85 | 57.94 | 59.37 | 60.73 | 62.02 | 63.29 | | |
| 26 | 75.59 | 58.01 | 55.48 | 55.98 | 56.87 | 57.98 | 59.42 | 60.76 | 62.05 | 63.33 | | |
| 27 | 75.24 | 57.79 | 55.47 | 56.00 | 56.93 | 58.02 | 59.47 | 60.80 | 62.10 | 63.37 | | |
| 28 | 74.55 | 57.60 | 55.46 | 56.04 | 56.97 | 58.06 | 59.52 | 60.83 | 62.14 | 63.41 | | |
| 29 | 73.64 | 57.40 | 55.47 | 56.07 | 50.57 | 58.10 | 59.57 | 60.85 | 62.18 | 63.46 | | |
| 30 | 72.70 | 57.24 | 55.46 | 56.09 | | 58.17 | 59.62 | 60.90 | 62.24 | 63.51 | | |
| 31 | 71.75 | 3/.44 | 55.46 | | | | | | | 63.58 | | |
| 31 | /1./5 | | 33.46 | 56.12 | | 58.21 | | 60.95 | | 03.58 | | |
| LOW | 76.20 | 70.86 | 57.07 | 56.12 | 56.97 | 58.21 | 59.62 | 60.95 | 62.24 | 63.59 | 64.50 | |
| HIGH | 71.75 | 57.24 | 55.46 | 55.46 | 56.15 | 57.00 | 58.23 | 59.67 | 61.00 | 62.29 | 63.61 | |
| | | | | | | | | | | | | |



RIO SALINAS TO RIO JACAGUAS BASINS

180012066125502 Local number, HW-TW-11C.
LOCATION.--Lat 18°00'12*, long 66°12'55*.

Owner: U.S. Geological Survey, WRD.

Name: HW-TW-11C.
AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in (0.15 m), 0-95.0 ft (0-29.0 m) diameter 2.9 in (0.07m), 95-200 ft (29.0-61.0 m), cased 4 in (0.10 m), 0-95 ft (0-29.0 m), open hole 95-200 ft (29.0-61.0 m).

DATUM.--Elevation of land-surface datum is 240 ft (73.2 m) above mean sea level.

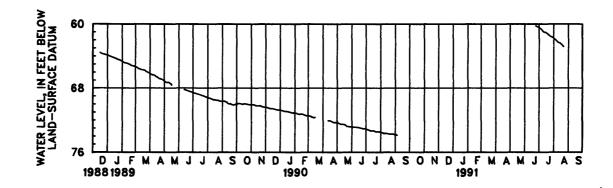
Measuring point: Top of shelter floor, 3.56 ft (1.08 m) above land-surface datum.

REMARKS.--Recording observation well. Pumping test on May 23, 24, 1989.

PERIOD OF RECORD.--December 1988 to August 1991, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 60.19 ft (18.3 m) below land-surface datum, June 24, 1991, lowest water level recorded, 74.27 ft (22.6 m) below land-surface datum, Oct. 2, 1990.

| | | WATER LEVEL, | IN PERT | BELOW L | and-surfac Ntanbous (| CE DATUM, OBSERVATI | WATER YEA ON AT 1200 | AR OCTOBE | R 1990 1 | TO SEPTEMB | ER 1991 | |
|------|-------|--------------|---------|---------|--------------------------|------------------------|-------------------------|-----------|----------|------------|---------|-----|
| DAY | OCT | NOV | DEC | Jan | FEB | MAR | APR | MAY | JUN | JOL | AUG | SRP |
| 1 | 74.25 | | | | | | | | | 60.42 | 61.75 | |
| 2 | 74.28 | | | | | | | | | 60.48 | 61.82 | |
| 3 | | | | | | | | | | 60.53 | 61.88 | |
| Ä. | | | | | | | | | | 60.56 | 61.93 | |
| 5 | | | | | | | | | | 60.61 | 61.98 | |
| _ | | | | | | | | | | | | |
| 6 | | | | | | | | | | 60.66 | 62.06 | |
| 7 | | | | | | | | | | 60.74 | 62.12 | |
| 8 | | | | | | | | | | 60.80 | 62.18 | |
| 9 | | | | | | | : | | | 60.86 | 62.24 | |
| 10 | | | | | | | | | | 60.94 | 62.30 | |
| | | | | | | | | | | | | |
| 11 | | | | | | | | | | 60.97 | 62.33 | |
| 12 | | | | | | | | | | 61.01 | 62.35 | |
| 13 | | | | | | | | | | 61.03 | 62.35 | |
| 14 | | | | | | | | | | 61.04 | 62.38 | |
| 15 | | | | | | | | | | 61.05 | 62.42 | |
| | | | | | | | | | | | | |
| 16 | | | | | | | | | | 61.04 | 62.49 | |
| 17 | | | | | | | | | | 61.13 | 62.54 | |
| 18 | | | | | | | | | | 61.17 | 62.59 | |
| 19 | | | | | | | | | | 61.21 | 62.65 | |
| 20 | | | | | | | | | | 61.28 | 62.74 | |
| | | | | | | | | | | | | |
| 21 | | | | | | | | | | 61.33 | 62.79 | |
| 22 | | | | | | | | | | 61.38 | 62.83 | |
| 23 | | | | | | | | | | 61.44 | | |
| 24 | | | | | | | | | 60.25 | 61.50 | | |
| 25 | | | | | | | | | 60.25 | 61.55 | | |
| _ | | | | | | | | | | | | |
| 26 | | | | | | | | | 60.28 | 61.58 | | |
| 27 | | | | | | | | | 60.34 | 61.60 | | |
| 28 | | | | | | | | | 60.35 | 61.62 | | |
| 29 | | | | | | | | | 60.38 | 61.66 | | |
| 30 | | | | | | | | | 60.38 | 61.67 | | |
| 31 | | | | | | | | | | 61.73 | | |
| | | | | | | | | | | | | |
| LOW | 74.28 | | | | | | | | 60.38 | 61.73 | 62.83 | |
| HIGH | 74.25 | | | | | | | | 60.25 | 60.42 | 61.75 | |

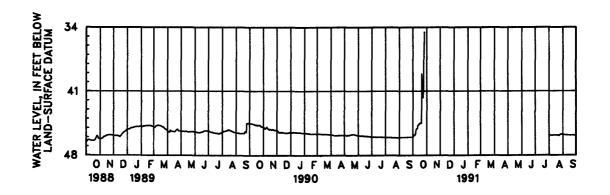


RIO SALINAS TO RIO JACAGUAS BASINS

175957066123400 Local number, HW-TW-13.
LOCATION.--Lat 17°59'57*, long 66°12'34*.
Owner: U.S. Geological Survey, WRD.
Name: HW-TW-13.
ACUIFER.--Fractured, volcanic rock, water-table aquifer.
WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-69 ft (0-21.0 m), cased 4 in (0.10 m),
0-69 ft (0-21.0 m), screened 4.0-69 ft (1.22-21.0 m). Depth 69 ft (21.0 m).
DATUM.--Elevation of land-surface datum is 203 ft (61.9 m) above mean sea level.
Measuring point: Hole on side of casing, 2.33 ft (0.71 m) above land-surface datum. Prior October 14, 1988, top
of shelter floor, 3.47 ft (1.06 m) above land-surface datum.
REMARKS.--Recording observation well.
PERIOD OF RECORD.--April 14, 1988 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.39 ft (10.5 m) below land-surface datum, Oct. 27,
1990; lowest water level recorded, 46.95 ft (14.3 m) below land-surface datum, June 8, 1988.

| MAIRK | TRARL' | TM | LRRI. | RRTOM TWND- | ROKLYCE | DATUM, | MATER | YEAR | OCTOREX | 7330 | TO | Beptember | TAAT |
|-------|--------|----|-------|-------------|---------|----------|---------|------|---------|------|----|-----------|------|
| | | | | instantan | ROUS OB | SERVATIO | ON AT : | 1200 | | | | | |

| | | | | THOIN | 711 W11000 | ODORKANII | ON NI IZU | • | | | | |
|------|-------|-----|-----|-------|------------|-----------|-----------|-----|-----|-----|-------|-------|
| DAY | OCT | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 46.00 | | | | | | | | ` | | 45.82 | 45.75 |
| 2 | 45.97 | | | | | | | | | | 45.82 | 45.76 |
| 3 | 45.87 | | | | | | | | | | 45.83 | 45.77 |
| 4 | 45.79 | | | | | | | | | | 45.83 | 45.78 |
| 5 | 45.75 | | | | | | | | | | 45.83 | 45.78 |
| 6 | 45.75 | | | | | | | | | | 45.83 | 45.79 |
| 7 | 45.56 | | | | | | | | | | 45.82 | 45.80 |
| 8 | 45.17 | | | | | | | | | | 45.82 | 45.80 |
| 9 | 45.09 | | | | | | | | | | 45.82 | 45.81 |
| 10 | 45.08 | | | | | | | | | | 45.82 | 45.81 |
| 11 | 45.03 | | | | | | | | | | 45.82 | 45.81 |
| 12 | 44.71 | | | | | | | | | | 45.82 | 45.81 |
| 13 | 44.69 | | | | | | | | | | 45.82 | 45.81 |
| 14 | 44.64 | | | | | | | | | | 45.82 | 45.82 |
| 15 | 44.55 | | | | | | | | | | 45.82 | 45.82 |
| 16 | 44.49 | | | | | | | | | | 45.82 | 45.82 |
| 17 | 44.53 | | | | | | | | | | 45.83 | 45.82 |
| 18 | 44.49 | | | | | | | | | | 45.82 | 45.82 |
| 19 | 44.48 | | | | | | | | | | 45.82 | 45.82 |
| 20 | 44.49 | | | | | | | | | | 45.82 | 45.82 |
| 21 | 39.06 | | | | | | | | | | 45.83 | 45.82 |
| 22 | 40.03 | | | | | | | | | | 45.84 | 45.82 |
| 23 | 41.43 | | | | | | | | | | 45.87 | 45.81 |
| 24 | 41.76 | | | | | | | | | | 45.86 | 45.82 |
| 25 | 40.63 | | | | | | | | | | 45.80 | 45.82 |
| 26 | 36.49 | | | | | | | | | | 45.74 | 45.82 |
| 27 | 34.53 | | | | | | | | | | 45.73 | 45.82 |
| 28 | | | | | | | | | | | 45.73 | 45.82 |
| 29 | | | | | | | | | | | 45.73 | 45.82 |
| 30 | | | | | | | | | | · | 45.72 | 45.82 |
| 31 | | | | | | | | | | | 45.74 | |
| LOW | 46.00 | | | | | | | | | | 45.87 | 45.82 |
| HIGH | 34.53 | | | | | | | | | | 45.72 | 45.75 |



72.05

72.05 70.77

70.67 69.06

73.59

73.59 72.05

73.61 73.60

GROUND-WATER LEVELS

RIO SALINAS TO RIO JACAGUAS BASINS

31

LOW

HIGH

56.88

73.55

54.80 52.99

175946066102000 Local number, HW-TW-14.

LOCATION.--Lat 17°59'46", long 66°10'20".

Owner: U.S. Geological Survey, WRD.

Name: HW-TW-14.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-79 ft (0-24.4 m), cased 4 in (0.10 m), 0-79 ft (0-24.1 m), screened 71-78 ft (21.6-23.8 m). Depth 79 ft (24.1 m).

DATUM.--Elevation of land-surface datum is 205 ft (62.5 m) above mean sea level.

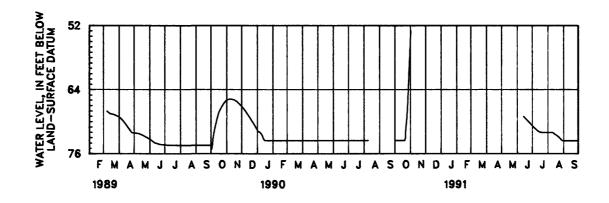
Measuring point: Hole on side of casing, 3.02 ft (0.92 m) above land-surface datum. Prior October 7, 1988, top of shelter floor, 3.67 ft (1.12 m) above land-surface datum.

REMARKS.--Recording Observation well. Well dry at 73.56 ft (22.42 m).

PERIOD OF RECORD.--December 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 41.1 ft (12.5 m) below land-surface datum, Dec. 17, 1987; lowest water level recorded, 75.35 ft (23.0 m) below land-surface datum, Oct. 2, 1989.

| | | WATER LEVEL, | IN FRET | | | | WATER YEAR ON AT 1200 | OCTOBE | R 1990 | TO SEPTEMB | BR 1991 | |
|-----|-------|--------------|---------|-----|-----|-----|--------------------------|--------|--------|------------|---------|-------|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | λUG | SRP |
| 1 | 73.54 | 54.80 | | | | | | | | 70.77 | 72.05 | 73.60 |
| 2 | 73.54 | 52.99 | | | | | | | | 70.87 | 72.05 | 73.60 |
| 3 | 73.54 | | | | | | | | | 70.97 | 72.05 | 73.60 |
| 4 | 73.54 | | | | | | | | | 71.06 | 72.05 | 73.60 |
| 5 | 73.54 | | | | | | | | | 71.15 | 72.05 | 73.60 |
| 6 | 73.54 | | | | | | | | | 71.25 | 72.05 | 73.60 |
| 7 | 73.54 | | | | | | | | | 71.33 | 72.05 | 73.60 |
| 8 | 73.54 | | | | | | | | | 71.42 | 72.05 | 73.60 |
| 9 | 73.54 | | | | | | | | | 71.50 | 72.06 | 73.60 |
| 10 | 73.54 | | | | | | | | | 71.59 | 72.06 | 73.60 |
| 11 | 73.54 | | | | | | | | | 71.68 | 72.07 | 73.60 |
| 12 | 73.54 | | | | | | | | | 71.73 | 72.18 | 73.60 |
| 13 | 73.54 | | | | | | | | | 71.81 | 72.25 | 73.60 |
| 14 | 73.54 | | | | | | | | 69.06 | 71.87 | 72.32 | 73.60 |
| 15 | 73.54 | | | | | | | | 69.16 | 71.93 | 72.40 | 73.60 |
| 16 | 73.54 | | | | | | | | 69.27 | 71.97 | 72.45 | 73.60 |
| 17 | 73.54 | | | | | | | | 69.37 | 72.02 | 72.51 | 73.60 |
| 18 | 73.54 | | | | | | | | 69.48 | 72.02 | 72.58 | 73.60 |
| 19 | 73.54 | | | | | | | | 69.57 | 72.03 | 72.65 | 73.60 |
| 20 | 73.54 | | | | | | | | 69.67 | 72.04 | 72.72 | 73.60 |
| 21 | 73.55 | | | | | | | | 69.77 | 72.04 | 72.80 | 73.60 |
| 22 | 73.08 | | | | | | | | 69.86 | 72.05 | 72.87 | 73.60 |
| 23 | 71.38 | | | | | | | | 69.96 | 72.05 | 72.96 | 73.60 |
| 24 | 70.29 | | | | | | | | 70.06 | 72.05 | 73.06 | 73.60 |
| 25 | 69.28 | | | | | | | | 70.16 | 72.05 | 73.16 | 73.60 |
| 26 | 67.83 | | | | | | | | 70.25 | 72.05 | 73.29 | 73.60 |
| 27 | 65.83 | | | | | | | | 70.35 | 72.05 | 73.39 | 73.60 |
| 28 | 63.59 | | | | | | | | 70.46 | 72.05 | 73.46 | 73.61 |
| 29 | 61.34 | | | | | | | | 70.55 | 72.05 | 73.53 | 73.61 |
| 30 | 59.14 | | | | | | | | 70.67 | 72.05 | 73.59 | 73.61 |



RIO SALINAS TO RIO JACAGUAS BASINS

175955066103000 Local number, HW-TW-15.
LOCATION.--Lat 17º59'55', long 66°10'30°.
Owner: U.S. Geological Survey, WRD.
Name: HW-TW-15.
AQUIFER.--Fractured, volcanic rock, water-table aquifer.
WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-85 ft (0-25.9 m), cased 4 in (0.10 m), 0-85 ft (0-25.9 m), screened 70-80 ft (21.3-24.4 m). Depth 85 ft (25.9 m).

DATUM.--Elevation of land-surface datum is 269 ft (82.0 m) above mean sea level.

Measuring point: Hole on side of casing, 3.12 ft (0.95 m) above land-surface datum. Prior October 7, 1988, top of shelter floor, 3.60 ft (1.10 m) above land-surface datum.

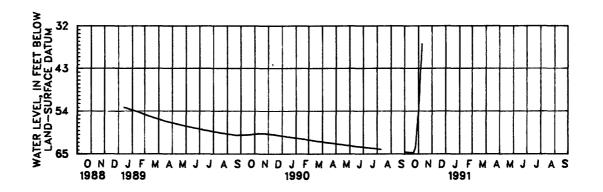
REMARKS.--Recording observation well.

PERIOD OF RECORD.--March 30, 1988 to November 1990, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 36.20 ft (11.0 m) below land-surface datum, Mar. 30, 1988; lowest water level recorded, 64.70 ft (19.7 m) below land-surface datum, Oct. 20, 21, 1990.

| WATER LEVEL, | IN FEET | BELOW LAND | -Surface | DATUM, | WATER | YRAR | OCTOBER | 1990 | TO | September | 1991 |
|--------------|---------|------------|-----------|---------|---------|------|---------|------|----|-----------|------|
| | | INSTANTA | NROUS OB: | SRRVATI | ON AT 1 | L200 | | | | | |

| DAY | OCT | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
|----------|----------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 64.52 | 53.78 | | | | | | | | | | |
| 2 | 64.52 | 51.89 | | | | | | | | | | |
| 3 | 64.53 | 49.74 | | | | | | | | | | |
| 4 | 64.54 | 47.32 | | | | | | | | | | |
| 5 | 64.56 | 44.89 | | | | | | | | | | |
| 6 | 64.58 | 42.56 | | | | | | | | | | |
| ž | 64.58 | 40.46 | | | | | | | | | | |
| 8 | 64.59 | 38.44 | | | | | | | | | | |
| 9 | 64.60 | 36.74 | | | | | | | | | | |
| 10 | 64.60 | 30.74 | | | | | | | | | | |
| 10 | 04.00 | | | | | | | | | | | |
| 11 | 64.62 | | | | | | | | | | | |
| 12 | 64.62 | | | | | | | | | | | |
| 13 | 64.63 | | | | | | | | | | | |
| 14 | 64.65 | | | | | | | | | | | |
| 15 | 64.66 | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 16 | 64.66 | | | | | | | | | | | |
| 17 | 64.68 | | | | | | | | | | | |
| 18 | 64.68 | | | | | | | | | | | |
| 19 | 64.69 | | | | | | | | | | | |
| 20 | 64.70 | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 21 | 64.70 | | | | | | | | | | | |
| 22 | 64.31 | | | | | | | | | | | |
| 23 | 64.04 | | | | | | | | | | | |
| 24 | 63.74 | | | | | | | | | | | |
| 25 | 63.29 | | | | | | | | | | | |
| 26 | 62.36 | | | | | | | | | | | |
| 27 | 61.14 | | | | | | | _ | | | | |
| 28 | 51.14 59.73 | | | | | | | | | | | |
| 28 29 | 59.73 58.27 | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 30 | 56.84 | | | | | | | | | | | |
| 31 | 55.38 | | | | | | | | | | | |
| LOW | 64.70 | 53.78 | | | | | | | | | | |
| HIGH | 55.38 | 36.74 | | | | | | | | | | |
| 011 | 23.30 | 30.74 | | | | | | | | | | |



RIO SALINAS TO RIO JACAGUAS BASINS

180206066135500. Local number, RM # 5. LOCATION.--Lat 18°02'06", long 66°13'55". Owner: U.S. Geological Survey, WRD.

Owner: U.S. Geological Survey, WRD.

Name: RM # 5.

AQUIFER.--Quaternary alluvium.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-34 ft (0-10.4 m), screened 24-34 ft (7.32-10.7 m). Depth 34 ft (10.4 m).

DATUM.--Elevation of land-surface datum is 276.35 ft (84.2 m) above mean sea level.

Measuring point: Top of shelter floor, 3.28 ft (1.0 m) above land-surface datum.

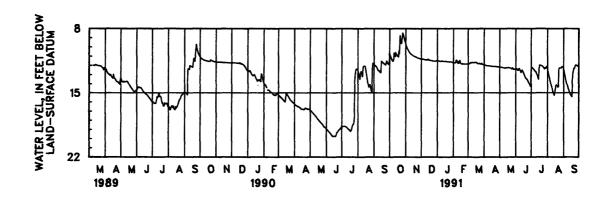
REMARKS.--Recording observation well. Pumping test performed during February 2, 7, 1990.

PERRIOD OF RECORD.--March 9, 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.15 ft (2.48 m) below land-surface datum, Oct. 26, 1990; lowest water level recorded, 19.87 ft (6.06 m) below land-surface datum, June 14, 1990.

| | | WATER LEV | EL, IN FE | ET BELOW INST | land-surf Antaneous | ACE DATUM OBSERVAT | , WATER 1 | YEAR OCTOBE 200 | R 1990 1 | ro septemb | ER 1991 | |
|------|-------|-----------|-----------|------------------|------------------------|-----------------------|-----------|--------------------|----------|------------|---------|-------|
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
| 1 | 10.62 | 9.67 | 11.29 | 11.44 | 11.71 | 11.82 | 11.97 | 12.19 | 12.43 | 12.25 | 12.26 | 12.40 |
| 2 | 10.88 | 9.87 | 11.32 | 11.46 | 11.71 | 11.82 | 11.98 | 12.18 | 12.35 | 12.23 | 12.64 | 12.66 |
| 3 | 11.06 | 10.04 | 11.33 | 11.51 | 11.73 | 11.82 | 11.97 | 12.18 | 12.35 | 12.24 | 12.91 | 12.93 |
| 4 | 11.21 | 10.19 | 11.33 | 11.53 | 11.73 | 11.78 | 12.01 | 12.20 | 12.46 | 12.30 | 13.15 | 13.18 |
| 5 | 11.33 | 10.25 | 11.35 | 11.55 | 11.74 | 11.74 | 12.02 | 12.20 | 12.53 | 12.38 | 13.38 | 13.50 |
| 6 | 11.44 | 10.37 | 11.36 | 11.57 | 11.46 | 11.69 | 12.04 | 12.22 | 12.55 | 12.42 | 13.63 | 13.76 |
| 7 | 11.49 | 10.47 | 11.38 | 11.57 | 11.44 | 11.69 | 12.04 | 12.24 | 12.36 | 12.52 | 13.88 | 13.99 |
| 8 | 11.58 | 10.57 | 11.39 | 11.57 | 11.65 | 11.69 | 12.05 | 12.24 | 12.35 | 12.60 | 14.13 | 14.16 |
| وَ | 11.34 | 10.64 | 11.40 | 11.51 | 11.74 | 11.67 | 12.05 | 12.25 | 12.50 | 12.63 | 14.34 | 14.35 |
| 10 | 10.63 | 10.71 | 11.41 | 11.54 | 11.78 | 11.68 | 12.05 | 12.27 | 12.62 | 12.73 | 14.59 | 14.54 |
| 11 | 10.89 | 10.77 | 11.41 | 11.55 | 11.55 | 11.69 | 12.08 | 12.28 | 12.77 | 12.86 | 14.83 | 14.72 |
| 12 | 11.05 | 10.81 | 11.38 | 11.55 | 11.75 | 11.68 | 12.07 | 12.25 | 12.70 | 12.99 | 14.99 | 14.91 |
| 13 | 10.57 | 10.85 | 11.42 | 11.57 | 11.45 | 11.68 | 12.07 | 12.26 | 12.50 | 13.14 | 15.14 | 15.06 |
| 14 | 10.84 | 10.89 | 11.35 | 11.57 | 11.67 | 11.67 | 12.09 | 12.23 | 12.58 | 13.33 | 15.27 | 15.19 |
| 15 | 10.87 | 10.94 | 11.41 | 11.58 | 11.77 | 11.67 | 12.10 | 12.25 | 12.72 | 13.54 | 15.00 | 15.28 |
| 16 | 11.00 | 10.98 | 11.44 | 11.56 | 11.82 | 11.67 | 12.09 | 12.25 | 12.84 | 12.39 | 14.55 | 15.38 |
| 17 | 10.89 | 11.01 | 11.45 | 11.57 | 11.84 | 11.67 | 12.11 | 12.25 | 12.98 | 11.93 | 14.14 | 15.45 |
| 18 | 11.09 | 11.04 | 11.46 | 11.58 | 11.85 | 11.68 | 12.11 | 12.23 | 13.13 | 11.97 | 14.12 | 13.46 |
| 19 | 10.41 | 11.06 | 11.48 | 11.60 | 11.81 | 11.77 | 12.12 | 12.25 | 13.27 | 12.00 | 14.17 | 12.77 |
| 20 | 10.76 | 11.09 | 11.48 | 11.60 | 11.84 | 11.79 | 12.12 | 12.28 | 13.36 | 12.01 | 14.31 | 12.51 |
| 21 | 8.75 | 11.10 | 11.49 | 11.61 | 11.85 | 11.81 | 12.12 | 12.28 | 13.42 | 12.03 | 14.37 | 12.29 |
| 22 | 9.23 | 11.13 | 11.51 | 11.61 | 11.85 | 11.83 | 12.11 | 12.29 | 13.48 | 12.07 | 14.29 | 12.29 |
| 23 | 9.40 | 11.17 | 11.52 | 11.62 | 11.86 | 11.79 | 12.12 | 12.31 | 13.55 | 12.12 | 12.35 | 12.10 |
| 24 | 9.63 | 11.20 | 11.53 | 11.62 | 11.86 | 11.82 | 12.13 | 12.39 | 13.63 | 12.19 | 12.27 | 11.97 |
| 25 | 9.05 | 11.23 | 11.53 | 11.63 | 11.84 | 11.86 | 12.12 | 12.38 | 13.74 | 12.27 | 12.26 | 11.97 |
| 26 | 8.46 | 11.23 | 11.54 | 11.64 | 11.84 | 11.88 | 12.14 | 12.29 | 13.85 | 12.39 | 12.26 | 12.01 |
| 27 | 8.61 | 11.25 | 11.55 | 11.65 | 11.85 | 11.78 | 12.14 | 12.33 | 13.98 | 12.26 | 12.28 | 12.03 |
| 28 | 8.80 | 11.25 | 11.56 | 11.66 | 11.84 | 11.85 | 12.16 | 12.42 | 14.12 | 12.33 | 12.16 | 12.08 |
| 29 | 9.08 | | 11.53 | 11.66 | | 11.89 | 12.16 | 12.44 | 14.24 | 12.33 | 12.13 | 12.05 |
| 30 | 9.32 | 11.29 | 11.49 | 11.68 | | 11.93 | 12.17 | 12.43 | 14.33 | 12.12 | 12.14 | 11.86 |
| 31 | 9.40 | | 11.47 | 11.74 | | 11.94 | | 12.44 | | 12.12 | 12.20 | |
| LOW | 11.58 | 11.29 | 11.56 | 11.74 | 11.86 | 11.94 | 12.17 | | 14.33 | 13.54 | 15.27 | 15.45 |
| HIGH | 8.46 | 9.67 | 11.29 | 11.44 | 11.44 | 11.67 | 11.97 | 12.18 | 12.35 | 11.93 | 12.13 | 11.86 |

WTR YR 1991 MEAN 12.03 LOW 15.45 HIGH 8.46



RIO SALINAS TO RIO JACAGUAS BASINS

180104066152300. Local number, RM # 10.

LOCATION.--Lat 18°01'04*, long 66°15'23*.

Owner: U.S. Geological Survey, WRD.

Name: RM # 10.

AQUIFER.--Quaternary alluvium.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-37 ft (0-11.3 m), screened 27-37 ft (8.23-11.3 m). Depth 37 ft (11.3 m).

DATUM.--Elevation of land-surface datum is 164.13 ft (50.0 m) above mean sea level, from leveling survey.

Measuring point: Top of shelter floor, 3.62 ft (1.10 m) above land-surface datum.

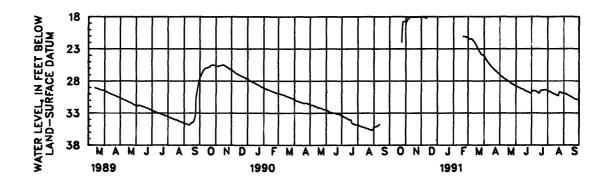
REMARKS.--Recording observation well. Pumping test performed on February 8, 1990.

PERIOD OF RECORD.--March 13, 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.00 ft (5.49 m) below land-surface datum, Nov. 9, 1990, lowest water level recorded, 35.56 ft (10.8 m) below land-surface datum, Aug. 28-29, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | ОСТ | NOA | DEC | JAN | PEB | MAR | APR | MAY | JUN | JUL | ÀUG | SEP |
|------|-------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | | 18.72 | 18.03 | | | 21.33 | 24.14 | 27.00 | 28.76 | 29.63 | 29.44 | 29.91 |
| 2 | | 18.71 | 18.03 | | | 21.36 | 24.29 | 27.06 | 28.79 | 29.53 | 29.49 | 29.94 |
| 3 | | 18.70 | 18.03 | | | 21.41 | 24.41 | 27.13 | 28.82 | 29.49 | 29.53 | 29.94 |
| 4 | | 18.53 | 18.03 | | | 21.46 | 24.57 | 27.20 | 28.86 | 29.49 | 29.58 | 29.96 |
| 5 | | 18.25 | 18.03 | | | 21.50 | 24.68 | 27.28 | 28.93 | 29.49 | 29.63 | 29.98 |
| 6 | | 18.19 | 18.03 | | | 21.50 | 24.78 | 27.34 | 28.97 | 29.50 | 29.67 | 30.02 |
| 7 | | 18.20 | 18.07 | | | 21.45 | 24.87 | 27.40 | 29.02 | 29.50 | 29.72 | 30.07 |
| 8 | | 18.23 | 18.13 | | | 21.45 | 25.03 | 27.48 | 29.05 | 29.51 | 29.76 | 30.11 |
| 9 | ~ | 18.01 | 18.18 | | | 21.52 | 25.12 | 27.57 | 29.06 | 29.53 | 29.82 | 30.17 |
| 10 | | 18.01 | 18.23 | | | 21.65 | 25.21 | 27.64 | 29.16 | 29.62 | 29.87 | 30.22 |
| 11 | | 18.01 | 18.09 | | | 21.73 | 25.32 | 27.68 | 29.19 | 29.64 | 29.90 | 30.27 |
| 12 | | 18.02 | | | | 21.84 | 25.45 | 27.70 | 29.22 | 29.73 | 29.94 | 30.31 |
| 13 | | 18.02 | | | ~ | 21.94 | 25.55 | 27.71 | 29.24 | 29.76 | 29.98 | 30.36 |
| 14 | | 18.02 | | | | 22.06 | 25.68 | 27.76 | 29.26 | 29.79 | 30.02 | 30.40 |
| 15 | | 18.02 | | | | 22.18 | 25.77 | 27.82 | 29.28 | 29.87 | 30.05 | 30.44 |
| 16 | | 18.02 | | | | 22.32 | 25.86 | 27.89 | 29.31 | 29.89 | 30.08 | 30.49 |
| 17 | | 18.02 | | | | 22.48 | 25.93 | 27.96 | 29.39 | 29.63 | 30.11 | 30.53 |
| 18 | | 18.02 | | | | 22.66 | 26.01 | 28.02 | 29.47 | 29.48 | 30.15 | 30.57 |
| 19 | | 18.02 | | | | 22.80 | 26.08 | 28.06 | 29.51 | 29.42 | 30.19 | 30.61 |
| 20 | | 18.02 | | | 21.10 | 22.97 | 26.19 | 28.12 | 29.53 | 29.41 | 30.22 | 30.64 |
| 21 | | 18.02 | | | 21.10 | 23.11 | 26.26 | 28.21 | 29.58 | 29.38 | 30.26 | 30.68 |
| 22 | | 18.02 | | | 21.10 | 23.30 | 26.32 | 28.28 | 29.59 | 29.38 | 30.30 | 30.72 |
| 23 | | 18.02 | | | 21.13 | 23.43 | 26.41 | 28.34 | 29.62 | 29.36 | 29.75 | 30.76 |
| 24 | 21.93 | 18.02 | | | 21.15 | 23.56 | 26.47 | 28.37 | 29.64 | 29.34 | 29.71 | 30.79 |
| 25 | 20.56 | 18.03 | | | 21.17 | 23.68 | 26.53 | 28.45 | 29.73 | 29.34 | 29.71 | 30.82 |
| 26 | 18.80 | 18.03 | | | 21.19 | 23.80 | 26.61 | 28.48 | 29.77 | 29.34 | 29.75 | 30.85 |
| 27 | 18.76 | 18.03 | | | 21.23 | 23.87 | 26.71 | 28.52 | 29.80 | 29.34 | 29.79 | 30.87 |
| 28 | 18.75 | 18.03 | | | 21.26 | 23.91 | 26.77 | 28.56 | 29.82 | 29.34 | 29.82 | 30.89 |
| 29 | 18.75 | 18.03 | | | | 23.96 | 26.83 | 28.63 | 29.84 | 29.37 | 29.84 | 30.92 |
| 30 | 18.72 | 18.03 | | | | 24.00 | 26.91 | 28.70 | 29.89 | 29.39 | 29.85 | 30.96 |
| 31 | 18.72 | | | | | 24.06 | | 28.72 | | 29.41 | 29.88 | |
| LOW | 21.93 | 18.72 | 18.23 | | 21.26 | 24.06 | 26.91 | 28.72 | 29.89 | 29.89 | 30.30 | 30.96 |
| HIGH | 18.72 | 18.01 | 18.03 | | 21.10 | 21.33 | 24.14 | 27.00 | 28.76 | 29.34 | 29.44 | 29.91 |



RIO INABON TO RIO LOCO BASINS

180133066503300. Local number, 132. LOCATION.--Lat 18°01'33", long 66°50'33".

Owner: Pittsburg Plate Glass 4

Name: Yauco 2.

AQUIFER .-- Limestone of Tertiary Age.

MULL CHARACTERISTICS. --Drilled observation well, cased 20 in (0.51 m) 0-20 ft (0-6.1 m), 12 in (0.30 m) perforated pipe 20-84 ft (6.1-25.61 m), 10 in (0.25 m) perforated pipe 84-190 ft (25.61-57.93 m). Depth 190 ft (57.93 m). DATUM.--Elevation of land-surface datum is about 75 ft (22.87 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.35 ft (0.72 m) above land-surface datum.

REMARKS. -- Recording observation well.

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

EXTREMES FOR PERIOD OF RECORD. -- Highest water level recorded, +0.12 ft (0.04 m) below land-surface datum, July 19, 1979; lowest water level recorded, 36.91 ft (11.25 m) below land-surface datum, June 27, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200 DAY OCT NOV DRC PRR λPR MAY JUN JUL AUG SRP JAN MAR 1 14.35 5.90 6.94 7.70 8.49 9.76 11.40 10.36 13.62 13.31 14.14 7.67 7.67 14.27 6.06 6.95 7.31 8.54 9.82 11.50 10.40 13.74 13.31 14.20 14.00 6.19 6.98 7.33 8.58 9.89 11.59 10.53 13.87 13.33 14.27 7.00 13.96 6.28 7.74 8.69 9.95 10.67 13.58 13.37 14.38 5 13.91 6.17 7.01 7.39 7.80 8.73 10.04 11.69 10.75 13.69 13.42 14.54 7.40 7.83 6 7 13.84 6.12 7.03 8.79 9.89 11.74 10.88 13.85 12.98 13.73 13.65 6.24 8.84 9.72 9.61 11.00 11.10 7.07 7.41 7.77 11.42 13.92 13.06 14.73 7.43 6.31 7.09 7.82 11.07 13.96 13.10 14.74 13.51 6.36 7.09 7.89 8.97 9.59 10.78 11.15 14.00 13.11 14.79 10 12.79 6.42 7.10 7.56 7.95 9.03 9.58 10.69 11.29 14.06 13.20 14.83 10.53 14.91 11 12.50 6.48 7.91 9.10 9.61 14.11 13.27 11.37 12 12.20 6.53 7.13 7.13 7.22 7.84 7.74 9.19 9.26 9.67 10.21 11.52 14.16 14.18 13.32 13.37 15.01 15.07 11.82 11.67 10.06 14 11.43 6.61 7.14 7.29 7.75 9.36 9.78 11.80 14.18 15 10.96 6.64 7.15 7.37 7.77 9.42 9.86 9.81 11.88 14.28 13.53 15.25 6.65 7.76 9.50 9.93 9.75 11.93 9.72 17 10.05 6.64 7.11 7.54 7.76 9.58 10.01 12.02 14.23 13.69 14.79 9.74 6.70 7.12 7.80 7.81 9.67 14.17 13.77 13.77 13.86 18 7.60 10.09 9.69 12.15 14.60 19 7.66 10.19 9.63 14.69 12.31 20 9.02 6.77 7.16 7.65 9.86 10.32 9.60 13.96 14.71 21 7.88 6.77 7.16 7.76 7.84 10.00 10.39 9.57 12.54 13.67 14.08 14.71 7.28 6.78 7.18 7.84 7.90 10.09 10.51 9.59 12.65 13.62 14.17 7.25 6.87 14.04 7.18 7.19 9.67 13.54 13.52 23 6.80 7.92 7.95 10.06 10.63 12.72 14.59 24 6.81 7.93 8.04 10.12 10.74 12.87 14.59 13.93 25 5.96 6.83 7.21 8.00 8.13 10.22 10.85 9.79 13.00 13.50 13.94 14.57 26 3.89 7.22 8.22 10.31 6.84 8.06 10.96 9.80 13.05 13.51 13.94 14.56 27 4.82 6.85 7.24 8.07 8.34 9.79 11.08 9.82 13.20 13.52 13.94 14.56 28 4.89 6.88 7.25 8.42 9.67 11.13 9.89 13.31 13.54 13.96 14.56 5.02 5.32 29 6.91 7.28 8.24 ---9.63 11.21 10.03 13.44 13.30 14.00 14.56 6.92 30 ---13.51 13.33 7.28 8.20 9.67 11.29 10.15 14.05 14.56 31 7.89

10.31

8.49

11.29

9.58

11.74

9.57

13.51

10.36

14.33

13.30

14.17

12.98

15.25

14.14

WTR YR 1991 MEAN 10.28 LOW 15.25 HIGH 3.89

7.30

6.94

8.24

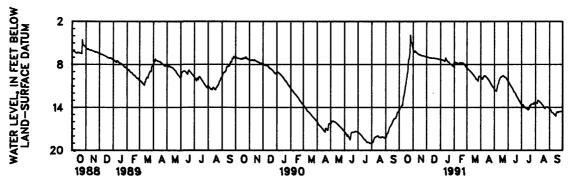
7.08

8.42

7.67

6.92

5.90



⁺ Above land-surface datum.

LOW

HIGH

14.35

3.89

RIO GUANAJIBO BASIN

180132067033800. Local number, 143.

LOCATION.--Lat 18°01'32", long 67°03'38".

Owner: Pedro P. Vivoni.

Name: Vivoni, Hacienda Amistad.

AQUIFER.--Limestone of unknown age.

WELL CHARACTERISTICS.--Drilled unused irrigation well, diameter 12 in (0.30 m). Depth 200 ft (60.98 m).

DATUM.--Elevation of land-surface datum is about 52.5 ft (16.0 m) above mean sea level, from topographic map.

Measuring point: Hole side of casing, 0.80 ft (0.24 m) above land-surface datum.

REMARKS.--Recording observation well.

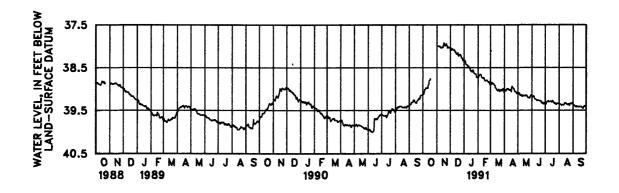
REMARKS.--Recording observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 37.36 ft (11.39 m) below land-surface datum, Nov. 20, 1985; lowest water level recorded, 40.0 ft (12.2 m) below land-surface datum, June 9, 10, 11, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| INSTANTANEOUS OBSERVATION AT 1200 | | | | | | | | | | | | | |
|-----------------------------------|-------|-------|-------|---------------|-------|---------------|-------|-------|---------------|---------------|---------------|-------|--|
| DAY | OCT | MOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP | |
| 1 | 39.12 | | 38.04 | 38.34 | 38.73 | 38.91 | 39.02 | 39.10 | 39.16 | 39.34 | 39.33 | 39.37 | |
| 2 | 39.12 | | 38.03 | 38.33 | 38.73 | 38.89 | 39.01 | 39.10 | 39.18 | 39.36 | 39.35 | 39.37 | |
| 3 | 39.12 | | 38.06 | 38.34 | 38.67 | 38.85 | 39.02 | 39.08 | 39.18 | 39.34 | 39.35 | 39.37 | |
| 4 | 39.07 | | 38.09 | 38.35 | 38.68 | 38.84 | 39.04 | 39.10 | 39.17 | 39.31 | 39.35 | 39.38 | |
| 5 | 39.01 | 37.99 | 38.06 | 38.42 | 38.66 | 38.88 | 39.03 | 39.12 | 39.16 | 39.29 | 39.36 | 39.40 | |
| 6 | 39.01 | 38.01 | 38.06 | 38.42 | 38.65 | 38.86 | 39.00 | 39.15 | 39.18 | 39.29 | 39.38 | 39.41 | |
| 7 | 38.99 | 38.01 | 38.08 | 38.44 | 38.66 | 38.87 | 38.99 | 39.13 | 39.22 | 39.28 | 39.38 | 39.42 | |
| 8 | 38.97 | 38.00 | 38.09 | 38.44 | 38.67 | 38.87 | 38.99 | 39.14 | 39.23 | 39.27 | 39.36 | 39.39 | |
| 9 | 38.98 | 38.02 | 38.09 | 38.44 | 38.73 | 38.89 | 39.01 | 39.14 | 39.23 | 39.29 | 39.36 | 39.40 | |
| 10 | 38.97 | 38.04 | 38.08 | 38.49 | 38.73 | 38.91 | 38.99 | 39.17 | 39.24 | 39.30 | 39.37 | 39.42 | |
| 11 | 38.96 | 38.03 | 38.10 | 38.46 | 38.74 | 38.92 | 39.02 | 39.17 | 39.25 | 39.29 | 39.37 | 39.41 | |
| 12 | 38.98 | 38.03 | 38.14 | 38.48 | 38.75 | 38.97 | 39.02 | 39.14 | 39.25 | 39.28 | 39.36 | 39.41 | |
| 13 | 38.90 | 38.02 | 38.13 | 38.50 | 38.75 | 38.98 | 39.02 | 39.16 | 39.27 | 39.28 | 39.33 | 39.41 | |
| 14 | 38.90 | 38.03 | 38.17 | 38.52 | 38.73 | 38.99 | 39.01 | 39.16 | 39.26 | 39.29 | 39.32 | 39.42 | |
| 15 | 38.80 | 38.02 | 38.17 | 38.55 | 38.77 | 39.02 | 39.03 | 39.15 | 39.26 | 39.29 | 39.32 | 39.41 | |
| 16 | 38.79 | 37.97 | 38.19 | 38.58 | 38.80 | 39.02 | 39.06 | 39.15 | 39.26 | 39.31 | 39.34 | 39.41 | |
| 17 | 38.79 | 37.92 | 38.17 | 38.57 | 38.81 | 39.04 | 38.96 | 39.16 | 39.27 | 39.26 | 39.34 | 39.41 | |
| 18 | 38.76 | 37.96 | 38.15 | 38.59 | 38.81 | 39. 03 | 38.93 | 39.16 | 39.27 | 39.28 | 39.34 | 39.41 | |
| 19 | | 37.99 | 38.22 | 38.60 | 38.80 | 39.00 | 38.96 | 39.14 | 39.27 | 39.28 | 39.36 | 39.41 | |
| 20 | | 37.99 | 38.23 | 38.56 | 38.79 | 39.01 | 38.97 | 39.14 | 39.28 | 39.32 | 39.36 | 39.41 | |
| 21 | | 37.96 | 38.21 | 38.55 | 38.79 | 39.05 | 38.98 | 39.15 | 39.27 | 39.32 | 39.37 | 39.43 | |
| 22 | | 37.94 | 38.19 | 38.58 | 38.81 | 39.05 | 38.99 | 39.18 | 39.28 | 39.34 | 39.34 | 39.44 | |
| 23 | | 37.97 | 38.19 | 38.63 | 38.82 | 39.02 | 39.02 | 39.20 | 39.32 | 39.32 | 39.34 | 39.45 | |
| 24 | | 38.00 | 38.20 | 38.63 | 38.84 | 39.01 | 39.05 | 39.20 | 39.33 | 39.3 3 | 39.38 | 39.43 | |
| 25 | | 38.04 | 38.23 | 38.64 | 38.82 | 39.02 | 39.06 | 39.20 | 39.3 3 | 39.36 | 39 .35 | 39.40 | |
| 26 | | 38.03 | 38.27 | 38.64 | 38.84 | 39.04 | 39.06 | 39.19 | 39.31 | 39.36 | 39.33 | 39.40 | |
| 27 | | 38.02 | 38.27 | 38.65 | 38.87 | 39.00 | 39.07 | 39.21 | 39.35 | 39.33 | 39.33 | 39.39 | |
| 28 | | 38.03 | 38.28 | 38.68 | 38.90 | 39.00 | 39.10 | 39.18 | 39.34 | 39.33 | 39.34 | 39.40 | |
| 29 | | 38.04 | 38.32 | 38.73 | | 38.99 | 39.10 | 39.15 | 39.32 | 39.33 | 39.34 | 39.42 | |
| 30 | | 38.03 | 38.34 | 38.73 | | 39.03 | 39.11 | 39.14 | 39.32 | 39.33 | 39.32 | 39.39 | |
| 31 | | | 38.34 | 38.73 | | 39.07 | | 39.16 | | 39.34 | 39.34 | | |
| LOW | 39.12 | 38.04 | 38.34 | 38.7 3 | 38.90 | 39.07 | 39.11 | 39.21 | 39.35 | 39.36 | 39.38 | 39.45 | |
| HI GH | 38.76 | 37.92 | 38.03 | 38.33 | 38.65 | 38.84 | 38.93 | 39.08 | 39.16 | 39.26 | 39.32 | 39.37 | |



RIO CULEBRINAS BASIN

182018066593200. Local number, 83.
LOCATION.--Lat 18220'18", long 66°59'32".
Owner: P.R. Energy and Power Authority.
Name: San Sebastian Well.
AQUIFER.--San Sebastian Formation.

MELL CHARACTERISTICS. -- Drilled observation well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 300 ft (91.4 m).

(91.4 m).

DATUM.--Elevation of land-surface datum is about 230 ft (70.1 m) above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 6 in (0.15 m) casing, 2.75 ft (0.84 m) above land-surface datum.

Prior November 1985, top of casing, 2.40 ft (0.73 m) above land-surface datum.

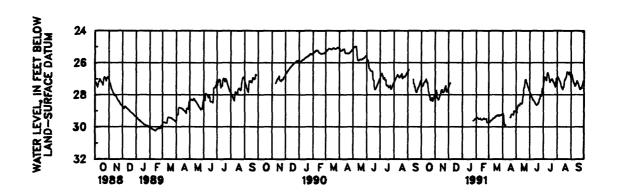
REMARKS.--Recording observation well. Formerly published as 182032066591800.

PRIOD OF RECORD.--May 1967 to January 16, 1985. November 1985 to September 30, 1991, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 21.95 ft (6.69 m) below land-surface datum, May 8, 1986; lowest water level recorded, 40.20 ft (12.25 m) below land-surface datum, Jan. 29, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | MOA | DEC | JAN | PEB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|
| 1 | 27.26 | 27.96 | 27.53 | | 29.45 | 29.70 | 29.18 | 29.08 | 27.82 | 27.49 | 26.92 | 26.80 |
| 2 | 27.49 | 27.88 | 27.47 | | 29.43 | 29.70 | 29.17 | 29.09 | 27.91 | 27.21 | 26.87 | 26.72 |
| 3 | 27.47 | 27.79 | 27.37 | | 29.42 | 29.69 | 29.28 | 29.11 | 27.97 | 26.91 | 26.91 | 26.78 |
| i | 27.45 | 27.72 | 27.32 | | 29.42 | 29.66 | 29.62 | 28.86 | 28.06 | 26.89 | 26.98 | 26.91 |
| 5 | 27.42 | 28.20 | 27.27 | | 29.47 | 29.62 | 29.85 | 28.74 | 28.13 | 26.91 | 27.07 | 27.04 |
| 6 | 27.30 | 28.22 | | | 29.51 | 29.60 | 29.91 | 28.65 | 28.18 | 26.99 | 27.09 | 27.16 |
| 7 | 27.25 | 28.26 | | | 29.51 | 29.57 | 29.93 | 28.64 | 28.28 | 27.09 | 27.15 | 27.27 |
| | 27.25 | 28.32 | | | 29.51 | 29.56 | 29.89 | 28.66 | 28.31 | 27.11 | 27.21 | 27.29 |
| 8 | 27.21 | 28.32 | | | 29.50 | 29.53 | | 28.68 | 28.35 | 26.78 | 27.33 | 27.37 |
| 9 10 | 27.19 | 28.27 | | | 29.46 | 29.51 | | 28.56 | 28.38 | 26.59 | 27.45 | 27.46 |
| | | | | | | 29.45 | | 28.53 | 28.43 | 26.62 | 27.51 | 27.41 |
| 11 | 27.09 | 28.07 | | | 29.53 | | | 28.55 | 28.49 | 26.72 | 27.61 | 27.28 |
| 12 | 27.01 | 28.01 | | | 29.56 | 29.45 | | 28.57 | 28.54 | 26.86 | 27.61 | 27.31 |
| 13 | 27.14 | 27.90 | | | 29.56 | 29.44 | | 28.56 | 28.59 | 27.00 | 27.68 | 27.13 |
| 14 | 27.21 | 27.81 | | | 29.56 | 29.41 | | | 28.62 | 27.12 | 27.50 | 27.14 |
| 15 | 27.27 | 27.72 | | | 29.54 | 29.38 | | 28.49 | 46.04 | 27.12 | 21.50 | |
| 16 | 27.49 | 27.67 | | | 29.51 | 29.36 | | 28.12 | 28.66 | 27.23 | 27.53 | 27.24 27.30 |
| 17 | 27.75 | 27.69 | | | 29.49 | 29.33 | | 28.11 | 28.60 | 27.04 | 27.21 | 27.39 |
| 18 | 27.90 | 27.86 | | | 29.47 | 29.30 | 29.38 | 27.70 | 28.62 | 27.04 | 27.02 | |
| 19 | 28.08 | 27.85 | | | 29.46 | 29.30 | 29.40 | 27.54 | 28.57 | 27.09 | 27.06 | 27.49 |
| 20 | 28.08 | 27.82 | | | 29.51 | 29.29 | 29.21 | 27.51 | 28.48 | 27.00 | 26.96 | 27.57 |
| 21 | 28.31 | 27.77 | | | 29.52 | 29.25 | 29.18 | 27.20 | 28.49 | 27.01 | 26.91 | 27.65 |
| 22 | 28.37 | 27.67 | | | 29.51 | 29.25 | 29.20 | 27.05 | 28.29 | 27.10 | 26.79 | 27.66 |
| 23 | 28.32 | 27.58 | | | 29.51 | 29.31 | 29.21 | 27.04 | 28.26 | 27.21 | 26.57 | 27.55 |
| 24 | 28.23 | 27.49 | | | 29.48 | 29.31 | 29.23 | 27.10 | 28.04 | 27.21 | 26.59 | 27.57 |
| 25 | 28.18 | 27.43 | | 29.63 | 29.73 | 29.28 | 29.25 | 27.26 | 27.98 | 27.28 | 26.62 | 27.60 |
| 26 | 28.42 | 27.80 | | 29.61 | 29.73 | 29.26 | 29.05 | 27.30 | 28.01 | 27.36 | 26.63 | 27.41 |
| | | 27.82 | | 29.59 | 29.73 | 29.27 | 29.01 | 27.40 | 28.09 | 27.44 | 26.73 | 27.37 |
| 27 | 28.37 | | | 29.55 | 29.71 | 29.26 | 29.02 | 27.48 | 27.77 | 27.52 | 26.59 | 27.23 |
| 28 | 28.29 | 27.79 | | 29.55 | 29.71 | 29.24 | 29.02 | 27.56 | 27.58 | 27.25 | 26.63 | 27.12 |
| 29 | 28.20 | 27.71 | | | | 29.21 | 29.05 | 27.64 | 27.57 | 26.97 | 26.74 | 27.10 |
| 30 | 28.06 | 27.63 | | 29.51 | | | 29.05 | 27.73 | | 27.00 | 26.89 | |
| 31 | 28.04 | | | 29.48 | | 29.19 | | 41.13 | | | | |
| LOW | 28.42 | 28.32 | 27.53 | 29.63 | 29.73 | 29.70 | 29.93 | 29.11 | 28.66 | 27.52 | 27.68 | 27.66 |
| HIGH | 27.01 | 27.43 | 27.27 | 29.48 | 29.42 | 29.19 | 29.01 | 27.04 | 27.57 | 26.59 | 26.57 | 26.72 |
| | | | | | | | | | | | | |



RIO CULEBRINAS BASIN

182442067091700. Local number, 200 . LOCATION.--Lat 18°24'42", long 67°09'17".

Owner: Carmelo Sanchez
Name: Aguadilla Cement Well.
AQUIFER.--Surficial deposits.

AQUIFER.--Surficial deposits.

WELL CHARACTERISTICS.--Abandoned water-table industrial well, diameter 4 in (0.10 m), cased 0-20 ft (0-6.10 m), perforated 11-20 ft (3.35-6.10 m). Depth 20 ft (6.10 m).

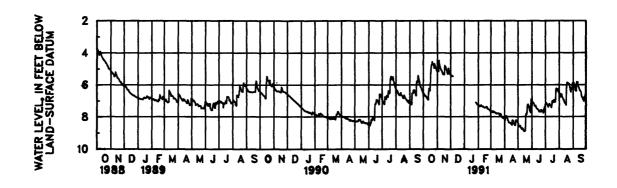
DATUM.--Elevation of land-surface datum is about 10 ft (3.05 m) above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.25 ft (0.99 m) above land-surface datum. REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.24 ft (0.68 m) below land-surface datum, Aug 25, 1988; lowest water level recorded, 8.92 ft (2.72 m) below land-surface datum, May 15, 1991.

| WATER LEVEL, | IN | KKET | BRLOW | Land-Surface | DATUM, | WATER | YEAR | OCTOBER | 1990 | TO | September | 1991 |
|--------------|----|------|-------|---------------|---------|--------|------|---------|------|----|-----------|------|
| | | | TN: | STANTANEOUS O | RORRVAT | TON AT | 1200 | | | | | |

| | | | | | 111111111111111111111111111111111111111 | U UDUBATA | LION AL L | | | | | |
|------|------|------|------|------|---|-----------|-----------|------|------|------|------|------|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 6.54 | 5.14 | 5.39 | | 7.27 | 7.64 | 8.20 | 8.39 | 7.00 | 7.22 | 6.46 | 5.85 |
| 2 | 6.54 | 4.98 | 5.40 | | 7.28 | 7.64 | 8.23 | 8.48 | 7.05 | 7.11 | 6.54 | 5.95 |
| 3 | 6.60 | 5.08 | 5.41 | | 7.28 | 7.63 | 8.00 | 8.57 | 7.12 | 7.14 | 6.61 | 5.88 |
| 4 | 6.64 | 5.17 | 5.44 | | 7.33 | 7.67 | 7.94 | 8.60 | 7.15 | 7.17 | 6.69 | 6.01 |
| 5 | 6.67 | 4.44 | 5.45 | | 7.35 | 7.70 | 8.01 | 8.62 | 7.16 | 7.24 | 6.76 | 6.13 |
| 6 | 6.70 | 4.70 | 5.46 | | 7.33 | 7.72 | 8.03 | 8.55 | 7.28 | 7.28 | 6.58 | 6.34 |
| 7 | 6.74 | 4.79 | | | 7.26 | 7.63 | 8.09 | 8.67 | 7.30 | 7.31 | 6.71 | 6.38 |
| 8 | 6.73 | 4.93 | | | 7.32 | 7.70 | 8.24 | 8.72 | 7.33 | 7.38 | 6.76 | 6.39 |
| 9 | 6.81 | 5.01 | | | 7.33 | 7.69 | 8.27 | 8.76 | 7.30 | 7.25 | 6.84 | 5.81 |
| 10 | 6.86 | 5.06 | | | 7.35 | 7.71 | 8.36 | 8.69 | 7.38 | 7.18 | 6.88 | 5.84 |
| 11 | 6.91 | 5.12 | | | 7.35 | 7.74 | 8.38 | 8.73 | 7.42 | 7.23 | 6.96 | 5.83 |
| 12 | 6.94 | 5.19 | | | 7.38 | 7.77 | 8.36 | 8.77 | 7.50 | 7.27 | 7.04 | 6.02 |
| 13 | 6.49 | 5.27 | | | 7.39 | 7.78 | 8.38 | 8.85 | 7.50 | 7.30 | 7.10 | 6.14 |
| 14 | 6.20 | 5.34 | | | 7.40 | 7.79 | 8.40 | 8.88 | 7.54 | 7.35 | 7.13 | 6.17 |
| 15 | 6.27 | 5.37 | | | 7.42 | 7.80 | 8.45 | 8.90 | 7.55 | 7.42 | 7.19 | 6.27 |
| 16 | 6.37 | 5.36 | | | 7.42 | 7.78 | 8.47 | 8.89 | 7.58 | 7.02 | 7.25 | 6.35 |
| 17 | 5.51 | 5.37 | | | 7.42 | 7.78 | 8.52 | 8.86 | 7.69 | 7.00 | 6.50 | 6.37 |
| 18 | 5.05 | 4.76 | | | 7.43 | 7.78 | 8.22 | 7.92 | 7.68 | 7.07 | 5.84 | 6.43 |
| 19 | 4.74 | 4.86 | | | 7.42 | 7.78 | 8.22 | 7.78 | 7.61 | 7.11 | 5.85 | 6.46 |
| 20 | 4.73 | 4.84 | | | 7.37 | 7.82 | 8.26 | 7.85 | 7.59 | 6.94 | 5.88 | 6.74 |
| 21 | 4.53 | 5.00 | | | 7.41 | 7.91 | 8.32 | 7.69 | 7.71 | 6.95 | 5.94 | 6.80 |
| 22 | 4.65 | 5.07 | | | 7.50 | 7.92 | 8.43 | 7.22 | 7.54 | 7.00 | 5.93 | 6.82 |
| 23 | 4.75 | 5.19 | | | 7.52 | 7.80 | 8.49 | 7.21 | 7.58 | 7.08 | 5.94 | 6.92 |
| 24 | 4.78 | 5.27 | | | 7.53 | 7.87 | 8.54 | 7.31 | 7.64 | 6.81 | 6.04 | 6.97 |
| 25 | 4.95 | 5.34 | | | 7.55 | 7.98 | 8.52 | 7.35 | 7.64 | 6.24 | 6.15 | 7.03 |
| 26 | 4.67 | 4.94 | | 7.10 | 7.57 | 8.02 | 8.27 | 7.44 | 7.75 | 6.22 | 6.34 | 6.74 |
| 27 | 4.82 | 5.06 | | 7.11 | 7.60 | 8.05 | 8.19 | 7.62 | 7.75 | 6.26 | 6.45 | 6.74 |
| 28 | 4.93 | 5.17 | | 7.18 | 7.64 | 8.08 | 8.23 | 7.68 | 7.51 | 6.38 | 6.19 | 6.73 |
| 29 | 4.98 | 5.29 | | 7.22 | | 8.09 | 8.30 | 7.73 | 7.43 | 6.25 | 6.22 | 6.37 |
| 30 | 5.03 | 5.37 | | 7.24 | | 8.11 | 8.34 | 6.89 | 7.35 | 6.31 | 6.27 | 6.46 |
| 31 | 5.14 | | | 7.26 | | 8.12 | | 6.97 | | 6.49 | 5.85 | |
| LOW | 6.94 | 5.37 | 5.46 | 7.26 | 7.64 | 8.12 | 8.54 | 8.90 | 7.75 | 7.42 | 7.25 | 7.03 |
| HIGH | 4.53 | 4.44 | 5.39 | 7.10 | 7.26 | 7.63 | 7.94 | 6.89 | 7.00 | 6.22 | 5.84 | 5.81 |
| | | | | | | | | | | | | |





ST. THOMAS, U.S. VIRGIN ISLANDS

50252000 BONNE RESOLUTION GUT AT BONNE RESOLUTION, ST. THOMAS, VI

LOCATION.--Lat 18°21'57", long 64°57'34", Hydrologic Unit 21020001, on right bank near Hull Bay Road, 0.5 mi (0.8 km) upstream from Atlantic Ocean, and 2.5 mi (4.0 km) northwest of Fort Christian, Charlotte Amalie.

DRAINAGE AREA. -- 0.49 mi2 (1.27 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1962 to February 1967, March 1979 to April 1981, May 1982 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 280 ft (85 m), from topographic map. December 1962 to February 1967 and March 1979 to April 1981 at site about 100 ft (30 m) upstream at different datum

REMARKS. -- Records poor.

AVERAGE DISCHARGE.--13 years (1964-66, 1980, 1983-91), 0.33 ft³/s (0.009 m²/s), 9.14 in/yr (232 mm/yr), 239 acre-ft/yr (0.295 hm²/yr); median of yearly mean discharges, 0.32 ft²/s (0.01 m²/s), 232 acre-ft/yr (0.29 hm²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,650 ft³/s (46.7 m³/s), Apr. 18, 1983, gage height, 7.00 ft (2.134 m), from floodmarks, from rating curve extended above 1.0 ft³/s (0.03 m³/s) on basis of critical-depth analysis and slope-area measurement of peak flow, no flow at times in most years.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 50 ft¹/s (1.42 m³/s) and maximum (*):

DISCHARGE, CURIC PRET PRE SECOND WATER VEAR OCTORER 1991 TO SERVENER 1991

| Date | Time | Disc (ft³/s) | harge (m³/s) | Gage] | height (m) | Date | Time | Disc (ft³/s) | charge (m³/s) | Gage] (ft) | height (m) |
|--------------------|--------------|-----------------|-----------------|--------|---------------|---------|------|-----------------|------------------|----------------|---------------|
| Oct. 16 Oct. 19 | 1400 0230 | 255 *738 | 7.22 20.90 | | 1.146 | Oct. 26 | 0100 | 300 | 8.50 | 3.98 | 1.213 |

Minimum daily discharge, 0.01 ft³/s (0.0003 m²/s), many days.

| | | DISCHA | RGE, CUBIC | FRET PRI | DAILY | WATER YEAR MEAN VALU | octobe RS | SR 1990 T | O SEPTEMBE | R 1991 | | |
|--------|------|-------------|------------|----------|---------|-------------------------|--------------|-----------|------------|--------|------|------|
| DAY | OC! | r nov | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | .0: | 1 .12 | .03 | .18 | .04 | . 05 | .03 | . 03 | .01 | .03 | .01 | .01 |
| 2 | .0: | 1 .11 | . 05 | . 09 | .04 | . 06 | .03 | . 03 | .01 | . 02 | .01 | . 11 |
| 3 | . 02 | | .04 | .10 | .04 | .06 | .03 | .03 | .02 | . 02 | .01 | .01 |
| 4 | . 0: | | .03 | . 08 | .03 | . 05 | .03 | .03 | .02 | .01 | .01 | . 02 |
| 5 | . 0 | | .03 | . 07 | . 03 | . 05 | . 02 | .04 | .02 | .01 | .01 | .01 |
| 6 | . 0: | 2 .08 | .03 | . 07 | .08 | . 05 | .02 | .03 | .02 | .01 | .01 | .01 |
| 7 | .1: | 1 .07 | .03 | . 05 | . 07 | . 04 | . 02 | . 03 | . 02 | .01 | .01 | . 01 |
| 8 | . 0 | | .03 | . 05 | .04 | . 04 | .02 | .06 | .01 | .01 | .01 | .01 |
| وَ | . 0 | | .03 | .06 | .03 | . 04 | .02 | .02 | .01 | .01 | .01 | .01 |
| 10 | . 0 | | .03 | . 05 | .03 | . 04 | .02 | .03 | .01 | .01 | .01 | .01 |
| 11 | .00 | 5 .05 | .03 | . 05 | .03 | .04 | .02 | .03 | .01 | .01 | .01 | .01 |
| 12 | .0 | | . 03 | . 06 | .22 | . 04 | .02 | . 02 | .01 | .01 | .01 | .01 |
| 13 | .31 | | .03 | . 04 | .06 | . 04 | .02 | . 02 | .01 | .01 | .01 | .01 |
| 14 | .3: | | .03 | . 04 | .04 | . 04 | .02 | .01 | .01 | .01 | .01 | .01 |
| 15 | . 0 | | .03 | . 04 | .05 | . 04 | .02 | .01 | .01 | .01 | .01 | . 01 |
| 16 | 11 | .04 | .03 | . 05 | .05 | . 02 | .02 | . 02 | .01 | . 02 | .01 | .01 |
| 17 | .49 | .04 | .03 | . 06 | . 05 | . 02 | .02 | . 04 | .01 | .01 | .01 | . 01 |
| 18 | .10 | | .03 | . 05 | .08 | .04 | .02 | . 04 | .01 | . 02 | .01 | .01 |
| 19 | 21 | . 03 | .03 | .04 | .15 | . 02 | .02 | .01 | .01 | .01 | .01 | .01 |
| 20 | 2.5 | .24 | .03 | . 04 | .11 | . 02 | . 03 | .01 | .06 | .01 | .01 | .01 |
| 21 | 2.8 | . 07 | .04 | . 07 | .07 | . 02 | .03 | .01 | .02 | .01 | .02 | .01 |
| 22 | . 69 | 9 .06 | .03 | . 05 | .07 | .07 | . 02 | .01 | .01 | . 02 | .01 | .04 |
| 23 | .5 | 7.05 | .04 | .04 | .07 | . 03 | .02 | .01 | .01 | . 02 | .02 | .09 |
| 24 | .4' | 7 .11 | .03 | . 05 | .06 | . 03 | .02 | .01 | .02 | . 02 | .01 | . 04 |
| 25 | . 6: | 1 .08 | .03 | . 04 | .05 | .03 | .04 | .01 | .01 | .01 | .01 | . 04 |
| 26 | 16 | .05 | .03 | . 04 | .05 | . 03 | .03 | .01 | .01 | .01 | .01 | . 03 |
| 27 | . 49 | 9 .05 | .03 | . 04 | . 05 | . 03 | . 02 | .01 | .01 | .01 | .02 | . 03 |
| 28 | .29 | | .08 | .03 | .05 | . 03 | .02 | .01 | .01 | .01 | .02 | . 02 |
| 29 | .2 | | .14 | . 03 | | .03 | .02 | .02 | .01 | .01 | .02 | .15 |
| 30 | .1 | 7 .04 | .07 | .03 | | . 04 | .02 | .03 | . 62 | .01 | .02 | . 12 |
| 31 | .1 | l | . 69 | .04 | | . 03, | | . 02 | | .01 | .02 | |
| TOTAL | 58.8 | 9 2.08 | 1.84 | 1.73 | 1.74 | 1.17 | 0.69 | 0.69 | 1.03 | 0.40 | 0.38 | 0.88 |
| MEAN | 1.9 | .069 | .059 | .056 | .062 | .038 | .023 | .022 | .034 | .013 | .012 | .029 |
| MAX | 2: | 1 .24 | .69 | . 18 | .22 | . 07 | .04 | .06 | .62 | . 03 | . 02 | . 15 |
| MIN | .0: | | .03 | . 03 | .03 | . 02 | .02 | .01 | .01 | .01 | .01 | .01 |
| AC-FT | 11 | 7 4.1 | 3.6 | 3.4 | 3.5 | 2.3 | 1.4 | 1.4 | 2.0 | .8 | . 8 | 1.7 |
| CFSM | 3.8 | | .12 | .11 | .13 | .08 | .05 | .05 | .07 | .03 | .03 | .06 |
| IN. | 4.4 | | .14 | . 13 | .13 | . 09 | .05 | . 05 | .08 | .03 | .03 | . 07 |
| CAL YR | | TOTAL 77.30 | MEAN .21 | MAX 21 | MIN .01 | AC-FT 153 | CFSM | .43 IN. | 5.87 | | | |
| WTR YR | 1991 | TOTAL 71.52 | MEAN .20 | MAX 21 | MIN .01 | AC-PT 142 | CFSM | | 5.43 | | | |

ST. THOMAS, U.S. VIRGIN ISLANDS

50276000 TURPENTINE RUN AT MARIENDAL, ST. THOMAS, VI

LOCATION.--Lat 18°19'48", long 64°52'58", Hydrologic Unit 21020001, on right bank, at Mariendal, 1.0 mi (1.6 km) upstream from mouth, and 3.3 mi (5.3 km) southeast of Fort Christian, Charlotte Amalie.

DRAINAGE AREA .-- 2.97 mi 2 (7.69 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- January 1963 to April 1969, October 1978 to September 1980, June 1982 to July 1986, July 1986 to current year (high-water discharges only).

GAGE. -- Crest-stage gage. Elevation of gage is 40 ft (12 m), from topographic map.

REMARKS. -- Records poor, peak discharges only.

AVERAGE DISCHARGES.--10 years (1964-68, 1979-80, 1983-85), 1.22 ft³/s (0.034 m³/s), 5.58 in/yr (142 mm/yr), 884 acre-ft/yr (1.09 hm³/yr); median of yearly mean discharges, 0.54 ft³/s (0.015 m³/s), 390 acre-ft/yr (0.48 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,710 ft³/s (275 m³/s), Apr. 18, 1983, gage height, 11.09 ft (3.380 m), from floodmark, from rating curve extended above 500 ft³/s (14.2 m³/s) on basis of slope area measurement and step-backwater analysis; no flow many days from 1963 to 1969, and in 1984.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 100 ft3/s (2.83 m3/s) and maximum (*):

| _ | | Disc | harge | Gage height | | | | | charge | Gage height | |
|---------|------|------------|---------------------|-------------|-------|-------|----------|---------|-----------------|-------------|-----|
| Date | Time | (ft^3/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft³/s) | (± ³/≈) | (ft) | (m) |
| Oct. 16 | 1430 | *337 | 9.54 | *3.88 | 1.183 | No ot | her peak | greater | than base | discharge | • |

ST. JOHN, U.S. VIRGIN ISLANDS

50295000 GUINEA GUT AT BETHANY, ST. JOHN, VI

LOCATION.--Lat 18°19'55", long 64°46'50", Hydrologic Unit 21020001, 600 ft (183 m) southeast of Bethany Church, and 1.0 mi (1.6 km) east of Government House at Crux Bay.

DRAINAGE AREA. -- 0.37 mi2 (0.96 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- January 1963 to October 1967, September 1982 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 260 ft (79 m), from topographic map. Prior to September 1982, at datum 1.00 ft (0.30 m) higher.

REMARKS. -- Records poor

AVERAGE DISCHARGE.--13 years (1964-67, 1983-91), 0.091 ft³/s (0.002 m²/s), 3.340 in/yr (84.84 mm/yr) 65.93 acre-ft/yr (0.081 hm³/yr), median of yearly mean discharges, 0.03 ft³/s (0.001 m²/s), 21.7 acre-ft/yr (0.03 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 946 ft³/s (26.8 m²/s), Apr. 18, 1983, gage height, 5.33 ft (1.625 m), from floodmark, from rating curve extended above 1.0 ft³/s (0.028 m²/s) on basis of step-backwater analysis and slope-area measurement of peak flow; no flow many days each year.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 10 ft3/s (0.283 m3/s) and maximum (*):

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| Date | Time | Disc (ft³/s) | harge (m²/s) | Gage] (ft) | height (m) | Date | Time | Disc (ft³/s) | charge (m³/s) | Gage (ft) | height (m) |
|---------|------|-----------------|-----------------|----------------|---------------|------|------|-----------------|------------------|--------------|------------|
| Oct. 20 | 1500 | *7.00 | 0.198 | *1.94 | 0.591 | | | | | | |

No flow many days.

| | DAILY MEAN VALUES | | | | | | | | | | | | |
|-------|-------------------|------|-------|------|-------|------|------|------|------|------|-------|------|--|
| DAY | OCT | NOV | DRC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | |
| 1 | .00 | . 02 | .01 | .01 | .00 | .00 | .01 | . 01 | .00 | .00 | .00 | .00 | |
| 2 | .00 | . 02 | .01 | .01 | .00 | .00 | .01 | .01 | .00 | .00 | .00 | .00 | |
| 3 | .00 | . 01 | .01 | . 02 | .01 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | |
| 4 | .00 | . 02 | .01 | .01 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | |
| 5 | .00 | .01 | .01 | .01 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | . 00 | |
| 6 | .00 | .01 | .01 | .01 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | . 00 | |
| 7 | .00 | .01 | .01 | .01 | .00 | . 00 | .00 | .01 | .00 | .00 | .00 | . 00 | |
| 8 | .00 | .01 | .01 | . 01 | .00 | . 00 | . 03 | .01 | .00 | . 00 | .00 | . 00 | |
| 9 | .00 | .01 | .02 | .01 | .00 | .00 | .00 | . 01 | .00 | . 00 | .00 | .00 | |
| 10 | .00 | .01 | .02 | .01 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | |
| 11 | .00 | .01 | .02 | . 01 | .00 | . 00 | .00 | .01 | .00 | . 00 | .00 | .00 | |
| 12 | .00 | .01 | .02 | .01 | .00 | . 00 | .00 | .01 | .00 | . 00 | .00 | . 00 | |
| 13 | .00 | .01 | . 02 | . 01 | .00 | . 00 | .00 | .01 | .00 | . 00 | .00 | .00 | |
| 14 | .00 | .01 | . 02 | . 01 | .00 | . 00 | .00 | .01 | .00 | . 00 | .00 | . 00 | |
| 15 | .00 | .01 | .01 | .01 | .00 | .00 | .00 | .01 | .00 | . 00 | .00 | .00 | |
| 16 | .00 | .01 | .01 | .01 | .00 | . 00 | .00 | .01 | .00 | .00 | .00 | . 00 | |
| 17 | .00 | . 02 | .01 | . 01 | .00 | . 00 | .00 | .01 | .00 | .00 | .00 | .00 | |
| 18 | .00 | . 01 | .01 | .01 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | |
| 19 | .07 | .01 | .01 | .01 | .00 | . 00 | .00 | . 01 | .00 | .00 | .00 | . 00 | |
| 20 | 1.7 | .01 | .01 | .01 | .00 | . 00 | .00 | .01 | .00 | .00 | .00 | . 00 | |
| 21 | 2.1 | .01 | .01 | .00 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | |
| 22 | .82 | .01 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | . 00 | |
| 23 | .31 | .01 | .01 | . 00 | .00 | . 00 | .00 | .00 | .00 | .00 | .00 | .00 | |
| 24 | .01 | . 02 | .01 | . 00 | .00 | . 00 | .01 | .00 | .00 | .00 | .00 | . 00 | |
| 25 | .01 | . 02 | .00 | . 00 | .00 | .00 | .00 | . 00 | .00 | .00 | .00 | .00 | |
| 26 | .01 | . 02 | .00 | . 00 | .00 | . 00 | .00 | .00 | .00 | .00 | .00 | . 00 | |
| 27 | .01 | . 02 | .00 | . 00 | .00 | . 00 | .00 | . 00 | .00 | . 00 | .00 | .00 | |
| 28 | .01 | . 02 | .01 | . 00 | .00 | . 00 | .00 | .00 | .00 | . 00 | .00 | .00 | |
| 29 | .02 | .01 | .01 | . 00 | | . 00 | .00 | . 00 | .00 | . 00 | .00 | .00 | |
| 30 | .02 | . 02 | .01 | .00 | | . 00 | .01 | . 00 | .00 | .00 | , .00 | . 00 | |
| 31 | . 02 | | .02 | .00 | | . 00 | | .00 | | .00 | .00 | | |
| TOTAL | 5.11 | 0.40 | 0.35 | 0.21 | 0.01 | 0.00 | 0.07 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | |
| MRAN | . 16 | .013 | . 011 | .007 | . 000 | .000 | .002 | .007 | .000 | .000 | .000 | .000 | |
| MAX | 2.1 | . 02 | .02 | . 02 | .01 | . 00 | .03 | .01 | .00 | .00 | .00 | .00 | |
| MIN | .00 | .01 | .00 | . 00 | .00 | . 00 | .00 | . 00 | .00 | .00 | .00 | .00 | |
| ac-pt | 10 | . 8 | .7 | -4 | .02 | . 00 | .1 | .4 | .00 | . 00 | .00 | .00 | |
| Cysm | .45 | . 04 | .03 | . 02 | .00 | . 00 | .01 | . 02 | .00 | .00 | .00 | . 00 | |
| IN. | .51 | . 04 | .04 | . 02 | .00 | .00 | .01 | . 02 | .00 | . 00 | .00 | . 00 | |

CAL YR 1990 TOTAL 11.16 MEAN .031 MAX 2.1 MIN .00 AC-FT 22 CFSM .08 IN. 1.12 WTR YR 1991 TOTAL 6.36 MEAN .017 MAX 2.1 MIN .00 AC-FT 13 CFSM .05 IN. .64

ST. CROIX, U.S. VIRGIN ISLANDS

50333500 RIVER GUT NEAR GOLDEN GROVE, ST. CROIX, VI

LOCATION.--Lat 17°42'46", long 64°47'58", Hydrologic Unit 21020002, on right bank, 0.4 mi (0.6 km) from Experimental Station, 0.9 mi (1.4 km) from intersection of Highway 66 and road 64, 0.3 mi (0.5 km) from University of the U.S. Virgin Islands (UVI).

DRAINAGE AREA. -- 5.40 mi 2 (9.14 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- August 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR CURRENT YEAR. -- Peak discharges greater than base discharge of 75 ft³/s (2.12 m³/s) and maximum (*):

| | | Discharge | | Gage height | | | | Discharge | | Gage height | |
|---------|------|-----------|---------------------|-------------|--------|---------|------|------------|--------|-------------|--------|
| Date | Time | (ft³/s) | (m ³ /s) | (ft) | (m) | Date | Time | (ft^3/s) | (m³/s) | (ft) | (m) |
| Oct. 10 | 2100 | 101 | 2.86 | 45.10 | 13.746 | Oct. 16 | 1800 | 92.0 | 2.60 | 44.98 | 13.710 |
| Oct. 11 | 1900 | 265 | 7.50 | 46.65 | 14.219 | Oct. 26 | 0030 | *860 | 24.40 | *49.03 | 14.944 |
| Oct. 14 | 1000 | 335 | 9.49 | 47.08 | 14.350 | | | | | | |

No flow many days.

| | | DI SCHARGE | , CUBIC | FRET PER | | WATER YEA Y MEAN VAI | | 1990 TO | September | 1991 | | |
|--------|--------|-------------|---------|----------|------|-------------------------|------|---------|-----------|------------|------------|--------------|
| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| | • | | | | | | | | | | | |
| 1 2 | .00 | 1.1 | .11 | . 00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 .00 | . 00 . 00 |
| 3 | .00 | .95_ .59 | .11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 .00 | .00 | .00 |
| 4 | .00 | | .05 | .00 | .00 | .00 | .00 | .00 | .00 | | .00 | .00 |
| 5 | | 7.2 | .01 | .00 | .00 | . 00 | .00 | .00 | .00 | .00 | | .00 |
| 5 | .00 | 2.7 | .01 | .00 | .00 | . 00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | 1.2 | .00 | . 00 | .00 | . 00 | .00 | .00 | .00 | .00 | .00 | . 00 |
| 7 8 | .00 | . 96 | .00 | . 00 | .00 | .00 | .00 | . 00 | .00 | .00 | .00 | . 00 |
| 8 | .00 | . 81 | .00 | .00 | .00 | .00 | .00 | . 00 | .00 | .00 | .00 | . 00 |
| 9 | 12 | . 62 | .00 | .00 | .00 | .00 | .00 | . 00 | .00 | .00 | .00 | . 00 |
| 10 | 9.6 | .20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | . 00 |
| 11 | 47 | . 07 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | 33 | . 03 | .00 | . 00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | 14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | . 00 | .00 | . 00 |
| 14 | 54 | .00 | .00 | .00 | .00 | . 00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | 6.6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | . 00 |
| | | | | | | | | | | | | |
| 16 | 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | . 00 |
| 17 | 9.2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | 3.3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | . 00 |
| 19 | 1.3 | . 00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | 4.9 | 7.5 | .00 | .00 | .00 | . 00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | 11 | 1.2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | 1.4 | .20 | .00 | .00 | .00 | .00 | .00 | . 00 | .00 | .00 | .00 | . 00 |
| 23 | .50 | .03 | .00 | .00 | .00 | . 00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .63 | .01 | .00 | .00 | .00 | . 00 | .00 | . 00 | .00 | .00 | .00 | . 00 |
| 25 | 11 | .00 | .00 | . 00 | .00 | .00 | .00 | . 00 | .00 | . 00 | .00 | . 00 |
| 26 | 169 | .01 | .00 | .00 | .00 | .00 | .00 | . 00 | .00 | . 00 | .00 | . 00 |
| 27 | 8.3 | . 07 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | 2.5 | .03 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | 1.7 | .03 | .00 | .00 | | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | 1.0 | .02 | .00 | .00 | | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | 1.2 | .02 | .00 | .00 | | .00 | | .00 | | .00 | .00 | |
| | | | | | | | | | | | | |
| TOTAL | 421.13 | | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MRAN | 13.6 | | .009 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| MAX | 169 | 7.5 | .11 | .00 | .00 | . 00 | .00 | .00 | .00 | . 00 | .00 | . 00 |
| MIN | .00 | . 00 | .00 | . 00 | .00 | .00 | .00 | .00 | .00 | . 00 | .00 | . 00 |
| AC-FT | 835 | 51 | . 6 | . 00 | .00 | . 00 | .00 | .00 | .00 | . 00 | .00 | . 00 |
| CFSM | 2.52 | . 16 | .00 | . 00 | .00 | . 00 | .00 | .00 | .00 | .00 | .00 | . 00 |
| IN. | 2.90 | .18 | .00 | . 00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |

WTR YR 1991 TOTAL 446.93 MEAN 1.22 MAX 169 MIN .00 AC-FT 886 CFSM .23 IN. 3.08

ST. CROIX, U.S. VIRGIN ISLANDS

50345000 JOLLY HILL GOT AT JOLLY HILL, ST. CROIX, VI

LOCATION.--Lat 17°44'00", long 64°51'47", Hydrologic Unit 21020002, on Mahogany Road at Jolly Hill, 1.8 mi (2.9 km) northeast of Frederiksted.

DRAINAGE AREA. -- 2.10 ml 2 (5.44 km2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD. -- January 1963 to December 1968. Monthly measurements, 1962-69. October 1982 to current year.

GAGE.--Water-stage recorder, crest-stage gage and sharp-crested concrete control. Elevation of gage is 140 ft (43 m), from topographic map.

REMARKS. -- Records poor. Low-water diversions upstream from station. Gage-height and precipitation satellite telemetry at station.

AVERAGE DISCHARGE.--14 years (1964-68, 1983-91), 0.200 ft³/s (0.006 m/³s), 1.31 in/yr (33.27 mm/yr), 146 acre-ft/yr (0.180 hm³/yr); median of yearly mean discharges, 0.14 ft³/s (0.004 m³/s), 101 acre-ft/yr (0.12 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 430 ft³/s (12.18 m³/s), Nov.27, 1987, gage height, 4.14 ft (1.262 m); no flow many days each year.

EXTREMES FOR CURRENT YEAR .-- Peak discharges greater than base discharge of 25 ft3/s (0.71 m3/s) and maximum (*):

| Date | Time | Disc (ft³/s) | harge (m³/s) | Gage 1 (ft) | neight (m) | Date | Time | Disc (ft³/s) | charge (m³/s) | Gage height (ft) (m) |
|------------|---------|-----------------|-----------------|----------------|---------------|------|---------|-----------------|------------------|----------------------|
| Oct. 16 | 1515 | *208 | 5.89 | *3.24 | 0.988 | No | other p | eak greate: | than base | discharge. |
| No flow ma | ny days | • | | | | | | | | |

DISCHARGE, CUBIC FRET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES DAY OCT NOV JUL AUG SEP DEC JAN JUN FRB MAR APR MAY .20 1 .07 2.7 .81 . 32 . 11 .09 .01 .02 .01 .00 . 00 .06 .20 2.7 .78 .33 . 12 .09 .01 .01 .01 .00 - 00 2.5 .73 .09 . 33 .09 .01 .01 .00 .00 .01 . 11 4 5 .09 2.7 .72 . 33 .20 . 02 .01 .10 2.4 . 69 . 33 .09 .01 .03 . 00 .00 . 00 6 .13 2.0 . 65 . 29 .20 . 09 .01 .03 . 00 .00 . 00 . 12 .11 1.9 .62 . 29 . 18 .09 .02 .01 . 00 .00 .00 .18 . 28 .01 . 00 .00 .00 . 09 .10 . 04 . 15 . 60 .26 . 09 . 03 .01 . 00 .00 .00 .11 10 . 14 1.5 . 59 . 26 .08 . 02 .01 .00 .00 . 00 11 .16 1.5 . 55 . 26 .16 . 12 .01 .01 .00 .00 . 00 .11 12 .16 1.5 .53 .26 .08 .01 .00 .00 .00 .09 .01 13 .19 1.5 .54 . 23 . 17 . 08 .04 . 02 .01 . 00 .00 - 00 1.7 .51 . 22 .00 . 00 .20 .00 .00 . 08 .04 . 02 15 .22 1.4 .14 . 08 .04 . 02 .00 .01 .00 . 00 16 18 . 52 . 25 1.3 .14 . 07 . 05 . 02 - 00 . 02 .00 . 00 2.7 17 .28 1.3 .05 .00 .00 .00 .00 .14 . 08 . 02 18 1.2 .46 .28 . 14 .04 .00 .00 .00 . 00 . 08 . 02 19 2.0 1.2 .46 . 27 .13 . 09 .03 . 02 . 00 . 00 . 00 . 00 20 3.0 1.2 .44 .26 .13 . 07 .02 . 02 .00 .00 .00 .00 21 . 00 4.0 1.2 .44 . 27 .13 . 07 .03 .02 . 00 .00 . 00 3.0 22 1.1 .42 . 24 .13 . 08 .03 . 02 .00 - 00 .00 . 00 23 2.7 1.0 .40 . 24 .00 .00 .00 .13 .08 .03 . 02 .00 . 92 24 2.6 . 07 .03 . 02 .00 .00 25 2.4 . 93 .39 . 22 . 13 . 06 . 02 . 02 .00 . 00 .00 .00 26 5.9 . 88 .12 .02 . 02 .00 .00 .00 .00 .06 3.6 27 . 85 .37 . 24 . 07 .02 . 02 .00 .00 .00 . 00 28 . 80 .12 .37 . 25 . 07 .02 .01 .00 . 00 .00 . 00 29 3.2 .77 .36 .20 .00 . 00 .02 .01 .00 . 00 . 08 30 3.0 . 81 . 08 .01 .01 .03 .00 .00 .00 31 2.9 .34 .21 ---. 08 . 02 .00 .00 4.39 TOTAL 66.48 44.86 15.95 8.07 0.22 0.07 0.00 0.00 2.70 1.68 0.55 2.14 18 1.50 2.7 .51 MRAN .26 .16 . 056 .018 .007 .002 .000 .000 .087 .33 .11 .04 . 12 .03 . 02 .00 . 00 MIN .06 .77 .34 . 19 .00 . 00 .00 . 00 .01 .11 .06 AC-FT 132 89 32 16 8.7 3.3 .00 .00 CFSM 1.02 .71 .25 .28 . 12 . 07 . 04 .03 .01 . 00 . 00 .00 .00 .00 IN. . 14 .08 .00 .00 .00 . 05 .03 .01

CAL YR 1990 TOTAL 186.61 MEAN .51 MAX 18 MIN .00 AC-FT 370 CFSM .24 IN. 3.31 WTR YR 1991 TOTAL 144.97 MEAN .40 MAX 18 MIN .00 AC-FT 288 CFSM .19 IN. 2.57



ST. CROIX, U.S. VIRGIN ISLANDS

174225064471900. Local number, 1.
LOCATION.--Lat 17°42'25", long 64°47'19".
Owner: Virgin Islands Government.
Name: Fairplains 6 (FP6).
AQUIFER.--Alluvium and mark.

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

DATUM.--Elevation of land-surface datum is about 20 ft (6.10 m) above mean sea level, from topographic map.

Measuring point: Top of pump concrete base, 2.20 ft (0.67 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.64 ft (4.77 m) below land-surface datum, Mar. 25, 1982; lowest water level measured, a59.26 ft (18.1 m) below land-surface datum, Apr. 25, 1990.

WATER LEVEL, IN FERT BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|-------------------|-----------------|------------------|------------------|--------------------|----------------|---------------------|----------------|
| Oct. 4 Oct. 29 | a57.78 23.02 | Jan. 3 Jan. 5 | a57.07 a58.39 | Mar. 25 July 25 | 19.98 20.95 | Aug. 29 Sept. 25 | 21.15 19.80 |
| Nov. 20 | 17.20 | 44 5 | 250155 | 44-3 -5 | 20172 | | |

a Pumping.

ST. CROIX, U.S. VIRGIN ISLANDS

174225064472000. Local number, 2.

LOCATION.--Lat 17°42'25", long 64°47'20".

Owner: U.S. Government, Virgin Islands Government.

Name: USGS-10, Fairplains 2 (FP2).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

DATUM.--Elevation of land-surface datum is about 20 ft (6.10 m) above mean sea level, from topographic map.

Measuring point: Top of 0.5 in (0.01 m) hole at concrete base wall, 3.00 ft (0.91 m) above land-surface datum.

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

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.45 ft (5.93 m) below land-surface datum, Nov. 4, 1989; lowest water level recorded, 26.46 ft (8.06 m) below land-surface datum, Aug. 25, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | Jan | FKB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 25.33 | 24.08 | 22.99 | 22.70 | 22.81 | 22.83 | 22.96 | 23.55 | 23.68 | 23.69 | 24.37 | 24.54 |
| 2 | 25.87 | 23.80 | 22.97 | 22.68 | 21.99 | 22.82 | 22.96 | 23.61 | 23.69 | 23.86 | 24.31 | 24.45 |
| 3 | 25.90 | 23.54 | 22.54 | 22.77 | 22.37 | 22.77 | 23.10 | 23.44 | 23.63 | 23.77 | 24.26 | 24.43 |
| 4 | 25.92 | 23.50 | 22.80 | 22.82 | 22.36 | 22.69 | 23.04 | 23.56 | 23.51 | 23.80 | 24.40 | 24.48 |
| 5 | 26.01 | 23.57 | 22.85 | 22.82 | 22.45 | 22.84 | 23.07 | 23.56 | 23.60 | 23.83 | 24.31 | 24.48 |
| 6 | 26.04 | 23.60 | 22.86 | 22.66 | 22.57 | 22.77 | 23.03 | 23.57 | 23.60 | 23.64 | 24.32 | 24.57 |
| 7 | 25.99 | 23.62 | 22.82 | 22.65 | 22.57 | 22.72 | 23.04 | 23.59 | 23.68 | 23.73 | 24.33 | 24.54 |
| 8 | 25.95 | 23.52 | 22.76 | 22.67 | 22.64 | 22.80 | 22.98 | 23.61 | 23.67 | 23.76 | 24.36 | 24.51 |
| 9 | 25.90 | 23.53 | 22.83 | 22.76 | 22.64 | 22.77 | 22.98 | 23.53 | 23.67 | 23.93 | 24.33 | 24.46 |
| 10 | 26.05 | 23.47 | 22.77 | 22.85 | 22.67 | 22.71 | 22.98 | 23.70 | 23.58 | 24.02 | 24.33 | 24.58 |
| 11 | 26.03 | 23.39 | 22.80 | 22.86 | 22.66 | 22.72 | 23.13 | 23.68 | 23.60 | 24.01 | 24.25 | 24.57 |
| 12 | 25.86 | 23.32 | 22.90 | 22.82 | 22.68 | 22.72 | 23.19 | 23.66 | 23.58 | 24.02 | 24.26 | 24.58 |
| 13 | 25.85 | 23.30 | 22.88 | 22.79 | 22.67 | 22.79 | 23.14 | 23.67 | 23.65 | 24.09 | 24.33 | 24.58 |
| 14 | 25.70 | 23.30 | 22.87 | 22.19 | 22.75 | 22.94 | 23.10 | 23.78 | 23.79 | 23.62 | 24.38 | 24.44 |
| 15 | 25.55 | 22.82 | 22.91 | 22.30 | 22.76 | 22.84 | 23.08 | 23.73 | 23.64 | 24.00 | 24.30 | 24.51 |
| 16 | 25.36 | 22.70 | 22.83 | 22.15 | 22.89 | 22.87 | 23.19 | 23.70 | 23.63 | 24.04 | 24.34 | 24.35 |
| 17 | 25.26 | 22.80 | 22.79 | 22.36 | 22.83 | 22.88 | 23.20 | 23.65 | 23.52 | 24.12 | 24.33 | 24.45 |
| 18 | 24.91 | 23.18 | 22.87 | 22.35 | 22.81 | 22.85 | 23.17 | 23.64 | 23.51 | 24.19 | 24.32 | 24.43 |
| 19 | 25.05 | 23.15 | 22.92 | 22.37 | 22.85 | 22.81 | 23.15 | 23.56 | 23.56 | 24.20 | 24.30 | 24.37 |
| 20 | 25.04 | 22.38 | 22.94 | 22.30 | 22.98 | 22.87 | 23.18 | 23.54 | 23.60 | 24.20 | 24.47 | 24.37 |
| 21 | 25.04 | 22.90 | 22.97 | 22.26 | 22.71 | 22.95 | 23.15 | 23.64 | 23.67 | 24.22 | 24.47 | 24.33 |
| 22 | 24.91 | 22.95 | 22.88 | 22.33 | 22.69 | 22.96 | 23.13 | 23.71 | 23.77 | 24.21 | 24.45 | 24.30 |
| 23 | 24.81 | 22.87 | 22.82 | 22.56 | 22.73 | 22.91 | 23.18 | 23.69 | 23.77 | 24.23 | 24.48 | 24.27 |
| 24 | 24.74 | 22.93 | 22.78 | 22.60 | 22.72 | 22.90 | 23.19 | 23.68 | 23.49 | 24.32 | 24.48 | 24.36 |
| 25 | 24.74 | 23.00 | 22.90 | 22.57 | 22.63 | 22.86 | 23.21 | 23.65 | 23.50 | 24.31 | 24.60 | 24.18 |
| 26 | 24.40 | 23.06 | 22.89 | 22.62 | 22.72 | 22.83 | 23.32 | 23.62 | 23.47 | 24.25 | 24.60 | 24.25 |
| 27 | 24.39 | 23.01 | 22.84 | 22.62 | 22.70 | 22.94 | 23.34 | 23.59 | 23.39 | 24.35 | 24.45 | 24.23 |
| 28 | 24.32 | 22.97 | 22.84 | 22.58 | 22.69 | 22.92 | 23.38 | 23.57 | 23.45 | 24.30 | 24.32 | 24.20 |
| 29 | 24.21 | 23.05 | 22.78 | 22.65 | | 22.88 | 23.39 | 23.68 | 23.68 | 24.30 | 24.57 | 24.14 |
| 30 | 24.18 | 23.01 | 22.74 | 22.68 | | 22.97 | 23.49 | 23.68 | 23.58 | 24.39 | 24.58 | 24.10 |
| 31 | 24.09 | | 22.72 | 22.84 | | 23.02 | | 23.72 | | 24.44 | 24.59 | |
| LOW | 26.05 | 24.08 | 22.99 | 22.86 | 22.98 | 23.02 | 23.49 | 23.78 | 23.79 | 24.44 | 24.60 | 24.58 |
| HIGH | 24.09 | 22.38 | 22.54 | 22.15 | 21.99 | 22.69 | 22.96 | 23.44 | 23.39 | 23.62 | 24.25 | 24.10 |

WTR YR 1991 MEAN 23.56 LOW 26.05 HIGH 21.99



ST. CROIX, U.S. VIRGIN ISLANDS

174243064475100. Local number, 3.

LOCATION.--Lat 17°42'43", long 64°47'51".

Owner: U.S. Government, Virgin Islands Government.

Name: Golden Grove - 6 (PW6).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.20 m), cased 8 in (0.20 m).

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map.

Measuring point: Upper edge of hole at 8 in (0.20 m) casing, 4.20 ft (1.28 m) above land-surface datum.

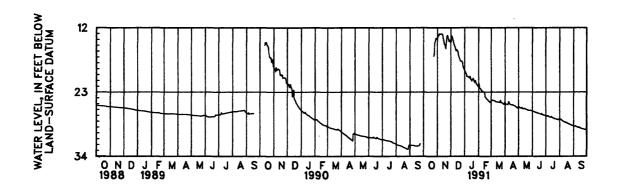
REMARKS.--Recording observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 12.99 ft (3.96 m) below land-surface datum, Nov. 10, 1990; lowest water level recorded, 32.80 ft (10.0 m) below land-surface datum, Aug. 28, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | ост | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ´ 1 | | 13.82 | 14.47 | 19.27 | 22.19 | 24.62 | 24.62 | 25.65 | 26.28 | 27.06 | 27.65 | 28.80 |
| 2 | | 13.52 | 14.04 | 19.48 | 21.53 | 24.52 | 25.03 | 25.68 | 26.30 | 27.09 | 27.65 | 28.83 |
| 3 | | 13.20 | 13.41 | 19.60 | 22.36 | 24.39 | 25.06 | 25.57 | 26.32 | 27.06 | 27.66 | 28.85 |
| 4 | | 13.31 | 13.69 | 19.80 | 22.42 | 24.37 | 25.08 | 25.67 | 26.30 | 27.11 | 27.68 | 28.86 |
| 5 | | 13.04 | 13.91 | 19.99 | 22.39 | 24.41 | 25.11 | 25.74 | 26.36 | 27.13 | 27.70 | 28.83 |
| 6 | | 13.09 | 14.21 | 20.32 | 22.52 | 24.40 | 25.11 | 25.74 | 26.36 | 27.03 | 27.87 | 28.89 |
| 7 | | 13.09 | 14.52 | 20.31 | 22.70 | 24.45 | 25.15 | 25.74 | 26.42 | 27.15 | 27.92 | 28.93 |
| 8 | | 13.09 | 14.80 | 20.33 | 22.76 | 24.45 | 25.18 | 25.79 | 26.45 | 27.21 | 27.96 | 28.96 |
| 9 | | 13.05 | 15.00 | 20.38 | 22.80 | 24.47 | 24.65 | 25.64 | 26.47 | 27.26 | 28.02 | 29.00 |
| 10 | | 13.05 | 15.20 | 20.45 | 22.90 | 24.55 | 24.65 | 25.83 | 26.49 | 27.27 | 28.05 | 29.04 |
| 11 | | 13.07 | 15.45 | 20.52 | 22.92 | 24.62 | 24.95 | 25.83 | 26.53 | 27.30 | 28.11 | 29.06 |
| 12 | | 13.12 | 15.81 | 20.56 | 22.96 | 24.65 | 25.07 | 25.83 | 26.56 | 27.32 | 28.14 | 29.08 |
| 13 | | 13.41 | 15.92 | 20.28 | 23.00 | 24.68 | 25.13 | 25.84 | 26.58 | 27.36 | 28.18 | 29.01 |
| 14 | | 13.91 | 15.73 | 20.72 | 23.08 | 24.68 | 25.16 | 25.80 | 26.59 | 27.20 | 28.21 | 29.10 |
| 15 | | 14.29 | 15.81 | 20.86 | 23.45 | 24.70 | 25.18 | 25.86 | 26.63 | 27.36 | 28.24 | 29.14 |
| 16 | | 14.61 | 15.94 | 20.81 | 23.83 | 24.70 | 25.20 | 25.89 | 26.65 | 27.42 | 28.20 | 29.17 |
| 17 | | 14.88 | 16.18 | 21.12 | 23.95 | 24.70 | 25.17 | 25.90 | 26.69 | 27.43 | 28.28 | 29.23 |
| 18 | | 14.89 | 16.69 | 20.88 | 24.05 | 24.75 | 25.21 | 25.97 | 26.73 | 27.44 | 28.32 | 29.26 |
| 19 | | 15.40 | 16.95 | 20.80 | 24.16 | 24.72 | 25.26 | 26.00 | 26.76 | 27.48 | 28.36 | 29.28 |
| 20 | | 15.57 | 17.17 | 20.65 | 24.22 | 24.75 | 25.26 | 26.02 | 26.79 | 27.54 | 28.42 | 29.30 |
| 21 | | 14.14 | 17.35 | 20.85 | 24.28 | 24.80 | 25.29 | 26.04 | 26.79 | 27.56 | 28.44 | 29.33 |
| 22 | | 13.51 | 17.53 | 21.12 | 24.38 | 24.40 | 25.37 | 26.10 | 26.66 | 27.59 | 28.46 | 29.34 |
| 23 | | 13.30 | 17.73 | 21.36 | 24.46 | 24.71 | 25.39 | 26.14 | 26.86 | 27.60 | 28.52 | 29.36 |
| 24 | 16.81 | 13.50 | 17.68 | 21.02 | 24.55 | 24.79 | 25.42 | 26.14 | 26.87 | 27.63 | 28.57 | 29.37 |
| 25 | 16.57 | 13.92 | 17.67 | 21.03 | 24.61 | 24.84 | 25.53 | 26.16 | 26.89 | 27.66 | 28.60 | 29.41 |
| 26 | 14.61 | 14.27 | 17.77 | 21.47 | 24.70 | 24.86 | 25.54 | 26.18 | 26.92 | 27.68 | 28.63 | 29.41 |
| 27 | 14.30 | 14.34 | 17.89 | 21.57 | 24.78 | 24.92 | 25.56 | 26.19 | 26.95 | 27.69 | 28.66 | 29.44 |
| 28 | 14.02 | 14.09 | 18.52 | 21.73 | 24.70 | 24.98 | 25.74 | 26.16 | 26.98 | 27.72 | 28.71 | 29.47 |
| 29 | 13.77 | 14.20 | 18.74 | 21.85 | | 25.07 | 25.71 | 26.16 | 27.00 | 27.78 | 28.72 | 29.48 |
| 30 | 13.86 | 14.45 | 18.94 | 21.97 | | 25.10 | 25.64 | 26.21 | 26.97 | 27.69 | 28.74 | 29.50 |
| 31 | 13.87 | | 19.11 | 22.06 | | 25.03 | | 26.26 | | 27.66 | 28.78 | |
| LOW | 16.81 | 15.57 | 19.11 | 22.06 | 24.78 | 25.10 | 25.74 | 26.26 | 27.00 | 27.78 | 28.78 | 29.50 |
| HIGH | 13.77 | 13.04 | 13.41 | 19.27 | 21.53 | 24.37 | 24.62 | 25.57 | 26.28 | 27.03 | 27.65 | 28.80 |



ST. CROIX, U.S. VIRGIN ISLANDS

174245064475800. Local number, 4.
LOCATION.--Lat 17°42'45°, long 64°47'58°.
Owner: Virgin Islands Government.

Name: Golden Grove - 1 (PW1). AQUIFER.--Alluvium and marl.

AQUIFER.--Alluvium and marl.
WELL CHARACTERISTICS.--Drilled production water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m),
0-104 ft (0-31.70 m), perforated 64-104 ft (19.51-31.70 m). Depth 104 ft (31.70 m).

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map.

Measuring point: Lower edge of 1 in. (0.02 m) pipe at pump base, 3.40 ft (1.04 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

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

EXTREMES FOR PERIOD OF RECORD: Highest water level measured, 19.08 ft (5.81 m) below land-surface datum, Nov. 26, 1990; lowest water level measured, a58.30 ft (17.77 m) below land-surface datum, September 27, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|---------|----------------|--------|----------------|---------|----------------|----------|----------------|
| Oct. 24 | 32.96 | Jan. 3 | 20.35 | Mar. 25 | a47.62 | Aug. 1 | a48.00 |
| Nov. 1 | 20.51 | Feb. 5 | a47.39 | May 1 | a47.82 | Aug. 29 | a47.76 |
| Nov. 26 | 19.08 | Mar. 4 | a47.90 | June 17 | a50.22 | Sept. 25 | 30.78 |

a Pumping.

ST. CROIX, U.S. VIRGIN ISLANDS

174303064484400. Local number, 6.
LOCATION.--Lat 17°43'03", long 64°48'44".
Owner: U.S. Government, Virgin Islands Government.
Name: Adventure 28.
AQUIFER.--Alluvium of Pleistocene age and marl of Oligocene age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m). Depth 97 ft (29.6 m).

(29.6 m).

DATUM.--Elevation of land-surface datum is about 80 ft (24.39 m) above mean sea level, from topographic map.

Measuring point: Upper edge of hole at 4 in (0.10 m) casing, 2.00 ft (0.61 m) above land-surface datum. Prior June 20, 1983, top of 4 in (0.10 m) casing, 0.90 ft (0.27 m) above land-surface datum.

REMARKS.--Recording observation well.

PERIOD OF RECORD.--August 1973 to March 1974, discontinued. March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.80 ft (6.95 m) below land-surface datum, Feb. 13, 1991; lowest water level recorded, 40.18 ft (12.25 m) below land-surface datum, Aug. 5, 1984.

WATER LEVEL, IN FEST BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|--------------------|----------------|-------------------|----------------|-------------------|----------------|---------------------|----------------|
| Oct. 24 | 25.71 | Jan. 16 | 23.35 | Mar. 27 | 23.82 | July 1 | 27.15 |
| Nov. 15 Dec. 13 | 23.80 23.48 | Feb. 13 Mar. 1 | 22.80 22.86 | Apr. 24 May 30 | 24.60 25.67 | Aug. 16 Sept. 10 | 31.42 32.73 |

ST. CROIX, U.S. VIRGIN ISLANDS

174525064460600. Local number, 7.
LOCATION.--Lat 17°45'25", long 64°46'06".
Owner: Virgin Islands Government.

Name: Concordia 14.
AQUIFER. -- Sand and gravel.

WELL CHARACTERISTICS. -- Drilled production water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

Depth 85 ft (25.91 m).

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map.

Maasuring point: Top of 0.50 in (0.01 m) pipe on top of pump concrete base, 2.30 ft (0.70 m) above land-surface datum.

REMARKS .-- Observation well. Water levels affected by pumpage.

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

EXTREMES FOR PERIOD OF RECORD. --Highest water level measured, 10.07 ft (3.07 m) below land-surface datum, Mar. 4, 1989; lowest water level measured, a48.20 ft (a14.7 m) below land-surface datum, Aug. 24, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|-------------------|-----------------|------------------|------------------|-------------------|------------------|-------|----------------|
| Oct. 5 Oct. 30 | a43.63 13.41 | Jan. 3 Jan. 5 | a34.47 a25.98 | Mar. 4 Mar. 26 | a39.69 a43.43 | Мау 2 | a4 5.30 |

174527064460100. Local number, 8.
LOCATION.--Lat 17°45'27", long 64°46'01".
Owner: Virgin Islands Government.

Name: Concordia 1 (Main pump house). AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS. -- Drilled production water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

Depth 82 ft (25.0 m).

Datum.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map.

Maasuring point: Top of 6 in (0.15 m) casing, 2.20 ft (0.67 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumpage.

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

EXTREMES FOR PERIOD OF RECORD. -- Highest water level measured, 14.03 ft (4.28 m) below land-surface datum, Jan. 19, 1988; lowest water level measured, a48.29 ft (a14.7 m) below land-surface datum, Aug. 29, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|-----------------------------|----------------------------|------------------|------------------|------------------|------------------|--------------------|------------------|
| Oct. 5 Oct. 30 Jan. 3 | a48.21 a20.85 a24.22 | Feb. 5 Mar. 4 | a24.12 a29.45 | Mar. 26 May 2 | a35.98 a44.46 | June 24 Aug. 28 | a46.50 a46.77 |

a Pumping.

ST. CROIX, U.S. VIRGIN ISLANDS

174532064460300. Local number, 9. LOCATION.--Lat 17°45'32°, long 64°46'03°. Owner: Virgin Islands Government.

Name: Concordia 7.
AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS. -- Drilled production water-table well, diameter 6 in (0.15 m), cased 0-81 ft (0-24.7 m).

Depth 81 ft (24.7 m).

Depth 81 ft (24.7 m).

DATUM.--Elevation of land-surface datum is 35 ft (10.7 m) above mean sea level, from topographic map.

Measuring point: Hole in pump base, 2.20 ft (0.67 m) above land-surface datum. Previous to Mar. 25, 1982, hole in pump base 2.50 ft (0.76 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

PERIOD OF RECORD.--June 1962 to October 1968, discontinued. March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.75 ft (0.53 m) below land-surface datum, May 11, 1966; lowest water level measured, 57.40 ft (17.5 m) below land-surface datum, Mar. 5, 1964.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|-------------------|------------------|------------------|------------------|-------------------|------------------|---------|----------------|
| Oct. 5 Oct. 30 | a36.29 a12.90 | Jan. 3 Feb. 5 | a20.90 a20.00 | Mar. 4 June 24 | a20.18 a48.20 | Aug. 28 | a45.95 |

174329064454700. Local number, 10.
LOCATION.--Lat 17°43'29", long 64°45'47".
Owner: Virgin Islands Government.

Owner: Virgin Islands Government.

Name: Barren Spot 5 (PWD-5).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled production water-table well, diameter 6 in (0.15 m), cased 0-130 ft (0-39.63 m), perforated 71-130 ft (21.64-39.63 m). Depth 130 ft (33.63 m).

DATUM.--Elevation of land-surface datum is about 75 ft (22.86 m) above mean sea level, from topographic map.

Measuring point: Hole on top of pump base, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

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

EXTREMES FOR PERIOD OF RECORD. -- Highest water level measured, 61.86 ft (18.86 m) below land-surface datum, Mar. 26, 1982; lowest water level measured, a79.81 ft (a24.33 m) below land-surface datum, June 25, 1990.

WATER LEVEL, IN FRET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|---------|----------------|---------|----------------|---------|----------------|----------|----------------|
| Oct. 4 | a79.00 | Dec. 27 | a77.25 | Mar. 25 | a76.67 | July 24 | a77.94 |
| Oct. 30 | a76.80 | Jan. 6 | a77.13 | May 2 | a77.02 | Aug. 27 | a78.23 |
| Nov. 19 | a77.02 | Mar. 5 | 67.98 | June 20 | a77.74 | Sept. 23 | a76.72 |

a Pumping.

ST. CROIX, U.S. VIRGIN ISLANDS

174303064481100. Local number, 11.
LOCATION.--Lat 17°43'03", long 64°18'11".
Owner: U.S. Virgin Islands Water and Power Authority
Name: WAPA-02 at Adventure well field.
AQUIFER.--Alluvium and Kingshill Limestone.

AQUIFER.--Alluvium and Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-60 ft (0-18.3 m), screened 20-40 ft (6.09-12.2 m). Depth 100 ft (30.5 m).

DATUM.--Elevation of land-surface datum is about 50 ft (15.2 m) above mean sea level, from topographic map. Measuring point: Top of shelter floor, 2.00 ft (0.61 m) above land-surface datum.

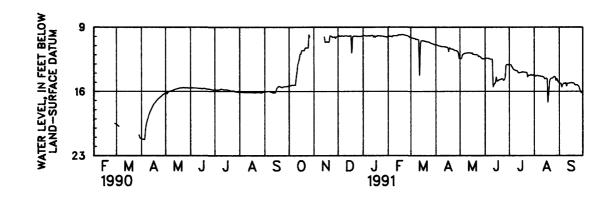
REMARKS.--Recording observation well.

PERIOD OF RECORD.--February 27, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.75 ft (2.97 m) below land-surface datum, Oct. 26, 27, 1990; lowest water level recorded, 21.31 ft (6.49 m) below land-surface datum, Apr. 3, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 15.34 | | 10.03/ | 9.91 | 10.03 | 10.15 | 10.91 | 12.42 | 12.38 | 13.07 | 14.16 | 15.06 |
| 2 | 15.34 | | 9.92 | 9.90 | 9.98 | 10.17 | 10.92 | 12.41 | 12.38 | 13.07 | 14.29 | 15.10 |
| 3 | 15.36 | | 9.96 | 9.91 | 9.97 | 10.16 | 10.97 | 12.37 | 12.38 | 13.08 | 14.32 | 15.15 |
| 4 | 15.32 | | 9.99 | 9.93 | 9.99 | 10.21 | 11.02 | 12.03 | 12.38 | 13.26 | 14.25 | 15.52 |
| 5 | 15.29 | | 9.95 | 9.96 | 10.01 | 10.23 | 11.04 | 11.93 | 12.39 | 13.40 | 14.25 | 15.29 |
| 6 | 15.31 | | 9.94 | 9.94 | 10.04 | 10.21 | 11.04 | 11.88 | 12.44 | 13.54 | 14.29 | 15.15 |
| 7 | 15.30 | | 9.96 | 9.92 | 9.94 | 10.32 | 11.08 | 11.84 | 12.47 | 13.63 | 14.30 | 15.10 |
| 8 | 15.29 | | 9.96 | 9.93 | 9.92 | 10.30 | 11.13 | 11.81 | 12.48 | 13.67 | 14.30 | 15.14 |
| 9 | 15.30 | | 9.95 | 9.95 | 9.92 | 10.32 | 11.11 | 11.78 | 12.49 | 13.71 | 14.33 | 15.06 |
| 10 | 14.50 | | 9.92 | 9.93 | 9.92 | 10.33 | 11.11 | 11.80 | 12.52 | 13.74 | 14.36 | 15.40 |
| 11 | 13.90 | | 9.93 | 9.90 | 9.94 | 10.37 | 11.13 | 11.77 | 15.52 | 13.76 | 14.38 | 15.11 |
| 12 | 13.09 | | 9.94 | 9.89 | 9.93 | 14.24 | 11.13 | 11.77 | 15.29 | 13.92 | 14.40 | 15.11 |
| 13 | 12.80 | | 9.95 | 9.90 | 9.90 | 10.78 | 11.16 | 11.77 | 15.12 | 13.96 | 14.43 | 15.11 |
| 14 | 12.48 | 10.07 | 9.98 | 10.08 | 9.83 | 10.47 | 11.17 | 11.80 | 15.02 | 13.93 | 14.61 | 15.06 |
| 15 | 11.91 | 10.66 | 9.96 | 9.94 | 9.84 | 10.45 | 11.20 | 11.84 | 14.42 | 13.92 | 14.60 | 15.06 |
| 16 | 11.91 | 10.62 | 9.94 | 10.10 | 9.84 | 10.47 | 11.23 | 11.80 | 14.92 | 13.90 | 14.55 | 15.03 |
| 17 | 11.53 | 10.58 | 9.92 | 9.96 | 9.83 | 10.49 | 11.66 | 11.95 | 14.83 | 13.88 | 14.64 | 15.06 |
| 18 | 11.53 | 10.61 | 11.81 | 9.98 | 9.81 | 10.53 | 11.24 | 11.94 | 14.76 | 13.85 | 17.22 | 15.08 |
| 19 | 11.53 | 10.62 | 10.03 | 9.93 | 9.81 | 10.52 | 11.32 | 11.98 | 14.72 | 13.88 | 16.01 | 15.11 |
| 20 | 11.53 | 10.57 | 9.99 | 9.91 | 9.83 | 10.57 | 11.35 | 11.98 | 14.68 | 13.90 | 14.82 | 15.23 |
| 21 | 11.31 | 9.92 | 9.97 | 9.93 | 9.84 | 10.58 | 11.38 | 11.98 | 14.64 | 13.90 | 14.65 | 15.30 |
| 22 | 11.24 | 9.95 | 9.96 | 9.94 | 9.85 | 10.60 | 11.38 | 12.01 | 14.63 | 13.92 | 14.54 | 15.27 |
| 23 | 11.24 | 10.01 | 9.96 | 9.97 | 9.90 | 10.60 | 11.43 | 12.03 | 14.61 | 13.95 | 14.54 | 15.28 |
| 24 | 11.23 | 10.09 | 9.98 | 9.97 | 9.93 | 10.65 | 11.51 | 12.19 | 14.79 | 14.45 | 14.52 | 15.36 |
| 25 | 11.23 | 10.09 | 9.99 | 9.96 | 9.92 | 10.69 | 11.53 | 12.15 | 14.72 | 14.20 | 14.41 | 15.44 |
| 26 | 9.79 | 10.09 | 9.99 | 9.99 | 9.97 | 10.76 | 11.55 | 12.23 | 14.41 | 14.24 | 14.38 | 15.68 |
| 27 | 10.07 | 10.06 | 9.99 | 10.01 | 10.04 | 10.79 | 11.57 | 12.32 | 13.11 | 14.23 | 14.43 | 15.99 |
| 28 | | 10.20 | 10.00 | 10.03 | 10.11 | 10.81 | 11.62 | 12.39 | 13.07 | 14.15 | 14.80 | 16.11 |
| 29 | | 10.06 | 9.99 | 10.04 | | 10.85 | 11.75 | 12.45 | 13.06 | 14.21 | 14.58 | 16.14 |
| 30 | | 10.03 | 9.96 | 10.06 | | 10.88 | 12.38 | 12.44 | 13.07 | 14.22 | 14.85 | 15.90 |
| 31 | | | 9.95 | 10.10 | | 10.90 | | 12.41 | | 14.17 | 14.98 | |
| LOW | 15.36 | 10.66 | 11.81 | 10.10 | 10.11 | 14.24 | 12.38 | 12.45 | 15.52 | 14.45 | 17.22 | 16.14 |
| HIGH | 9.79 | 9.92 | 9.92 | 9.89 | 9.81 | 10.15 | 10.91 | 11.77 | 12.38 | 13.07 | 14.16 | 15.03 |



ST. CROIX, U.S. VIRGIN ISLANDS

174308064482800. Local number, 12.
LOCATION.--Lat 17°43'08", long 64°48'28".
Owner: U.S. Virgin Islands Water and Power Authority.
Name: WAPA-03 at Adventure well field.
AQUIFER.--Kingshill Limestone.

AQUIFER.--Ringshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-110 ft (0-33.5 m), screened 50-90 ft (15.2-27.4 m). Depth 110 ft (33.5 m).

DATUM.--Elevation of land-surface datum is about 60 ft (18.3 m) above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well.

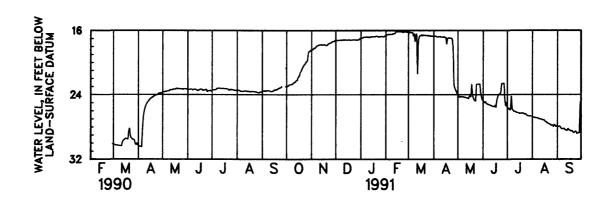
PERIOD OF RECORD.--February 28, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 16.13 ft (4.92 m) below land-surface datum, Feb. 25, 1991; lowest water level recorded, 30.46 ft (9.28 m) below land-surface datum, Apr. 5, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | ост | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 23.00 | 18.39 | 17.23 | 16.95 | 16.64 | 16.23 | 16.73 | 24.06 | 24.76 | 25.67 | 26.73 | 27.95 |
| 2 | 22.97 | 18.37 | 17.22 | 16.96 | 16.55 | 16.29 | 16.69 | 24.17 | 24.88 | 25.80 | 26.79 | 27.92 |
| 3 | 22.90 | 18.34 | 17.22 | 16.93 | 16.52 | 16.24 | 16.69 | 24.30 | 24.98 | 25.65 | 26.80 | 27.92 |
| 4 | 22.80 | 18.20 | 17.22 | 16.85 | 16.48 | 16.27 | 16.75 | 24.26 | 24.88 | 25.80 | 26.84 | 27.93 |
| 5 | 22.76 | 18.20 | 17.22 | 16.82 | 16.52 | 16.28 | 16.80 | 24.25 | 25.04 | 25.87 | 26.85 | 28.07 |
| 6 | 22.73 | 18.12 | 17.20 | 16.84 | 16.48 | 16.28 | 16.80 | 24.27 | 25.15 | 24.18 | 26.86 | 28.21 |
| 7 | 22.73 | 17.97 | 17.20 | 16.82 | 16.47 | 16.67 | 16.77 | 24.24 | 25.18 | 25.81 | 26.88 | 28.21 |
| 8 | 22.69 | 17.88 | 17.20 | 16.80 | 16.51 | 16.42 | 16.76 | 24.29 | 25.22 | 25.94 | 26.92 | 28.21 |
| 9 | 22.57 | 17.85 | 17.19 | 16.83 | 16.47 | 17.36 | 16.78 | 24.31 | 25.26 | 26.05 | 26.98 | 28.19 |
| 10 | 22.51 | 17.82 | 17.16 | 16.81 | 16.40 | 16.55 | 16.82 | 24.34 | 25.31 | 26.09 | 26.99 | 28.27 |
| 11 | 22.42 | 17.77 | 17.18 | 16.86 | 16.40 | 16.43 | 16.82 | 24.36 | 25.34 | 26.10 | 27.02 | 28.37 |
| 12 | 22.37 | 17.76 | 17.17 | 16.83 | 16.37 | 21.42 | 16.82 | 24.40 | 25.40 | 26.18 | 27.06 | 28.41 |
| 13 | 22.23 | 17.76 | 17.16 | 16.78 | 16.20 | 17.34 | 16.85 | 24.43 | 25.45 | 26.24 | 27.08 | 28.41 |
| 14 | 22.20 | 17.78 | 17.18 | 16.79 | 16.15 | 16.83 | 16.80 | 24.48 | 25.46 | 26.24 | 27.12 | 28.19 |
| 15 | 21.87 | 17.81 | 17.20 | 16.77 | 16.15 | 16.66 | 16.87 | 24.22 | 25.48 | 26.25 | 27.11 | 28.36 |
| 16 | 21.76 | 17.78 | 17.17 | 16.76 | 16.14 | 16.62 | 16.89 | 24.13 | 25.34 | 26.33 | 27.22 | 28.38 |
| 17 | 21.54 | 17.75 | 17.16 | 16.78 | 16.17 | 16.55 | 17.71 | 24.24 | 25.52 | 26.31 | 27.33 | 28.49 |
| 18 | 21.19 | 17.81 | 17.18 | 16.77 | 16.14 | 16.67 | 16.99 | 22.70 | 24.75 | 26.29 | 27.34 | 28.48 |
| 19 | 21.05 | 17.86 | 17.19 | 16.75 | 16.14 | 16.57 | 16.93 | 23.84 | 24.30 | 26.29 | 27.45 | 28.46 |
| 20 | 20.81 | 17.85 | 17.19 | 16.71 | 16.16 | 16.59 | 16.93 | 24.39 | 24.07 | 26.31 | 27.54 | 28.64 |
| 21 | 20.60 | 17.73 | 17.18 | 16.73 | 16.19 | 16.59 | 16.96 | 24.59 | 23.91 | 26.31 | 27.58 | 28.70 |
| 22 | 20.42 | 17.65 | 17.16 | 16.75 | 16.25 | 16.65 | 16.95 | 24.71 | 23.90 | 26.41 | 27.61 | 28.62 |
| 23 | 20.27 | 17.59 | 17.16 | 16.82 | 16.18 | 16.62 | 16.98 | 24.78 | 23.71 | 26.38 | 27.68 | 28.54 |
| 24 | 20.15 | 17.55 | 17.16 | 16.79 | 16.15 | 16.59 | 17.08 | 22.69 | 22.60 | 26.40 | 27.78 | 28.57 |
| 25 | 20.01 | 17.51 | 17.17 | 16.75 | 16.15 | 16.68 | 18.14 | 22.69 | 22.60 | 26.53 | 27.78 | 28.79 |
| 26 | 19.86 | 17.43 | 17.18 | 16.76 | 16.19 | 16.65 | 22.67 | 22.69 | 22.60 | 26.61 | 27.80 | 28.75 |
| 27 | 19.76 | 17.39 | 17.18 | 16.74 | 16.20 | 16.64 | 23.16 | 22.68 | 22.59 | 26.63 | 27.93 | 28.71 |
| 28 | 18.74 | 17.35 | 17.17 | 16.77 | 16.21 | 16.73 | 23.39 | 22.68 | 24.68 | 26.64 | 27.69 | 28.66 |
| 29 | 18.61 | 17.34 | 17.15 | 16.80 | | 16.68 | 23.55 | 23.78 | 25.37 | 26.65 | 27.80 | 24.88 |
| 30 | 18.57 | 17.23 | 17.09 | 16.74 | | 16.73 | 23.88 | 24.33 | 24.92 | 26.65 | 27.92 | 27.73 |
| 31 | 18.47 | | 16.99 | 16.70 | | 16.71 | | 24.62 | | 26.68 | 27.91 | |
| LOW | 23.00 | 18.39 | 17.23 | 16.96 | 16.64 | 21.42 | 23.88 | 24.78 | 25.52 | 26.68 | 27.93 | 28.79 |
| HIGH | 18.47 | 17.23 | 16.99 | 16.70 | 16.14 | 16.23 | 16.69 | 22.68 | 22.59 | 24.18 | 26.73 | 24.88 |

WTR YR 1991 MEAN 21.24 LOW 28.79 HIGH 16.14



ST. CROIX, U.S. VIRGIN ISLANDS

174316064480800. Local number, 13.
LOCATION.--Lat 17043'16", long 64°48'08".
Owner: U.S. Virgins Islands Water and Power Authority.
Name: WAPA-17 at Adventure well field.
AQUIFER.--Kingshill Limestone.

AQUIFER.--Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-95 ft (0-29.0 m), screened 10-40 ft (3.05-12.2 m). Depth 95 ft (29.0 m).

DATUM.--Elevation of land-surface datum is about 75 ft (22.9 m) above mean sea level, from topographic map. Measuring point: Top of shelter floor, 2.33 ft (0.71 m) above land-surface datum.

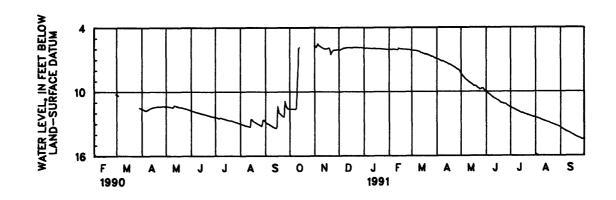
REMARKS.--Recording observation well.

PERIOD OF RECORD.--February 28, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.68 ft (1.43 m) below land-surface datum, Oct. 14 1990; lowest water level recorded, 14.49 ft (4.42 m) below land-surface datum, Sept. 28-29, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| Tibe international population and the contraction of the contraction o | | | | | | | | | | | | |
|--|-------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| DAY | oct | NOA | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 11.60 | 5.70 | 6.10 | 5.92 | 6.05 | 6.13 | 6.91 | 8.29 | 10.02 | 11.47 | 12.43 | 13.37 |
| 2 | 11.62 | 5.77 | 6.10 | 5.93 | 6.04 | 6.13 | 6.94 | 8.41 | 10.09 | 11.51 | 12.46 | 13.44 |
| 3 | 11.62 | 5.83 | 6.06 | 5.93 | 6.04 | 6.13 | 6.98 | 8.51 | 10.16 | 11.55 | 12.48 | 13.48 |
| 4 | 11.62 | 5.69 | 6.02 | 5.91 | 6.06 | 6.16 | 7.03 | 8.61 | 10.22 | 11.58 | 12.51 | 13.52 |
| 5 | 11.62 | 5.51 | 6.01 | 5.92 | 6.06 | 6.15 | 7.07 | 8.69 | 10.27 | 11.62 | 12.53 | 13.57 |
| 6 | 11.62 | 5.67 | 5.98 | 5.93 | 6.02 | 6.15 | 7.11 | 8.78 | 10.33 | 11.66 | 12.57 | 13.61 |
| 7 | 11.63 | 5.71 | 5.94 | 5.94 | 6.02 | 6.18 | 7.16 | 8.85 | 10.40 | 11.69 | 12.59 | 13.67 |
| 8 | 11.63 | 5.77 | 5.92 | 5.93 | 6.04 | 6.19 | 7.12 | 8.91 | 10.46 | 11.73 | 12.64 | 13.72 |
| ğ | 11.55 | 5.81 | 5.91 | 5.95 | 6.04 | 6.21 | 7.14 | 8.96 | 10.52 | 11.78 | 12.67 | 13.77 |
| 10 | 9.78 | 5.86 | 5.90 | 5.95 | 6.06 | 6.23 | 7.20 | 9.05 | 10.58 | 11.81 | 12.69 | 13.79 |
| 11 | 8.22 | 5.90 | 5.88 | 5.96 | 6.07 | 6.27 | 7.25 | 9.11 | 10.64 | 11.85 | 12.72 | 13.82 |
| 12 | 5.90 | 5.95 | 5.87 | 5.95 | 6.07 | 6.34 | 7.28 | 9.16 | 10.67 | 11.89 | 12.75 | 13.86 |
| 13 | 5.86 | 5.98 | 5.88 | 5.95 | 5.93 | 6.36 | 7.32 | 9.21 | 10.70 | 11.93 | 12.78 | 13.90 |
| 14 | | 6.00 | 5.87 | 5.97 | 5.96 | 6.38 | 7.34 | 9.28 | 10.76 | 11.97 | 12.80 | 13.96 |
| 15 | | 5.97 | 5.87 | 5.96 | 5.99 | 6.42 | 7.40 | 9.33 | 10.80 | 12.01 | 12.83 | 14.00 |
| 16 | | 5.96 | 5.89 | 5.98 | 6.01 | 6.44 | 7.44 | 9.40 | 10.84 | 11.98 | 12.86 | 14.04 |
| 17 | | 5.95 | 5.89 | 5.98 | 6.01 | 6.47 | 7.45 | 9.47 | 10.90 | 12.03 | 12.87 | 14.08 |
| 18 | | 5.92 | 5.88 | 5.98 | 6.01 | 6.50 | 7.48 | 9.45 | 10.96 | 12.06 | 12.90 | 14.13 |
| 19 | | 5.92 | 5.85 | 5.98 | 6.02 | 6.47 | 7.53 | 9.47 | 11.05 | 12.09 | 12.95 | 14.17 |
| 20 | | 6.15 | 5.85 | 5.98 | 6.03 | 6.50 | 7.58 | 9.51 | 11.07 | 12.12 | 12.99 | 14.22 |
| 21 | | 6.51 | 5.85 | 5.99 | 6.03 | 6.54 | 7.63 | 9.58 | 11.09 | 12.14 | 13.02 | 14.25 |
| 22 | | 6.34 | 5.86 | 5.99 | 6.05 | 6.57 | 7.66 | 9.66 | 11.13 | 12.17 | 13.05 | 14.28 |
| 23 | | 6.20 | 5.86 | 6.01 | 6.06 | 6.59 | 7.72 | 9.71 | 11.16 | 12.19 | 13.07 | 14.31 |
| 24 | | 6.13 | 5.85 | 6.01 | 6.07 | 6.64 | 7.76 | 9.78 | 11.15 | 12.21 | 13.10 | 14.34 |
| 25 | | 6.09 | 5.86 | 6.02 | 6.07 | 6.67 | 7.83 | 9.77 | 11.17 | 12.25 | 13.13 | 14.37 |
| 26 | | 6.08 | 5.87 | 6.02 | 6.08 | 6.70 | 7.88 | 9.73 | 11.25 | 12.27 | 13.16 | 14.42 |
| 27 | | 6.10 | 5.87 | 6.03 | 6.09 | 6.71 | 7.92 | 9.70 | 11.30 | 12.30 | 13.19 | 14.45 |
| 28 | | 6.08 | 5.86 | 6.04 | 6.12 | 6.76 | 7.96 | 9.69 | 11.35 | 12.33 | 13.22 | 14.48 |
| 29 | | 6.05 | 5.88 | 6.05 | | 6.81 | 8.01 | 9.78 | 11.39 | 12.35 | 13.24 | 14.45 |
| 30 | | 6.07 | 5.88 | 6.05 | | 6.85 | 8.17 | 9.88 | 11.44 | 12.38 | 13.27 | 14.36 |
| 31 | | | 5.91 | 6.06 | | 6.88 | | 9.95 | | 12.40 | 13.32 | |
| LOW | 11.63 | 6.51 | 6.10 | 6.06 | 6.12 | 6.88 | 8.17 | 9.95 | 11.44 | 12.40 | 13.32 | 14.48 |
| HIGH | 5.86 | 5.51 | 5.85 | 5.91 | 5.93 | 6.13 | 6.91 | 8.29 | 10.02 | 11.47 | 12.43 | 13.37 |
| | | | | | | | | | | | | |



ST. CROIX, U.S. VIRGIN ISLANDS

174247064475701. Local number, 14.

LOCATION.--Lat 17°42'47*, long 64°47'57*.

Owner: U.S. Virgins Islands Water and Power Authority.

Name: WAPA-21a at Golden Grove well field.

AQUIFER.--Alluvial, Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-70 ft (0-21.3 m), screened 15-70 ft (4.57-21.3 m). Depth 100 ft (30.5 m), well collapsed to 70 ft (21.3 m).

DATUM.--Elevation of land-surface datum is about 52 ft (15.8 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.25 ft (0.99 m) above land-surface datum.

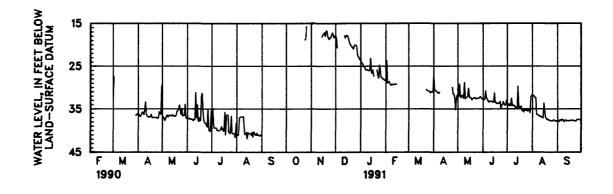
REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

PERIOD OF RECORD.--February 28, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Righest water level measured, 14.19 ft (4.32 m) below land-surface datum, Nov. 3, 1990, lowest water level recorded, 41.61 ft (12.7 m) below land-surface datum, Aug. 21, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | ост | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | | | 17.84 | 23.73 | 28.38 | | 26.89 | 32.01 | 32.73 | 34.27 | 31.90 | 37.88 |
| 2 | | 15.18 | 18.51 | 24.21 | 23.62 | | 30.57 | 31.98 | 32.87 | 34.21 | 31.84 | 37.77 |
| 3 | | 14.19 | 20.70 | 24.33 | 29.03 | | 30.69 | 29.12 | 32.81 | 33.80 | 31.98 | 37.87 |
| 4 | | | | 24.78 | 28.69 | | 30.85 | 32.12 | 30.75 | 34.25 | 32.29 | 37.47 |
| 5 | | | | 25.13 | 28.57 | | 30.99 | 32.39 | 32.48 | 34.12 | 32.34 | 37.46 |
| 6 | | | | 25.28 | 29.02 | | 31.24 | 31.79 | 32.60 | 32.49 | 36.30 | 37.75 |
| 7 | | | | 25.90 | 29.46 | | 31.33 | 31.88 | 33.22 | 34.27 | 36.29 | 37.36 |
| 8 | | | | 25.78 | 29.22 | | 31.12 | 32.50 | 33.41 | 34.25 | 36.43 | 37.50 |
| 9 | | | | 25.86 | 29.25 | | | 28.76 | 33.17 | 34.13 | 36.63 | 37.95 |
| 10 | | | | 26.06 | 29.40 | | | 32.68 | 33.27 | 34.39 | 36.65 | 37.75 |
| 11 | | ~ | | 25.96 | 29.22 | | | 32.36 | 33.18 | 34.64 | 36.76 | 37.53 |
| 12 | | ~ | 17.93 | 26.02 | 29.15 | | | 32.22 | 33.24 | 34.64 | 36.90 | 37.74 |
| 13 | | | 18.48 | 23.09 | 29.21 | | | 32.11 | 33.44 | 34.85 | 36.99 | 37.72 |
| 14 | | 18.15 | 17.74 | 26.41 | 29.25 | | | 30.11 | 33.37 | 29.62 | 37.13 | 37.72 |
| 15 | | 17.74 | 17.82 | 26.74 | | | | 32.11 | 31.20 | 34.68 | 33.58 | 37.72 |
| 16 | | 17.45 | 17.92 | 25.81 | | | | 32.41 | 33.60 | 34.35 | 35.35 | 37.63 |
| 17 | | 17.17 | 18.68 | 27.30 | | | | 32.35 | 33.44 | 34.68 | 36.97 | 37.67 |
| 18 | | 17.94 | 19.51 | | | | | 32.91 | 33.73 | 34.36 | 37.19 | 37.67 |
| 19 | | 16.82 | 19.84 | | | | | 32.54 | 33.66 | 35.35 | 37.40 | 37.60 |
| 20 | | 16.77 | 20.22 | | | | | 32.45 | 33.73 | 35.37 | 37.38 | 37.65 |
| 21 | | 18.04 | 20.51 | 25.88 | | | | 32.30 | 33.63 | 35.67 | 37.59 | 37.65 |
| 22 | | 18.36 | 20.71 | 27.35 | | | | 32.40 | 33.23 | 35.14 | 37.60 | 37.74 |
| 23 | | 18.72 | 21.00 | 27.89 | | 30.53 | | 32.65 | 34.84 | 35.35 | 37.71 | 37.80 |
| 24 | 18.74 | 18.35 | 20.12 | 24.69 | | 30.73 | 29.97 | 32.49 | 34.12 | 35.22 | 37.72 | 37.76 |
| 25 | 18.52 | 18.23 | 19.97 | 25.98 | | 30.83 | 31.48 | 32.52 | 33.91 | 35.38 | 37.76 | 37.40 |
| 26 | 15.79 | 17.82 | 20.10 | 27.68 | | 30.87 | 31.63 | 32.56 | 33.27 | 35.47 | 37.74 | 37.40 |
| 27 | | 17.19 | 20.28 | 27.73 | | 31.04 | 32.57 | 32.46 | 33.85 | 35.27 | 37.54 | 37.40 |
| 28 | | 17.72 | 22.48 | 27.93 | | 31.22 | 35.25 | 32.21 | 34.12 | 35.29 | 37.53 | 37.50 |
| 29 | | 18.38 | 22.74 | 28.03 | | 30.90 | 32.49 | 32.14 | 33.90 | 35.89 | 37.75 | 37.52 |
| 30 | | 17.97 | 23.12 | 28.26 | | 30.95 | 31.67 | 32.47 | 32.92 | 32.06 | 37.80 | 37.55 |
| 31 | | | 23.47 | 28.32 | | 31.07 | | 32.69 | | 31.83 | 37.72 | |
| LOW | 18.74 | 18.72 | 23.47 | 28.32 | 29.46 | 31.22 | 35.25 | 32.91 | 34.84 | 35.89 | 37.80 | 37.95 |
| HIGH | 15.79 | 14.19 | 17.74 | 23.09 | 23.62 | 30.53 | 26.89 | 28.76 | 30.75 | 29.62 | 31.84 | 37.36 |



ST. CROIX, U.S. VIRGIN ISLANDS

174319064454401. Local number, 15.
LOCATION.--Lat 17°43'19", long 64°45'44".

Owner: U.S. Virgins Islands Water and Power Authority.

Name: WAPA-23a at Barren Spot well field.

AQUIFER.--Post Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-110 ft (0-33.5 m), screened 70-110 ft (21.3-33.5 m). Depth 110 ft (33.5 m).

DATUM.--Elevation of land-surface datum is about 65 ft (19.8 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.50 ft (1.07 m) above land-surface datum.

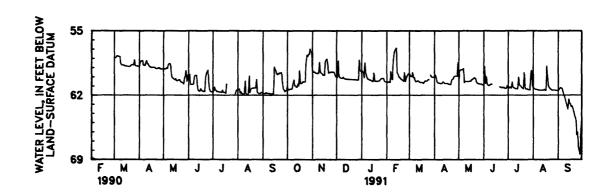
REMARKS.--Recording observation well.

PERIOD OF RECORD.--February 28, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 56.84 ft (17.3 m) below land-surface datum, Feb. 13, 1991; lowest water level recorded, 69.68 ft (21.3 m) below land-surface datum, Sept. 29, 1991.

WATER LEVEL, IN FEST BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOA | DEC | Jan | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 60.95 | 59.24 | 60.02 | 59.38 | 60.58 | 59.62 | 59.90 | 60.43 | 60.87 | 61.20 | 61.16 | 61.50 |
| 2 | 61.37 | 59.39 | 60.04 | 59.35 | 60.58 | 59.83 | 59.78 | 59.35 | 58.86 | 61.22 | 61.26 | 61.37 |
| 3 | 61.40 | 59.47 | 58.24 | 59.52 | 60.52 | 59.92 | 60.10 | 59.21 | 60.74 | 61.09 | 61.30 | 61.24 |
| 4 | 61.34 | 59.47 | 60.00 | 60.10 | 60.57 | 59.94 | 60.52 | 59.21 | 59.98 | 61.18 | 61.35 | 61.18 |
| 5 | 61.31 | 59.56 | 60.09 | 58.46 | 60.58 | 59.51 | 60.63 | 59.19 | 60.77 | 61.21 | 61.36 | 61.22 |
| 6 | 61.29 | 59.60 | 60.13 | 59.54 | 59.37 | 60.10 | 60.65 | 59.17 | 60.89 | 60.53 | 61.38 | 61.28 |
| 7 | 61.27 | 59.64 | 60.15 | 59.97 | 60.25 | 60.06 | 60.68 | 59.11 | 60.94 | 61.10 | 61.40 | 61.63 |
| 8 | 60.66 | 59.60 | 60.16 | 60.16 | 60.29 | 60.36 | 60.70 | 60.68 | 60.91 | 61.17 | 61.43 | 61.93 |
| 9 | 60.33 | 59.61 | 60.01 | 60.24 | 58.20 | 60.50 | 60.71 | 60.45 | 60.84 | 61.22 | 61.44 | 62.24 |
| 10 | 60.98 | 58.40 | 60.16 | 60.29 | 57.44 | 60.47 | 60.73 | 60.50 | 60.79 | 61.25 | 61.45 | 62.58 |
| 11 | 60.98 | 59.50 | 60.20 | 60.31 | 57.17 | 60.43 | 60.55 | 60.50 | 60.80 | 61.28 | 61.45 | 62.89 |
| 12 | 61.11 | 59.58 | 60.23 | 60.35 | 56.98 | 60.42 | 60.56 | 60.50 | | 61.29 | 61.44 | 63.20 |
| 13 | 61.12 | 59.65 | 60.23 | 60.40 | 56.85 | 60.52 | 60.71 | 60.50 | | 61.30 | 61.43 | 63.51 |
| 14 | 60.77 | 59.79 | 60.23 | 60.45 | 59.53 | 60.57 | 60.72 | 60.48 | | 60.00 | 61.43 | 62.41 |
| 15 | 60.97 | 59.81 | 60.25 | 60.48 | 59.68 | 60.59 | 60.72 | 60.47 | | 60.87 | 61.34 | 62.92 |
| 16 | 59.29 | 59.80 | 60.25 | 59.54 | 59.98 | 60.61 | 60.72 | 60.45 | | 60.95 | 61.46 | 62.97 |
| 17 | 60.74 | 58.31 | 60.26 | 60.46 | 60.08 | 60.62 | 60.71 | 60.30 | | 61.00 | 61.46 | 63.28 |
| 18 | 60.74 | 58.16 | 60.26 | 60.47 | 60.15 | 60.70 | 60.78 | 60.25 | | 61.15 | 58.78 | 63.21 |
| 19 | 60.67 | 58.07 | 60.27 | 60.44 | 60.27 | 60.59 | 60.80 | 60.19 | | 61.20 | 60.12 | 63.47 |
| 20 | 60.53 | 58.61 | 60.28 | 60.47 | 60.33 | 60.47 | 60.82 | 60.08 | | 61.27 | 60.97 | 63.79 |
| 21 | 60.53 | 59.58 | 60.28 | 60.44 | 60.39 | 60.44 | 60.83 | 60.15 | 61.08 | 59.49 | 61.16 | 64.13 |
| 22 | 60.51 | 59.55 | 60.29 | 60.44 | 60.47 | 60.45 | 60.35 | 60.19 | 61.13 | 61.20 | 61.27 | 64.47 |
| 23 | 60.51 | 59.50 | 60.27 | 60.43 | 59.50 | 60.41 | 60.24 | 60.58 | 61.17 | 61.29 | 61.34 | 64.83 |
| 24 | 58.40 | 59.47 | 60.29 | 60.29 | 60.53 | 60.30 | 60.18 | 60.66 | 61.11 | 61.31 | 61.44 | 66.34 |
| 25 | 57.60 | 59.46 | 60.29 | 60.19 | 60.08 | 60.27 | 59.96 | 60.72 | 61.17 | 61.33 | 61.44 | 65.99 |
| 26 | 57.80 | 59.46 | 60.34 | 60.16 | 59.92 | | 59.91 | 60.76 | 61.13 | 61.40 | 61.44 | 67.67 |
| 27 | 57.51 | 59.46 | 60.32 | 60.16 | 59.73 | 59.78 | 59.91 | 60.77 | 61.22 | 61.40 | 61.44 | 68.07 |
| 28 | 57.49 | 59.49 | 60.34 | 60.17 | 59.66 | 59.98 | 59.90 | 60.77 | 61.22 | 61.43 | 61.46 | 68.46 |
| 29 | 56.94 | 59.78 | 58.16 | 60.46 | | 60.02 | 59.89 | 60.77 | 61.23 | 59.77 | 61.49 | 65.86 |
| 30 | 57.26 | 59.97 | 59.32 | 60.53 | | 60.03 | 58.41 | 60.85 | 60.95 | 59.28 | 61.49 | 64.23 |
| 31 | 57.41 | | 59.38 | 60.54 | | 60.03 | | 60.86 | | 60.98 | 61.49 | |
| LOW | 61.40 | 59.97 | 60.34 | 60.54 | 60.58 | 60.70 | 60.83 | 60.86 | 61.23 | 61.43 | 61.49 | 68.46 |
| HIGH | 56.94 | 58.07 | 58.16 | 58.46 | 56.85 | 59.51 | 58.41 | 59.11 | 58.86 | 59.28 | 58.78 | 61.18 |



ST. THOMAS, U.S. VIRGIN ISLANDS

182050064580400. Local number, 1. LOCATION.--Lat 18°20'50", long 64°58'04".

U.S. Government, Virgin Islands Government.

Name: Thach Farm-Dudovick.
AQUIFER.--Volcanic rocks of Cretaceous age.

AQUIFER.--Volcanic rocks of Cretaceous age.

WELL CHARACTERISTICS.--Drilled water-table production well, diameter 6 in (0.15 m), cased 6 in (0.15 m) 0-25 ft (0-7.62 m), open hole 25-80 ft (7.62-24.4 m). Depth 80 ft (24.4 m).

DATUM.--Elevation of land-surface datum is 80 ft (24.4 m) above mean sea level, from topographic map.

Measuring point: Top of 6 in (0.15 m) casing, 2.50 ft (0.76 m) above land-surface datum. Prior to Mar. 23, 1982, top of 6 in (0.15 m) casing, 1.30 ft (0.40 m) above land-surface datum.

REMARKS.--Non-potable public-water supply and observation well. Since 1982, this well had been reported as USGS-8.

HOWEVER, this well is not USGS-8 which is located 250 feet south of this well.

PERIOD OF RECORD.--October 1963 to August 1969, discontinued. March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.33 ft (0.71 m) below land-surface datum, Nov. 20, 1984. Locate water level measured, 2.37 m) below land-surface datum. Mar. 8, 1989. 1984; lowest water level measured, a60.26 ft (18.37 m) below land-surface datum, Mar. 8, 1989.

WATER LEVEL, IN FEST BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|---------|----------------|---------|----------------|---------|----------------|----------|----------------|
| Oct. 30 | a20.82 | Dec. 26 | a22.74 | Mar. 4 | a35.30 | Aug. 15 | a59.90 |
| Nov. 29 | a16.90 | Jan. 28 | 30.19 | Mar. 27 | a39.75 | Sept. 16 | 58.37 |

182138064543100. Local number, 2.
LOCATION.--Lat 18°21'38", long 64°54'31".
Owner: Mahogany Run Resort.

Name: Mahogany 15. AQUIFER.--Fractured rocks

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

Depth 145 ft (44.21 m).

DATUM.--Elevation of land-surface datum is 100 ft (30.5 m) above mean sea level, from topographic map. Prior to this report, elevation used was 120 ft (36.6 m). Measuring point: Top of 6 in (0.15 m) casing, 0.10 ft (0.03 m) below land-surface datum. Prior September 16, 1991, 0.00 ft (0.00 m), prior May 31, 1991, 1.30 ft (0.40 m), and prior March 4, 1991, 1.20 ft (0.36 m) below land-surface datum.

REMARKS.--Observation well. Water levels affected by nearby pumping well. Well is now active and pumping.

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

EXTREMES FOR PERIOD OF RECORD. -- Highest water level measured, 12.45 ft (3.79 m) below land-surface datum, July 1, 1986; lowest water level measured, a120.92 ft (36.9 m) below land-surface datum, Aug. 15, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|---------|----------------|---------|----------------|---------|----------------|---------|----------------|
| Oct. 24 | 33.36 | Dec. 26 | 29.59 | Mar. 4 | 30.49 | May 31 | a56.38 |
| Nov. 28 | 27.52 | Jan. 28 | 30.50 | Mar. 27 | 31.12 | Aug. 15 | a120.92 |

182138064542500. Local number, 3.
LOCATION.--Lat 18°21'38", long 64°54'25".
Owner: Mahogany Run Resort.

Name: Mahogany 16. AQUIFER. -- Fractured rocks

WELL CHARACTERISTICS. -- Drilled water-table production well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

Depth 145 ft (44.21 m).

DATUM. -- Elevation of land-surface datum is 100 (30.5 m) above mean sea level, from topographic map. Prior to this report, elevation used was 130 ft (39.6 m). Measuring point: Top of 6 in (0.15 m) casing, 1.30 ft (0.40 m) below land-surface datum.

REMARKS .-- Water levels affected by nearby pumping well.

PERIOD OF RECORD. -- March 1982 to current year.
EXTREMES FOR PERIOD OF RECORD. -- Highest water level measured, 10.25 (3.12 m) below land-surface datum Jan. 21, 1988; lowest water level measured, a103.85 ft (31.65 m) below land-surface datum, Oct. 4, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|-------------------------------|-------------------------|------------------------------|-------------------------|-------------------|----------------|---------------------|----------------|
| Oct. 24 Nov. 28 Dec. 26 | 37.90 33.40 35.51 | Jan. 28 Mar. 4 Mar. 27 | 36.30 36.48 37.08 | May 31 July 12 | 49.70 56.93 | Aug. 15 Sept. 16 | 57.97 57.65 |

a Pumping.

ST. THOMAS, U.S. VIRGIN ISLANDS

182136064541900. 182136064541900. Local number, 4.
LOCATION.--Lat 18°21'36", long 64°54'19".
Owner: Mahogany Run Resort

Name: Mahogany 17.
AQUIFER.--Fractured rock

WELL CHARACTERISTICS. -- Drilled water-table production well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

Depth 145 ft (44.21 m).

DATUM.--Elevation of land-surface datum is 110 ft (33.5 m) above mean sea level, from topographic map. Prior to this report, elevation used was 140 ft (42.7 m). Measuring point: Top of 6 in (0.15 m) casing at land-surface datum.

REMARKS.--Public water supply. Water levels affected by nearby pumping well.

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

EXTREMES FOR PERIOD OF RECORD. --Highest water level measured, 17.49 ft (5.33 m) below land-surface datum, Dec. 11 1985; lowest water level measured, a60.40 ft (18.41 m) below land-surface datum, Sept. 10, 1982.

WATER LEVEL, IN FEST BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|--------------------|----------------|-------------------|----------------|-------------------|----------------|---------------------|----------------|
| Oct. 24 Nov. 28 | 35.87 35.15 | Jan. 28 Mar. 4 | 38.46 39.00 | May 31 July 17 | 44.60 44.97 | Aug. 15 Sept. 16 | 45.70 45.33 |
| Dec. 26 | 37.60 | Mar. 27 | 30 52 | Guly 1, | 44.57 | 2000. 10 | 40.00 |

182029064535200. Local number, 5.
LOCATION.--Lat 18°20'29°, long 64°53'52°.
Owner: Virgin Islands Government, V.I. Housing Authority.

Owner: Virgin Islands Government, V.I. Housing Authority.

Name: Donoe 3.

AQUIFER.--Volcanic rock undifferentiated. Fracture at 165 ft (50.3 m), from drilling log.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 0-20 ft (0-6.10 m), open hole 20-400 ft (6.10-122 m). Depth 400 ft (122 m).

DATUM.--Elevation of land-surface datum is about 235 ft (71.6 m) above mean sea level, from topographic map.

Measuring point: Top of 6 in (0.15 m) casing, 2.30 ft (0.70 m) above land-surface datum.

REMARKS.--Observation well. Well is blocked at approximately 70.0 ft (21.3 m) below land-surface datum.

PERIOD OF RECORD. -- March 1982 to Septmenber 30, 1991, discontinued.

EXTREMES FOR PERIOD OF RECORD. -- Highest water level measured, 29.15 ft (8.88 m) below land-surface datum, Sept. 28, 1989; lowest water level measured, 90.98ft (27.73m) below land-surface datum, Apr. 30, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

Water Date level Oct. 24 62.08

a Pumping.

ST. THOMAS, U.S. VIRGIN ISLANDS

182038064550300. Local number, 6.
LOCATION.--Lat 18°20'38", long 64°55'03".

Owner: U.S. Government, Virgin Islands Government.

Name: Grade School 3.

AQUIFER.---Volcanic breccis. WELL CHARACTERISTICS. -- Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 70 ft (21.3 m).

(21.3 m).

DATUM.--Elevation of land-surface datum is about 60 ft (18.3 m) above mean sea level, from topographic map.

Measuring point: Top of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 1.30 ft (0.40 m) above land-surface datum. Prior to June 27, 1983, top of 6 in (0.15 m) casing, 2.90 ft (0.88 m) above land-surface datum.

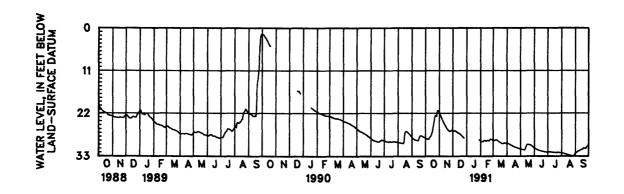
REMARKS.--Recording observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.53 ft (0.47 m) below land-surface datum, Oct. 1, 1989; lowest water level recorded, 35.38 ft (10.79 m) below land-surface datum, July 21, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| INSTANTANEOUS OBSERVATION AT 1200 | | | | | | | | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| DAY | OCT | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | λŪG | SEP |
| 1 | 28.34 | 21.79 | 26.50 | | 29.11 | 28.94 | 29.78 | 31.12 | 30.87 | 32.02 | 32.19 | 32.27 |
| 2 | 28.43 | 22.04 | 26.54 | | 29.19 | 29.02 | 29.76 | 31.16 | 30.94 | 31.98 | 32.20 | 32.16 |
| 3 | 28.50 | 22.34 | 26.59 | | 29.25 | 29.06 | 29.75 | 31.19 | 31.02 | 31.92 | 32.22 | 32.08 |
| 4 | 28.56 | 22.64 | 26.57 | | 29.29 | 28.99 | 29.78 | 31.22 | 31.09 | 31.88 | 32.25 | 31.99 |
| 5 | 28.59 | 22.93 | 26.48 | | 29.27 | 28.94 | 29.83 | 31.25 | 31.17 | 31.87 | 32.28 | 31.88 |
| 6 | 28.64 | 23.22 | 26.49 | | 29.25 | 28.90 | 29.89 | 31.27 | 31.24 | 31.88 | 32.32 | 31.79 |
| 7 | 28.68 | 23.47 | 26.56 | | 29.21 | 28.85 | 29.96 | 31.30 | 31.32 | 31.90 | 32.36 | 31.71 |
| 8 | 28.65 | 23.72 | 26.64 | | 29.06 | 28.83 | 30.03 | 31.33 | 31.38 | 31.92 | 32.40 | 31.67 |
| و | 28.48 | 23.96 | 26.71 | | 28.96 | 28.86 | 30.10 | 31.36 | 31.41 | 31.94 | 32.44 | 31.63 |
| 10 | 28.29 | 24.22 | 26.79 | | 28.95 | 28.92 | 30.18 | 31.36 | 31.46 | 31.98 | 32.46 | 31.57 |
| 11 | 28.10 | 24.43 | 26.88 | | 29.00 | 29.00 | 30.23 | 31.27 | 31.50 | 32.01 | 32.49 | 31.49 |
| 12 | 27.96 | 24.63 | 26.95 | | 29.05 | 29.09 | 30.30 | 31.02 | 31.54 | 32.00 | 32.53 | 31.40 |
| 13 | 27.84 | 24.85 | 27.01 | | 29.10 | 29.18 | 30.35 | 30.70 | 31.57 | 32.00 | 32.56 | 31.34 |
| 14 | 27.55 | 25.06 | 27.08 | | 29.07 | 29.27 | 30.41 | 30.38 | 31.60 | 32.00 | 32.59 | 31.29 |
| 15 | 27.12 | 25.27 | 27.16 | | 28.96 | 29.36 | 30.47 | 30.11 | 31.64 | 32.03 | 32.64 | 31.25 |
| 16 | 26.83 | 25.46 | 27.25 | | 28.91 | 29.43 | 30.53 | 29.98 | 31.67 | 32.04 | 32.68 | 31.28 |
| 17 | 26.21 | 25.66 | 27.34 | | 28.91 | 29.51 | 30.58 | 29.95 | 31.71 | 32.05 | 32.71 | 31.07 |
| 18 | 25.69 | 25.87 | 27.45 | | 28.97 | 29.58 | 30.64 | 29.97 | 31.73 | 32.06 | 32.73 | 30.92 |
| 19 | 25.31 | 26.07 | 27.57 | | 29.03 | 29.64 | 30.68 | 30.03 | 31.75 | 32.08 | 32.75 | 30.88 |
| 20 | 24.44 | 26.24 | 27.69 | | 28.99 | 29.71 | 30.72 | 30.05 | 31.78 | 32.08 | 32.78 | 30.90 |
| 21 | 23.64 | 26.37 | 27.81 | | 28.84 | 29.76 | 30.75 | 30.05 | 31.79 | 32.04 | 32.81 | 30.96 |
| 22 | 22.88 | 26.47 | 27.94 | | 28.69 | 29.80 | 30.79 | 30.08 | 31.82 | 32.00 | 32.84 | 31.00 |
| 23 | 22.62 | 26.56 | 28.05 | | 28.62 | 29.81 | 30.83 | 30.12 | 31.84 | 31.99 | 32.87 | 31.02 |
| 24 | 22.60 | 26.66 | 28.17 | | 28.61 | 29.71 | 30.88 | 30.18 | 31.87 | 31.98 | 32.89 | 30.89 |
| 25 | 22.73 | 26.64 | 28.27 | | 28.64 | 29.66 | 30.92 | 30.25 | 31.88 | 32.00 | 32.91 | 30.73 |
| 26 | 22.68 | 26.56 | 28.37 | | 28.71 | 29.63 | 30.96 | 30.34 | 31.91 | 32.03 | 32.93 | 30.58 |
| 27 | 21.77 | 26.44 | | | 28.79 | 29.63 | 30.99 | 30.43 | 31.93 | 32.07 | 32.93 | 30.47 |
| 28 | 21.35 | 26.38 | | | 28.87 | 29.66 | 31.02 | 30.53 | 31.95 | 32.10 | 32.90 | 30.41 |
| 29 | 21.26 | 26.38 | | 28.83 | | 29.70 | 31.05 | 30.61 | 31.98 | 32.14 | 32.78 | 30.36 |
| 30 | 21.37 | 26.44 | | 28.93 | | 29.75 | 31.09 | 30.69 | 32.00 | 32.17 | 32.60 | 29.96 |
| 31 | 21.55 | | | 29.02 | | 29.78 | | 30.78 | | 32.18 | 32.40 | |
| LOW | 28.68 | 26.66 | 28.37 | 29.02 | 29.29 | 29.81 | 31.09 | 31.36 | 32.00 | 32.18 | 32.93 | 32.27 |
| HIGH | 21.26 | 21.79 | 26.48 | 28.83 | 28.61 | 28.83 | 29.75 | 29.95 | 30.87 | 31.87 | 32.19 | 29.96 |



ST. THOMAS, U.S. VIRGIN ISLANDS

182036064545200. Local number, 7.
LOCATION.--Lat 18°20'36°, long 64°54'52°.

Owner: U.S. Virgin Islands Water and Power Authority.

Name: St. Thomas Hospital, VIEO-1.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), cased 4 in (0.10 m), 0-145 ft

(0-44.2 m), screened 100-145 ft (30.5-44.2 m). Depth 145 ft (44.2 m).

DATUM.--Elevation of land-surface datum is about 85 ft (25.9 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.20 ft (0.97 m) above land-surface datum.

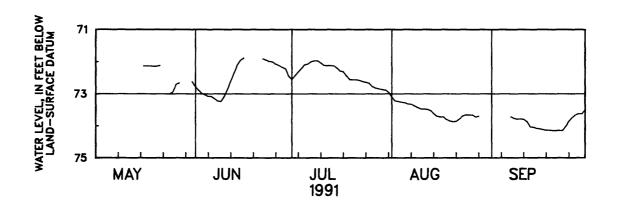
REMARKS.--Observation well. Drilled on February 1991. Automated digital recorder installed on May 1991. Pumping test performed during May 22-24, 1991.

test performed during May 22-24, 1991.

PERIOD OF RECORD. -- May 1991 to September 1991.

EXTREMES FOR PERIOD OF RECORD. -- Highest water level recorded, 71.88 ft (21.9 m) below land-surface datum, June 16, 1991; lowest water level recorded, 74.17 ft (22.6 m) below land-surface datum, Sept. 22-23, 1991.

| | | WATER LEVEL, | in feet | Below Inst | Land-Surfaci Antaneous o | E DATUM BSERVAT | , WATER YEAR ION AT 1200 | OCTOBI | 3R 1990 | TO SEPTEMB | ER 1991 | |
|----------|-----|--------------|---------|---------------|-----------------------------|--------------------|-----------------------------|----------------|---------|------------|---------|-------|
| DAY | OCT | NOA | DEC | Jan | FRB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | | | | | | | | | 72.79 | 72.55 | 73.10 | |
| 2 | | | | | | | | | 72.89 | 72.43 | 73.22 | |
| 3 | | | | | | | | | 72.99 | 72.31 | 73.24 | |
| 4 | | | | | | | | | 73.03 | 72.20 | 73.26 | |
| 5 | | | | | | | | | 73.08 | 72.09 | 73.28 | |
| 6 | | | | | | | | | 73.08 | 72.07 | 73.32 | |
| 7 | | | | | | | | | 73.16 | 72.00 | 73.33 | |
| ģ | | | | | | | | | 73.23 | 71.97 | 73.38 | 73.77 |
| 9 | | | | | | | | | 73.24 | 71.97 | 73.43 | 73.79 |
| 10 | | | | | | | | | 73.08 | 72.04 | 73.47 | 73.79 |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | | | | 72.84 | 72.11 | 73.48 | 73.80 |
| 12 | | | | | | | | | 72.59 | 72.12 | 73.49 | 73.87 |
| 13 | | | | | | | | | 72.35 | 72.12 | 73.52 | 74.04 |
| 14 | | | | | | | | | 72.11 | 72.13 | 73.62 | 74.05 |
| 15 | | | | | | | | | 71.95 | 72.20 | 73.70 | 74.08 |
| 19 | | | | | | | | | | | | |
| 16 | | | | | | | 7 | 2.13 | 71.89 | 72.29 | 73.72 | 74.10 |
| | | | | | | | | 2.13 | | 72.31 | 73.72 | 74.12 |
| 17 | | | | | | | | 2.13 | | 72.45 | 73.80 | 74.14 |
| 18 | | | | | | | | 2.14 | | 72.56 | 73.85 | 74.14 |
| 19 20 | | | | | | | | 2.14 | | 72.56 | 73.87 | 74.15 |
| 20 | | | | | | | • | | | | | |
| ~- | | | | | | | 7 | 2.12 | | 72.56 | 73.86 | 74.15 |
| 21 | | | | | | | | | | 72.58 | 73.79 | 74.15 |
| 22 | | | | | | | | | 71.95 | 72.61 | 73.69 | 74.15 |
| 23 | | | | | | | | 73.00 | 71.99 | 72.64 | 73.66 | 74.02 |
| 24 | | | | | | | | 72.94 | 72.01 | 72.67 | 73.66 | 73.86 |
| 25 | | | | | | | ' | | , 2.02 | , | | |
| | | | | | | | 7 | 72.70 | 72.08 | 72.78 | 73.66 | 73.74 |
| 26 | | | | | | | | 72.66 | 72.12 | 72.82 | 73.72 | 73.66 |
| 27 | | | | | | | | | 72.18 | 72.84 | 73.70 | 73.62 |
| 28 | | | | | | | | | 72.22 | 72.86 | | 73.62 |
| 29 | | | | | | | | | 72.45 | 72.88 | | 73.51 |
| 30 | | | | | | | | | | 72.95 | | |
| 31 | | | | | | | | | | | | |
| | | | | | | | | 73.00 | 73.24 | 72.95 | 73.87 | 74.15 |
| LOW | | | | | | | | 73.00 72.12 | 71.89 | 71.97 | 73.10 | 73.51 |
| HIGH | | | | | | | | , | , 1.03 | , , | | |



ST. JOHN, U.S. VIRGIN ISLANDS

182010064472600. Local number, 1.
LOCATION.--Lat 18°20'10", long 64°47'26".
Owner: U.S. Government, National Park

U.S. Government, National Park Services.

Name: NPS-2 (Cruz Bay). AQUIFER.--Volcanic rocks of Cretaceous Age.

MULL CHARACTERISTICS. --Drilled unused water-table well, diameter 6 in (0.15 m), 4 in (0.10 m) cased, 0-20 ft (0-6.10 m), open hole 20-99 ft (6.10-30.2 m). Depth 99 ft (30.2 m).

DATUM. --Elevation of land-surface datum is 60 ft (18.3 m) above mean sea level, from topographic map.

Measuring point: Top of 4 in (0.10 m) casing, 4.10 ft (1.25 m) above old land-surface datum after 1.40 ft (0.43 m) land fill and 2.70 ft (0.82 m) casing extension occurred. Prior to June 29, 1983, top of 4 in (0.10 m) casing, 1.40 ft (0.43 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping nearby well.
PERIOD OF RECORD.--May 1964, discontinued. June 30, 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, +1.41ft (0.43 m) above land-surface datum, May 1, 1986; lowest water level measured, 42.56 ft (12.98 m) below land-surface datum, Aug. 30, 1967.

WATER LEVEL, IN FEST BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Da te | Water level | Date | Water level | Date | Water level | Date | Water level |
|--------------------|-----------------|-------------------|----------------|-------------------|----------------|--------------------|----------------|
| Oct. 23 Nov. 29 | + 1.05 23.23 | Jan. 30 Mar. 8 | 28.83 30.34 | Mar. 29 June 6 | 31.04 32.66 | July 17 Aug. 17 | 33.30 33.75 |
| Jan. 4 | 27.40 | mar. o | 30.34 | oune o | 32.00 | Aug. II | 33.73 |

182109064460300. Local number, 2

LOCATION. -- Lat 18°21'09°, long 64°46'03°.

Owner: U.S. Government, National Park Service.

Name: NPS-5 (Trunk Bay).

Name: NPS-5 (Trunk Bay).

AQUIFER.--Volcanic rocks of Cretaceous Age.

WELL CHARACTERISTICS.--Drilled water-table production well, diameter 6 in (0.15 m), cased 0-12 ft (0-3.66 m), open hole 12-60 ft (3.66-18.3 m). Depth 60 ft (18.3 m).

DATUM.--Elevation of land-surface datum is 60 ft (18.3 m) above mean sea level, from topographic map.

Measuring point: Top of 6 in (0.15 m) casing, 0.70 ft (0.21 m) above land-surface datum. Prior to Mar. 24, 1982 top of 6 in (0.15 m) casing, 1.00 ft (0.30 m) above land-surface datum.

REMMARKS.--Active water supply well for recreation facilities at Trunk Bay.

PERIOD OF RECORD.--August 1964 to December 1969, discontinued. March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.83 ft (3.91 m) below land-surface datum, Jan. 24, 1985. Lowest water level measured, 257.29 ft (17.47 m) below land-surface datum, Nov. 27, 1968. 1985; lowest water level measured, a57.29 ft (17.47 m) below land-surface datum, Nov. 27, 1968.

WATER LEVEL, IN FEST BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|-------------------------------|-------------------------|--------------------|----------------|-------------------|----------------|--------------------|------------------|
| Oct. 23 Nov. 29 Dec. 28 | 37.65 33.33 35.73 | Jan. 30 Mar. 11 | 37.18 37.32 | Mar. 29 June 6 | 41.03 37.72 | July 17 Aug. 17 | a44.95 a42.60 |

- a Pumping.
- + Above land-surface datum.

ST. JOHN, U.S. VIRGIN ISLANDS

182116064451000. Local number, 3.

LOCATION.--Lat 18°21'16°, long 64°45'10°.

Owner: U.S. Government, National Park Service.

Name: NPS-6 (Cinnamon Bay).

AQUIFER.--Volcanic rocks of Cretaceous Age.

WELL CHARACTERISTICS.--Drilled water-table abandoned production well, diameter 6-in (0.15 m), cased 0-51 ft

(0-15.55 m), open hole 51-70 ft (15.55-21.34 m). Depth 70 ft (21.34 m).

DATUM.--Elevation of land-surface datum is about 60 ft (18.3 m) above mean sea level, from topographic map.

Measuring point: Hole on 6 in (0.15 m) casing, 2.00 ft (0.61 m) above land-surface datum. Prior to June 29,

1983, top of 6 in (0.15 m) casing at land-surface datum.

REMARKS.--Recording observation well.

PERIOD OF RECORD.--August 1964 to December 1969, discontinued. March 1982 to current year.

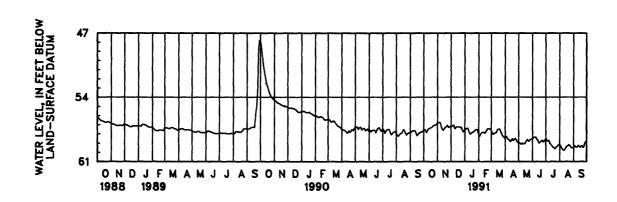
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 41.12 ft (12.54 m) below land-surface datum, Aug. 15,

1969; lowest water level recorded, 63.15 ft (19.25 m) below land-surface datum, July 1, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JUL | ÐŪΚ | Sep |
|-------|-------|--------|-------|---|-------|-------|---------------|---------------|---------------|---------------|-------|-------|
| 1 | 57.62 | 56.84 | 57.18 | 57.58 | 58.08 | 57.64 | 58.37 | 58.83 | 58.49 | 58.54 | 59.08 | 59.48 |
| 2 | 57.58 | 56.78 | 57.18 | 57.52 | 58.19 | 57.78 | 58.32 | 58.90 | 58.46 | 58.50 | 59.19 | 59.36 |
| 3 | 57.55 | 56.76 | 57.16 | 57.48 | 58.26 | 57.90 | 58.30 | 58.94 | 58.41 | 58.62 | 59.32 | 59.27 |
| 4 | 57.51 | 56.74 | 57.12 | 57.44 | 58.17 | 57.97 | 58.29 | 58.99 | 58.36 | 58.77 | 59.42 | 59.32 |
| 5 | 57.65 | 56.73 | 57.09 | 57.42 | 58.05 | 58.05 | 58.39 | 59.04 | 58.34 | 58.77 | 59.51 | 59.40 |
| 3 | 37.03 | 30.73 | 55 | • | | | | | | | _ | |
| 6 | 57.76 | 56.73 | 57.05 | 57.40 | 57.98 | 58.03 | 58.51 | 59.09 | 58.34 | 58.73 | 59.57 | 59.41 |
| 7 | 57.84 | 56.76 | 57.05 | 57.39 | 57.91 | 57.98 | 58.55 | 59.06 | 58.36 | 58.71 | 59.64 | 59.41 |
| é | 57.74 | 56.97 | 57.20 | 57.39 | 57.86 | 57.94 | 58.57 | 59.10 | 58.36 | 58.70 | 59.70 | 59.41 |
| 9 | 57.64 | 57.13 | 57.32 | 57.59 | 57.84 | 57.91 | 58.61 | 59.00 | 58.36 | 58.87 | 59.74 | 59.42 |
| 10 | 57.56 | 57.27 | 57.42 | 57.74 | 57.83 | 57.89 | 58.66 | 59.01 | 58.52 | 58.98 | 59.76 | 59.30 |
| 10 | 37.30 | 3, | | • | | | | | | | | |
| 11 | 57.50 | 57.40 | 57.35 | 57.88 | 57.83 | 57.88 | 58.72 | 59.08 | 58.62 | 59.08 | 59.78 | 59.22 |
| 12 | 57.45 | 57.52 | 57.28 | 57.96 | 57.81 | 57.82 | 58.78 | 59.09 | 58.59 | 59.1 5 | 59.70 | 59.25 |
| 13 | 57.42 | 57.60 | 57.25 | 58.04 | 57.86 | 57.74 | 58.83 | 59.08 | 58.67 | 59.21 | 59.60 | 59.32 |
| 14 | 57.38 | 57.54 | 57.23 | 57.98 | 57.91 | 57.64 | 58.74 | 59.04 | 58.80 | 59.29 | 59.52 | 59.39 |
| 15 | 57.35 | 57.48 | 57.23 | 57.92 | 57.93 | 57.55 | 58.66 | 59.02 | 58.91 | 59.35 | 59.44 | 59.44 |
| 1-0 | 37.03 | 2 | | | | | | | | | | |
| 16 | 57.33 | 57.43 | 57.23 | 57.89 | 57.82 | 57.49 | 58.57 | 59.00 | 59.01 | 59.41 | 59.38 | 59.42 |
| 17 | 57.31 | 57.36 | 57.23 | 57.85 | 57.73 | 57.48 | 58.51 | 58.87 | 58.9 5 | 59.47 | 59.33 | 59.38 |
| 18 | 57.29 | 57.29 | 57.23 | 57.82 | 57.68 | 57.48 | 58.62 | 58.78 | 58.89 | 59.46 | 59.29 | 59.32 |
| 19 | 57.27 | 57.25 | 57.24 | 57.80 | 57.58 | 57.48 | 58.71 | 58.69 | 58.85 | 5 9.51 | 59.27 | 59.28 |
| 20 | 57.24 | 57.23 | 57.25 | 57.77 | 57.49 | 57.45 | 58.65 | 58.64 | 58.80 | 5 9.57 | 59.25 | 59.36 |
| 20 | 3/14 | 37.23 | 22 | • • • • • • | | | | | | | | |
| 21 | 57.19 | 57.19 | 57.27 | 57.74 | 57.45 | 57.61 | 58.59 | 5 8.59 | 58.78 | 59.63 | 59.23 | 59.42 |
| 22 | 57.13 | 57.11 | 57.29 | 57.68 | 57.43 | 57.76 | 58.56 | 58.68 | 58.75 | 5 9.56 | 59.16 | 59.47 |
| 23 | 57.10 | 57.06 | 57.29 | 57.62 | 57.43 | 57.88 | 58.53 | 58.76 | 58.72 | 59.49 | 59.22 | 59.43 |
| 24 | 57.07 | 57.18 | 57.29 | 57.58 | 57.43 | 57.97 | 58.49 | 58.80 | 58.70 | 59.43 | 59.29 | 59.31 |
| 25 | 57.05 | 57.26 | 57.44 | 57.56 | 57.44 | 58.07 | 58.56 | 58.74 | 58.87 | 59.40 | 59.37 | 59.16 |
| 4.5 | 37.03 | 37.120 | | 2 | | | | | | | | |
| 26 | 57.04 | 57.31 | 57.57 | 57.54 | 57.45 | 58.17 | 58.66 | 58.66 | 5 8.85 | 59.36 | 59.45 | 59.02 |
| 27 | 57.03 | 57.26 | 57.69 | 57.53 | 57.45 | 58.24 | 58.76 | 58.62 | 58.81 | 59.31 | 59.51 | 58.94 |
| 28 | 57.02 | 57.22 | 57.80 | 57.53 | 57.46 | 58.29 | 58.84 | 5 8.59 | 58.72 | 59.26 | 59.52 | 58.87 |
| 29 | 56.99 | 57.20 | 57.73 | 57.54 | | 58.33 | 58.89 | 58.57 | 58.66 | 59.22 | 59.51 | 58.82 |
| 30 | 56.93 | 57.19 | 57.68 | 57.81 | | 58.39 | 58.7 9 | 58.54 | 58.61 | 59.17 | 59.49 | 58.75 |
| 31 | 56.88 | | 57.63 | 57.96 | | 58.46 | | 58.51 | | 59.12 | 59.48 | |
| 7. | 30.00 | | 25 | | | | | | | | | |
| LOW | 57.84 | 57.60 | 57.80 | 58.04 | 58.26 | 58.46 | 58.89 | 59.10 | 59.01 | 59.63 | 59.78 | 59.48 |
| HIGH | 56.88 | 56.73 | 57.05 | 57.39 | 57.43 | 57.45 | 58.29 | 58. 51 | 58.34 | 58.50 | 59.08 | 58.75 |
| ar an | 30.00 | 30.73 | | | | | | | | | | |

WTR YR 1991 MEAN 58.26 LOW 59.78 HIGH 56.73



ST. JOHN, U.S. VIRGIN ISLANDS

182042064454500. Local number, 5.
LOCATION.--Lat 18°20'42", long 64°45'45".
Owner: Virgin Islands Government.
Name: DPW-6. (Sussanaberg)
AQUIFER.--Louisenhoj Formation.
WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth
70 ft (21.3 m).

70 ft (21.3 m).

DATUM.--Elevation of land-surface datum is about 640 ft (195 m) above mean sea level, from topographic map.

Measuring point: Top of 6 in (0.15 m) casing, 1.60 ft (0.49 m) above land-surface datum. Prior to June 28,

1983, top of 6 in (0.15 m) casing, 1.30 ft (0.40 m) above land-surface datum.

REMARKS.--Recording observation well.

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

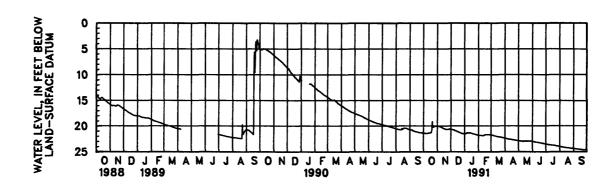
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.33 ft (0.40 m) below land-surface datum, May 18,

1986; lowest water level recorded, 24.68 ft (7.52 m) below land-surface datum, Sept. 29, 1991.

WATER LEVEL, IN FERT BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
|------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 21.37 | 19.99 | 20.60 | 21.52 | 21.81 | 21.70 | 22.40 | 22.87 | 23.00 | 23.47 | 23.98 | 24.37 |
| | 21.39 | 20.03 | 20.63 | 21.52 | 21.83 | 21.73 | 22.42 | 22.88 | 23.02 | 23.48 | 24.00 | 24.39 |
| 2 | | 20.03 | 20.66 | 21.51 | 21.85 | 21.74 | 22.44 | 22.89 | 23.04 | 23.50 | 24.02 | 24.41 |
| 3 | 21.41 | | | 21.49 | 21.85 | 21.77 | 22.46 | 22.90 | 23.04 | 23.52 | 24.04 | 24.43 |
| 4 | 21.42 | 20.06 | 20.70 | | 21.86 | 21.81 | 22.48 | 22.91 | 23.05 | 23.55 | 24.06 | 24.44 |
| 5 | 21.43 | 20.07 | 20.71 | 21.43 | , 21. 60 | 21.01 | 22.40 | | | | | |
| 6 | 21.44 | 20.09 | 20.73 | 21.38 | 21.86 | 21.82 | 22.51 | 22.92 | 23.06 | 23.57 | 24.07 | 24.45 |
| 7 | 21.44 | 20.12 | 20.74 | 21.35 | 21.86 | 21.86 | 22.53 | 22.93 | 23.13 | 23.58 | 24.09 | 24.46 |
| | 21.44 | 20.12 | 20.76 | 21.34 | 21.86 | 21.90 | 22.55 | 22.96 | 23.13 | 23.61 | 24.10 | 24.47 |
| 8 | 21.44 | 20.10 | 20.76 | 21.34 | 21.88 | 21.92 | 22.55 | 22.98 | 23.14 | 23.63 | 24.11 | 24.48 |
| 9 | | | 20.76 | 21.34 | 21.89 | 21.95 | 22.56 | 22.94 | 23.16 | 23.64 | 24.13 | 24.49 |
| 10 | 21.44 | 20.25 | 20.89 | 21.34 | 41.03 | 41.75 | -2.50 | | | | | |
| | 21.39 | 20.30 | 20.89 | 21.34 | 21.91 | 21.96 | 22.58 | 23.00 | 23.18 | 23.66 | 24.15 | 24.50 |
| 11 | 21.37 | 20.33 | 20.90 | 21.34 | 21.91 | 21.98 | 22.59 | 23.00 | 23.20 | 23.69 | 24.16 | 24.51 |
| 12 | | 20.33 | 20.93 | 21.34 | 21.83 | 22.01 | 22.60 | 22.93 | 23.20 | 23.70 | 24.18 | 24.52 |
| 13 | 21.37 | | | 21.35 | 21.79 | 22.03 | 22.62 | 22.93 | 23.21 | 23.71 | 24.19 | 24.53 |
| 14 | 21.36 | 20.42 | 20.99 | | 21.73 | 22.05 | 22.63 | 22.94 | 23.22 | 23.72 | 24.20 | 24.54 |
| 15 | 21.34 | 20.48 | 21.02 | 21.38 | 21.73 | 22.05 | 22.05 | | | | | |
| | | 20.52 | 21.06 | 21.42 | 21.71 | 22.06 | 22.64 | 22.94 | 23.24 | 23.74 | 24.21 | 24.56 |
| 16 | 21.33 | | 21.11 | 21.45 | 21.70 | 22.08 | 22.67 | 22.94 | 23.25 | 23.76 | 24.23 | 24.56 |
| 17 | 21.30 | 20.54 | | 21.45 | 21.69 | 22.10 | 22.68 | 22.94 | 23.28 | 23.76 | 24.23 | 24.57 |
| 18 | 21.29 | 20.56 | 21.14 | | | | 22.70 | 22.94 | 23.29 | 23.76 | 24.23 | 24.60 |
| 19 | 21.24 | 20.61 | 21.19 | 21.51 | 21.69 | 22.12 | 22.71 | 22.94 | 23.31 | 23.78 | 24.24 | 24.61 |
| 20 | 20.75 | 20.64 | 21.22 | 21.52 | 21.68 | 22.14 | 22.71 | 22.34 | 23.31 | 23.70 | | |
| 21 | 19.07 | 20.64 | 21.26 | 21.55 | 21.68 | 22.17 | 22.71 | 22.94 | 23.32 | 23.80 | 24.25 | 24.61 |
| | 20.23 | 20.64 | 21.29 | 21.57 | 21.68 | 22.19 | 22.74 | 22.94 | 23.34 | 23.81 | 24.26 | 24.63 |
| 22 | 20.23 | 20.64 | 21.33 | 21.59 | 21.68 | 22.20 | 22.74 | 22.94 | 23.36 | 23.82 | 24.28 | 24.64 |
| 23 | | | 21.33 | 21.61 | 21.68 | 22.22 | 22.75 | 22.94 | 23.39 | 23.84 | 24.29 | 24.64 |
| 24 | 20.17 | 20.64 | | | 21.68 | 22.25 | 22.78 | 22.94 | 23.40 | 23.87 | 24.31 | 24.64 |
| 25 | 20.09 | 20.64 | 21.41 | 21.63 | 21.00 | 44.45 | 22.70 | 22.54 | | | | |
| 26 | 20.05 | 20.63 | 21.44 | 21.66 | 21.68 | 22.26 | 22.80 | 22.94 | 23.41 | 23.89 | 24.32 | 24.64 |
| 27 | 20.01 | 20.61 | 21.46 | 21.68 | 21.68 | 22.29 | 22.81 | 22.94 | 23.42 | 23.90 | 24.33 | 24.65 |
| 28 | 19.99 | 20.60 | 21.50 | 21.70 | 21.68 | 22.30 | 22.82 | 22.94 | 23.43 | 23.91 | 24.34 | 24.66 |
| | 19.99 | 20.60 | 21.51 | 21.74 | | 22.34 | 22.84 | 22.96 | 23.46 | 23.92 | 24.34 | 24.44 |
| 29 | | 20.60 | 21.51 | 21.76 | | 22.35 | 22.86 | 22.98 | 23.47 | 23.95 | 24.35 | 24.64 |
| 30 | 19.99 | | | 21.76 | | 22.39 | | 22.99 | | 23.96 | 24.36 | |
| 31 | 19.99 | | 21.52 | ¥1.91 | | 44.33 | | | | | | |
| LOW | 21.44 | 20.64 | 21.52 | 21.81 | 21.91 | 22.39 | 22.86 | 23.00 | 23.47 | 23.96 | 24.36 | 24.66 |
| HIGH | 19.07 | 19.99 | 20.60 | 21.34 | 21.68 | 21.70 | 22.40 | 22.87 | 23.00 | 23.47 | 23.98 | 24.37 |
| UTOU | 13.07 | 13.33 | 20.00 | 41.74 | -1.00 | | | | | | | |

WTR YR 1991 MEAN 22.41 LOW 24.66 HIGH 19.07



ST. JOHN, U.S. VIRGIN ISLANDS

182044064454600. Local number, 6.
LOCATION.--Lat 18°20'44", long 64°45'46".
Owner: Virgin Islands Government.

Name: DPW-5

AQUIFER .-- Louisenhoj Formation.

WELL CHARACTERISTICS. -- Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

Sounded depth 145 ft (44.2 m).

DATUM. --Elevation of land-surface datum is about 640 ft (195 m) above mean sea level, from topographic map.

Measuring point: Top of 6 in (0.15 m) casing, 1.50 ft (0.46 m) above land-surface datum. Prior Oct. 23, 1990, top of 6 in (0.15 m) casing, 1.40 ft (0.43 m) above land-surface datum. Prior Oct. 23, EMEMARKS. --Observation well. Water levels affected by pumping.

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

EXTREMES FOR PERIOD OF RECORD. --Highest water level measured, 18.85ft (5.74m) below land-surface datum, July 2, 1995. International land-surface datum, July 2, 1995. International land-surface datum, July 2, 1995.

1986; lowest water level measured, a107.4 ft (32.7 m) below land-surface datum, Sept. 19, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991. INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|---------|----------------|---------|----------------|---------|----------------|---------|----------------|
| Oct. 23 | 39.08 | Jan. 30 | 42.50 | Mar. 28 | 42.16 | July 17 | 49.80 |
| Dec. 28 | 41.98 | Mar. 8 | 41.79 | June 6 | 43.38 | Aug. 16 | a106.72 |

182044064454800. Local number, 7.
LOCATION.--Lat 18°20'44, long 64°45'48".

Owner: Virgin Islands Government.

Name: DPW-4 AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS. -- Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

Sounded depth 60 ft (18.3 m).

DATUM.--Elevation of land-surface datum is about 640 ft (195 m) above mean sea level, from topographic map.

Measuring point: Top of 6 in (0.15 m) casing, 0.60 ft (0.18 m) above land-surface datum.

REMARKS. -- Observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.48 ft (4.41 m) below land-surface datum, July 2, 1986; lowest water level measured, a50.66 ft (15.44 m) below land-surface datum, Jan. 22, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|--------------------|-----------------|-------------------|----------------|-------------------|----------------|--------------------|------------------|
| Oct. 23 Nov. 30 | 27.76 a49.26 | Jan. 30 Mar. 8 | 31.29 30.56 | Mar. 28 June 6 | 30.91 31.76 | July 17 Aug. 16 | a48.53 a48.49 |
| Dec. 28 | 30.62 | | 27.20 | | | | |

182044064454900. Local number, 8.
LOCATION.--Lat 18°20'44", long 64°45'49".
Owner: Virgin Islands Government.
Name: DPW-3.
AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS. -- Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth 110 ft (33.5 m).

DATUM: --Elevation of land-surface datum is about 620 ft (189 m) above mean sea level, from topographic map. Prior to this report, elevation used was 640 ft (195 m). Measuring point: Top of 6 in (0.15 m) casing, 1.80 ft (0.55 m) above land-surface datum.

REMARKS .-- Observation well.

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

EXTREMES FOR PERIOD OF RECORD .-- Highest water level measured, 12.17ft (3.71 m) below land-surface datum, July 2, 1986; lowest water level measured, 69.58 ft (21.21 m) below land-surface datum, Feb. 27, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level |
|--------|----------------|---------|----------------|---------|----------------|
| June 6 | 27.00 | July 17 | 28.44 | Aug. 16 | 31.56 |

a Pumping.

ST. JOHN, U.S. VIRGIN ISLANDS

182044064455000. Local number, 9.
LOCATION.--Lat 18°20'44", long 64°45'50".
Owner: Virgin Islands Government.

Name: DPW-2. AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth 65 ft (19.8 m).

DATUM: --Elevation of land-surface datum is about 620 ft (189 m) above mean sea level, from topographic map. Prior to this report, elevation used was 640 ft (195 m). Measuring point: Top of 6 in (0.15 m) casing, 2.00 ft (0.61 m)

above land-surface datum. REMARKS.--Observation well.

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

EXTREMES FOR PERIOD OF RECORD.-- Highest water level measured, 14.93 ft (4.55 m) below land-surface datum, Dec. 19, 1989; lowest water level measured, a53.39 ft (a16.3 m) below land-surface datum, July 17, 1991

WATER LEVEL, IN FEST BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|--------------------|-------------------------|-------------------|----------------|-------------------|----------------|--------------------|-----------------|
| Oct. 23 Nov. 30 | 33.40 a 49.38 | Jan. 30 Mar. 8 | 36.72 35.05 | Mar. 28 June 6 | 35.12 35.93 | July 17 Aug. 16 | a53.39 40.98 |
| Dec. 28 | 35.48 | | | | | • | |

182044064455200. Local number, 10. LOCATION.--Lat 18°20'44", long 64°45'52". Owner: Virgin Islands Government.

Name: DPW-1.

AQUIFER .-- Louisenhoj Formation.

WELL CHARACTERISTICS. -- Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

Sounded depth 60 ft (18.3 m). Sounded depth 60 ft (18.3 m).

DATUM.--Elevation of land-surface datum about 610 ft (186 m) above mean sea level. Prior to this report, elevation used was 640 ft (195 m). Measuring point: Top of 6 in (0.15 m) casing, 2.00 ft (0.61 m) above land-surface datum. REMARKS.--Observation well. Water levels affected by pumping.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.54 ft (4.13 m) below land-surface datum, Dec. 19,

1989; lowest water level measured, 38.92 ft (11.86 m) below land-surface datum, Feb. 27, 1986

WATER LEVEL, IN FEST BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|---------|----------------|---------|----------------|---------|----------------|---------|----------------|
| Oct. 23 | 31.41 | Jan. 30 | 34.11 | Mar. 28 | 32.43 | July 17 | 34.84 |
| Nov. 30 | 31.16 32.97 | Mar. 8 | 32.48 | June 6 | 32.70 | Aug. 17 | 37.29 |

a Pumping.

SEP

GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

181956064464500. Local number, 11.
LOCATION.--Lat 18°19'56", long 64°46'45".
Owner: Virgin Islands Government.

Name: Guinea Gut Well.
AQUIFER.--Louisenhoj Formation (Donnelly, 1959).
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 85 ft

WELL CHARACTERISTICS. --Drilled unused water-table well, diameter 6 in (0.15 m), cased 5 in (0.15 m). Depth 85 ft (25.9 m).

DATUM. --Elevation of land-surface datum is about 280 ft (85.36 m) above mean sea level, from topographic map.

Measuring point: Bottom of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 1.50 ft (0.46 m) above land-surface datum. Prior to June 28, 1983, top of 6 in (0.15 m) casing, 1.80 ft (0.55 m) above land-surface datum.

REMARKS. --Recording observation well.

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

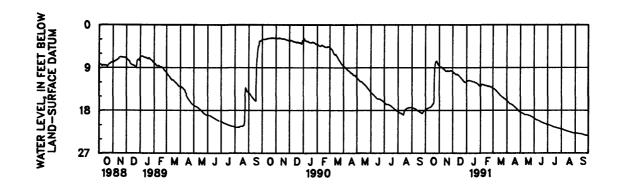
EXTREMES FOR PERIOD OF RECORD. --Highest water level recorded, 2.71 ft (0.79 m) below land-surface datum, Jan. 3, 1990; lowest water level recorded, 25.25 ft (7.70 m) below land-surface datum, Oct. 2, 1985.

WATER LEVEL, IN FERT BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| | INSTANTANEOUS OBSERVATION AT 1200 | | | | | | | | | | |
|-----|-----------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| DAY | OCT | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG |
| 1 | 17.86 | 8.66 | 9.80 | 11.95 | 12.88 | 13.40 | 16.01 | 18.37 | 19.64 | 20.96 | 21.90 |

| DAI | OC1 | 740.4 | DEC | UAN | FAD | MAR | AFR | WVI | COM | OUL | AUG | DDE |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 17.86 | 8.66 | 9.80 | 11.95 | 12.88 | 13.40 | 16.01 | 18.37 | 19.64 | 20.96 | 21.90 | 22.78 |
| 2 | 17.84 | 8.76 | 9.87 | 11.89 | 12.95 | 13.43 | 16.08 | 18.40 | 19.71 | 20.98 | 21.93 | 22.79 |
| 3 | 17.79 | 8.88 | 9.99 | 11.84 | 12.68 | 13.45 | 16.17 | 18.44 | 19.77 | 21.00 | 21.96 | 22.79 |
| 4 | 17.71 | 8.94 | 10.10 | 11.73 | 12.53 | 13.52 | 16.27 | 18.49 | 19.84 | 21.04 | 21.99 | 22.81 |
| 5 | 17.60 | 8.83 | 10.12 | 11.71 | 12.53 | 13.60 | 16.37 | 18.54 | 19.90 | 21.08 | 22.03 | 22.82 |
| 6 | 17.54 | 8.90 | 10.19 | 11.68 | 12.56 | 13.64 | 16.45 | 18.59 | 19.95 | 21.12 | 22.06 | 22.84 |
| 7 | 17.49 | 8.98 | 10.32 | 11.69 | 12.56 | 13.74 | 16.55 | 18.63 | 20.00 | 21.16 | 22.10 | 22.85 |
| 8 | 17.46 | 9.04 | 10.41 | 11.72 | 12.60 | 13.84 | 16.64 | 18.68 | 19.99 | 21.20 | 22.15 | 22.87 |
| 9 | 17.41 | 9.16 | 10.47 | 11.77 | 12.67 | 13.94 | 16.66 | 18.75 | 20.04 | 21.25 | 22.19 | 22.89 |
| 10 | 17.37 | 9.24 | 10.41 | 11.78 | 12.71 | 14.04 | 16.69 | 18.82 | 20.08 | 21.29 | 22.22 | 22.90 |
| 11 | 17.31 | 9.31 | 10.35 | 11.77 | 12.78 | 14.15 | 16.73 | 18.88 | 20.13 | 21.33 | 22.25 | 22.90 |
| 12 | 17.27 | 9.41 | 10.43 | 11.81 | 12.77 | 14.24 | 16.78 | 18.91 | 20.18 | 21.37 | 22.29 | 22.91 |
| 13 | 17.22 | 9.49 | 10.50 | 11.85 | 12.74 | 14.36 | 16.84 | 18.89 | 20.23 | 21.41 | 22.32 | 22.91 |
| 14 | 17.12 | 9.61 | 10.59 | 11.92 | 12.75 | 14.44 | 16.91 | 18.89 | 20.29 | 21.44 | 22.36 | 22.94 |
| 15 | 16.97 | 9.70 | 10.67 | 11.94 | 12.80 | 14.57 | 17.00 | 18.89 | 20.33 | 21.48 | 22.39 | 22.96 |
| 16 | 16.80 | 9.75 | 10.77 | 11.95 | 12.86 | 14.68 | 17.08 | 18.92 | 20.39 | 21.51 | 22.42 | 22.99 |
| 17 | 16.68 | 9.73 | 10.87 | 11.98 | 12.92 | 14.80 | 17.16 | 18.93 | 20.44 | 21.52 | 22.44 | 23.02 |
| 18 | 16.62 | 9.68 | 10.97 | 12.03 | 12.97 | 14.89 | 17.23 | 18.97 | 20.48 | 21.53 | 22.47 | 23.05 |
| 19 | 16.45 | 9.73 | 11.10 | 12.06 | 12.96 | 14.96 | 17.32 | 19.01 | 20.53 | 21.55 | 22.49 | 23.08 |
| 20 | 15.40 | 9.74 | 11.22 | 12.08 | 12.92 | 15.07 | 17.40 | 19.05 | 20.58 | 21.57 | 22.52 | 23.11 |
| 21 | 10.51 | 9.68 | 11.33 | 12.15 | 12.93 | 15.18 | 17.49 | 19.07 | 20.61 | 21.60 | 22.55 | 23.13 |
| 22 | 8.69 | 9.70 | 11.44 | 12.17 | 12.98 | 15.25 | 17.58 | 19.10 | 20.66 | 21.63 | 22.57 | 23.16 |
| 23 | 8.07 | 9.77 | 11.55 | 12.21 | 13.04 | 15.26 | 17.69 | 19.12 | 20.69 | 21.67 | 22.60 | 23.21 |
| 24 | 7.81 | 9.77 | 11.65 | 12.25 | 13.09 | 15.34 | 17.79 | 19.17 | 20.72 | 21.69 | 22.64 | 23.23 |
| 25 | 7.63 | 9.68 | 11.77 | 12.30 | 13.12 | 15.45 | 17.88 | 19.22 | 20.75 | 21.71 | 22.68 | 23.24 |
| 26 | 7.61 | 9.63 | 11.86 | 12.41 | 13.16 | 15.55 | 17.98 | 19.25 | 20.79 | 21.75 | 22.71 | 23.26 |
| 27 | 7.80 | 9.62 | 11.98 | 12.49 | 13.24 | 15.61 | 18.07 | 19.31 | 20.83 | 21.78 | 22.74 | 23.27 |
| 28 | 8.08 | 9.67 | 12.06 | 12.59 | 13.33 | 15.62 | 18.15 | 19.37 | 20.87 | 21.80 | 22.76 | 23.28 |
| 29 | 8.24 | 9.73 | 12.08 | 12.70 | | 15.70 | 18.23 | 19.44 | 20.91 | 21.82 | 22.77 | 23.30 |
| 30 | 8.41 | 9.75 | 12.08 | 12.79 | | 15.81 | 18.31 | 19.50 | 20.94 | 21.85 | 22.77 | 23.30 |
| 31 | 8.52 | | 12.06 | 12.88 | | 15.92 | | 19.57 | | 21.88 | 22.78 | |
| LOW | 17.86 | 9.77 | 12.08 | 12.88 | 13.33 | 15.92 | 18.31 | 19.57 | 20.94 | 21.88 | 22.78 | 23.30 |
| HIGH | 7.61 | 8.66 | 9.80 | 11.68 | 12.53 | 13.40 | 16.01 | 18.37 | 19.64 | 20.96 | 21.90 | 22.78 |
| | | | | | | | | | | | | |

WTR YR 1991 MEAN 16.45 LOW 23.30 HIGH 7.61



GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

182110064430000. Local number, 12.
LOCATION.--Lat 18°21'10", long 64°43'00".
Owner: U.S. Virgin Islands Water and Power Authority.

Owner: U.S. Virgin Islands Water and Power Authority.

Name: WAPA, Coral Bay, VIEO-2.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), 0-70 ft (0-21.3 m), cased 4 in (0.10 m), 0-66 ft (0-20.1 m), screened 26-66 ft (7.26-20.1 m). Depth 66 ft (20.1 m).

DATUM.--Elevation of land-surface datum is about 30 ft (9.14 m) above mean sea level, from topographic map.

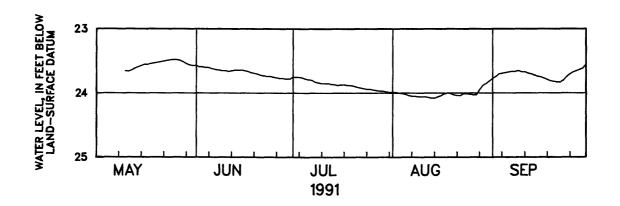
Measuring point: Top of shelter floor, 3.10 ft (0.94 m) above land-surface datum.

REMARKS.--Observation well. Drilled on February 1991. Automated digital recorder installed on May 1991.

PERIOD OF RECORD.--May 1991 to September 1991.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 23.48 ft (7.16 m) below land-surface datum, May 23-26, 1991; lowest water level recorded, 24.08 ft (7.34 m) below land-surface datum, Aug. 10-15, 1991.

| | | WATER LEVEL, | in Fr | INSTA | and-surfa Ntaneous (| CE DATUM, OBSERVATI | WATER YE | EAR OCTOB | BR 1990 T | O SEPTEMB | BR 1991 | |
|------|-----|--------------|-------|-------|-------------------------|------------------------|----------|-----------|-----------|-----------|---------|-------|
| DAY | OCT | NOA | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SRP |
| | | | | | | | | | 23.57 | 23.75 | 23.99 | 23.77 |
| 1 | | | | | | | | | 23.59 | 23.75 | 23.99 | 23.74 |
| ٠ 2 | | | | | | | | | 23.59 | 23.75 | 24.00 | 23.70 |
| 3 | | | | | | | | | 23.60 | 23.76 | 24.01 | 23.69 |
| 4 | | | | | | | | | 23.60 | 23.78 | 24.02 | 23.68 |
| 5 | | | | | | | | | 23.00 | 23.70 | | |
| 6 | | | | | | | | | 23.62 | 23.79 | 24.04 | 23.67 |
| | | | | | | | | | 23.63 | 23.80 | 24.05 | 23.66 |
| 7 | | | | | | | | | 23.64 | 23.83 | 24.05 | 23.66 |
| 8 | | | | | | | | | 23.65 | 23.84 | 24.06 | 23.65 |
| 9 | | | | | | | | 23.65 | 23.65 | 23.85 | 24.06 | 23.67 |
| 10 | | | | | | | | 23.03 | 25.05 | | | |
| | | | | | | | | 23.66 | 23.66 | 23.85 | 24.06 | 23.67 |
| 11 | | | | | | | | 23.64 | 23.65 | 23.85 | 24.07 | 23.69 |
| 12 | | | | | | | | 23.61 | 23.64 | 23.86 | 24.08 | 23.70 |
| 13 | | | | | | | | 23.59 | 23.64 | 23.87 | 24.08 | 23.72 |
| 14 | | | | | | | | 23.57 | 23.64 | 23.88 | 24.06 | 23.74 |
| 15 | | | | | | | | 23.57 | 23.04 | 23.00 | 21 | |
| | | | | | | | | 23.55 | 23.65 | 23.87 | 24.04 | 23.75 |
| 16 | | | | | | | | 23.55 | 23.66 | 23.87 | 24.01 | 23.77 |
| 17 | | | | | | | | 23.54 | 23.68 | 23.88 | 24.00 | 23.79 |
| 18 | | | | | | | | 23.53 | 23.69 | 23.88 | 24.01 | 23.81 |
| 19 | | | | | | | | 23.52 | 23.70 | 23.89 | 24.03 | 23.82 |
| 20 | | | | | | | | 43.54 | 23.70 | 25.05 | | |
| | | | | | | | | 23.51 | 23.72 | 23.91 | 24.04 | 23.83 |
| 21 | | | | | | | | 23.50 | 23.73 | 23.92 | 24.04 | 23.83 |
| 22 | | | | | | | | 23.49 | 23.74 | 23.93 | 24.01 | 23.80 |
| 23 | | | | | | | | 23.48 | 23.74 | 23.94 | 24.01 | 23.74 |
| 24 | | | | | | | | 23.48 | 23.75 | 23.94 | 24.02 | 23.70 |
| 25 | | | | | | | | 23.40 | 23.75 | 23.74 | | |
| | | | | | | | | 23.48 | 23.76 | 23.95 | 24.03 | 23.67 |
| 26 | | | | | | | | 23.49 | 23.77 | 23.96 | 24.03 | 23.65 |
| 27 | | | | | | | | 23.51 | 23.77 | 23.97 | 23.95 | 23.63 |
| 28 | | | | | | | | 23.54 | 23.78 | 23.97 | 23.88 | 23.61 |
| 29 | | | | | | | | 23.56 | 23.78 | 23.98 | 23.85 | 23.56 |
| 30 | | | | | | | | 23.56 | 23.78 | 23.99 | 23.81 | |
| 31 | | | | | | | | 43.57 | | 43.33 | 20.01 | |
| | | | | | | | | 23.66 | 23.78 | 23.99 | 24.08 | 23.83 |
| LOW | | | | | | | | | 23.78 | 23.75 | 23.81 | 23.56 |
| HIGH | | | | | | | | 23.48 | 43.57 | A3.13 | 23.01 | |



ST. JOHN, U.S. VIRGIN ISLANDS

181950064422300. Local number, 13.
LOCATION.--Lat 18°19'50", long 64°42'23".
Owner: U.S. Virgin Islands Water and Power Authority.

Owner: U.S. Virgin Islands Water and Power Authority.

Name: WAPA, Calabash Boom, VIRO-3.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), 0-110 ft (0-33.5 m), cased 4 in (0.10 m), 0-10 ft (0-33.5 m), screened 50-110 ft (15.2-33.5 m). Depth 110 ft (33.5 m).

DATUM.--Elevation of land-surface datum is about 55 ft (16.8 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.80 ft (0.85 m) above land-surface datum.

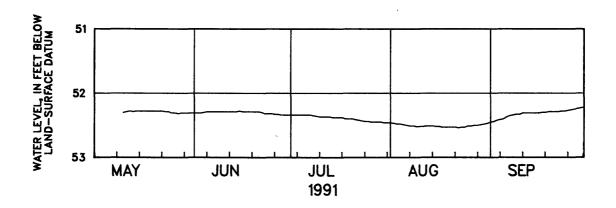
REMARKS.--Observation well. Drilled on February 1991. Automated digital recorder installed on May 1991.

PERIOD OF RECORD.--May 1991 to September 1991.

EXTREMES FOR PERIOD OF RECORD.--Highest water level 52.21 ft (15.9 m) below land-surface datum, Sept. 30, 1991; lowest water level recorded, 52.54 ft (16.0 m) below land-surface datum, Aug. 22, 1991.

WATER LEVEL, IN FERT BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| 1 | DAY | OCT | NOV | DEC | JAN | FRB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
|---|------|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|-------|-------|
| 3 | 1 | | | | | | | | | 52.31 | 52.34 | 52.46 | 52.45 |
| 4 52.30 52.34 52.48 52.41 5 5 52.29 52.34 52.48 52.40 6 6 52.29 52.34 52.45 52.45 52.45 6 7 52.29 52.34 52.50 52.37 7 7 52.29 52.34 52.51 52.35 8 9 52.29 52.36 52.52 52.33 10 10 52.29 52.36 52.52 52.33 10 11 52.29 52.37 52.52 52.33 10 11 52.28 52.29 52.37 52.52 52.33 11 11 52.28 52.29 52.37 52.51 52.31 13 12 52.28 52.29 52.37 52.51 52.31 13 13 52.28 52.29 52.37 52.51 52.31 13 14 52.28 52.29 52.37 52.51 52.31 15 15 52.28 52.29 52.38 52.55 52.31 15 16 52.28 52.29 52.38 52.52 52.31 17 17 52.28 52.29 52.38 52.52 52.31 17 18 52.28 52.29 52.38 52.52 52.31 19 19 52.28 52.29 52.38 52.52 52.31 19 19 52.28 52.29 52.40 52.53 52.30 19 19 52.28 52.29 52.40 52.53 52.30 19 19 52.28 52.29 52.40 52.53 52.30 19 10 52.28 52.29 52.40 52.53 52.30 19 11 52.28 52.29 52.40 52.53 52.30 19 12 52.28 52.29 52.40 52.53 52.30 19 13 52.28 52.29 52.40 52.53 52.30 19 14 52.28 52.29 52.40 52.53 52.30 19 15 52.28 52.29 52.40 52.53 52.30 19 16 52.28 52.29 52.40 52.53 52.30 19 17 52.28 52.29 52.40 52.53 52.30 19 18 52.28 52.29 52.40 52.53 52.30 19 19 52.28 52.29 52.40 52.53 52.30 19 10 52.28 52.29 52.40 52.53 52.30 19 10 52.28 52.29 52.40 52.53 52.30 19 10 52.28 52.29 52.40 52.53 52.29 52.40 | 2 | | | | | | | | | | 52.34 | | |
| 5 52.29 52.34 52.49 52.40 6 52.29 52.34 52.50 52.37 7 | 3 | | | | | | | | | | 52.34 | 52.48 | 52.42 |
| 6 | 4 | | | | | | | | | | 52.34 | 52.48 | 52.41 |
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| | | | | | | | | | | | | | |
| | LOW | | | | | | | | 52.32 | 52.34 | 52.46 | 52.54 | 52.45 |
| | HIGH | | | | | | | | 52.28 | 52.28 | 52.34 | 52.46 | 52.22 |



ST. JOHN, U.S. VIRGIN ISLANDS

182048064430400. Local number, 14.
LOCATION.--Lat 18°20'48", long 64°43'04".
Owner: U.S. Virgin Islands Water and Power Authority.

Owner: U.S. Virgin Islands Water and Power Authority.

Name: WAPA, Coral Bay, VIEO-4.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), 0-50 ft (0-15.2 m), cased 6 in (0.15 m), 0-50 ft (0-15.2 m), screened 20-50 ft (6.09-15.2 m). Depth 50 ft (15.2 m).

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.10 ft (0.94 m) above land-surface datum.

REMARKS.--Observation well. Drilled on February 1991. Automated digital recorder installed on May 1991.

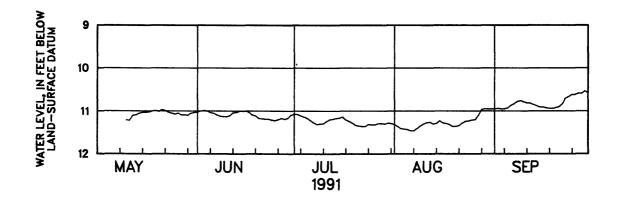
PERIOD OF RECORD.--May 1991 to September 1991.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.5 ft (3.20 m) below land-surface datum, Sept. 29

1991; lowest water level recorded, 11.48 ft (3.50 m) below land-surface datum, Aug. 7, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JOL | AUG | SEP |
|------|-----|-----|-----|---------|-----|-----|-----|-------|-------|-------|-------|-------|
| 1 | | | | | | | | | 11.02 | 11.07 | 11.31 | 10.95 |
| 2 | | | | | | | | | 11.00 | 11.08 | 11.36 | 10.94 |
| 3 | | | | | | | | | 10.99 | 11.11 | 11.41 | 10.95 |
| 4 | | | | | | | | | 11.00 | 11.14 | 11.42 | 10.95 |
| | | | | | | | | | 11.04 | 11.17 | 11.43 | 10.93 |
| 5 | | | | | | | • | | | | | |
| 6 | | | | | | | | | 11.05 | 11.22 | 11.46 | 10.87 |
| | | | | | | | | | 11.09 | 11.27 | 11.46 | 10.83 |
| 7 | | | | | | | | | 11.12 | 11.31 | 11.41 | 10.78 |
| 8 | | | | | | | | | 11.13 | 11.30 | 11.35 | 10.76 |
| 9 | ' | | | | | | | 11.21 | 11.13 | 11.29 | 11.30 | 10.79 |
| 10 | | | | | | | | 11.21 | | | | |
| | | | | | | | | 11.22 | 11.11 | 11.24 | 11.27 | 10.81 |
| 11 | | | | | | | | 11.10 | 11.04 | 11.20 | 11.26 | 10.82 |
| 12 | | | | | | | | 11.09 | 11.03 | 11.19 | 11.30 | 10.85 |
| 13 | | | | | | | | 11.05 | 11.00 | 11.17 | 11.29 | 10.88 |
| 14 | | | | | | | | 11.03 | 11.00 | 11.16 | 11.23 | 10.91 |
| 15 | | | | | | | | 11.03 | 11.00 | 11.10 | | |
| | | | | | | | | 11.03 | 11.00 | 11.14 | 11.28 | 10.91 |
| 16 | | | | | | | | 11.02 | 11.03 | 11.21 | 11.29 | 10.93 |
| 17 | | | | | | | | 11.02 | 11.09 | 11.24 | 11.31 | 10.94 |
| 18 | | | | | | | | 10.99 | 11.11 | 11.28 | 11.36 | 10.94 |
| 19 | | | | | | | | 11.01 | 11.17 | 11.33 | 11.36 | 10.92 |
| 20 | | | | | | | | 11.01 | 11.17 | 11.33 | 11.50 | 20.52 |
| | | | | | | | | 10.97 | 11.18 | 11.35 | 11.34 | 10.90 |
| 21 | | | | | | | | 10.99 | 11.19 | 11.36 | 11.28 | 10.83 |
| 22 | | | | | | | | 11.03 | 11.19 | 11.36 | 11.24 | 10.70 |
| 23 | | | | | | | | 11.05 | 11.21 | 11.31 | 11.23 | 10.67 |
| 24 | | | | | | | | | 11.22 | 11.32 | 11.21 | 10.62 |
| 25 | | | | | | | | 11.07 | 11.22 | 11.32 | 11.21 | 10.02 |
| | | | | | | | | 11.05 | 11.20 | 11.32 | 11.20 | 10.62 |
| 26 | | | | | | | | 11.05 | 11.17 | 11.29 | 11.10 | 10.59 |
| 27 | | | | | | | | 11.09 | 11.19 | 11.29 | 10.96 | 10.59 |
| 28 | | | | | | | | | | 11.39 | 10.95 | 10.54 |
| 29 | | | | | | | | 11.10 | 11.17 | 11.30 | 10.95 | 10.58 |
| 30 | | | | | | | | 11.05 | 11.09 | | 10.95 | |
| 31 | | | | | | | | 11.03 | | 11.29 | 10.35 | |
| | | | | | | | | | 44 00 | 44 36 | 11.46 | 10.95 |
| LOW | | | | | | | | 11.22 | 11.22 | 11.36 | | 10.55 |
| HIGH | | | | | | | | 10.97 | 10.99 | 11.07 | 10.95 | 10.56 |
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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).

| Multiply inch-pound units | Ву | To obtain SI units |
|--|------------------------|--|
| | Length | |
| inches (in) | 2.54x10 ¹ | millimeters (mm) |
| | 2.54x10 ⁻² | meters (m) |
| feet (ft) | 3.048x10 ⁻¹ | meters (m) |
| miles (mi) | 1.609x10° | kilometers (km) |
| | Area | |
| acres | 4.047×10^3 | square meters (m ²) |
| | 4.047x10 ⁻¹ | square hectometers (hm²) |
| | 4.047×10^{-3} | square kilometers (km ²) |
| square miles (mi ²) | 2.590x10° | square kilometers (km²) |
| | Volume | |
| gallons (gal) | 3.785x10° | liters (L) |
| | 3.785x10° | cubic decimeters (dm ³) |
| | 3.785x10 ⁻³ | cubic meters (m ³) |
| million gallons | 3.785×10^{3} | cubic meters (m ³) |
| | 3.785x10 ⁻³ | cubic hectometers (hm³) |
| cubic feet (ft³) | 2.832x10 ¹ | cubic decimeters (dm ³) |
| | 2.832x10 ⁻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) |
| | 1.233x10 ⁻³ | cubic hectometers (hm³) |
| | 1.233x10 ⁻⁶ | cubic kilometers (km³) |
| | Flow | |
| cubic feet per second (ft ³ /s) | 2.832x101 | liters per second (L/s) |
| | 2.832x101 | cubic decimeters per second (dm ³ /s) |
| | 2.832x10 ⁻² | cubic meters per second (m³/s) |
| gallons per minute (gal/min) | 6.309x10 ⁻² | liters per second (L/s) |
| | 6.309x10 ⁻² | cubic decimeters per second (dm ³ /s) |
| | 6.309x10 ⁻⁵ | cubic meters per second (m ³ /s) |
| million gallons per day | 4.381x10 ¹ | cubic decimeters per second (dm³/s) |
| | 4.381x10 ⁻² | cubic meters per second (m³/s) |
| | Mass | |
| tons (short) | 9.072x10 ⁻¹ | megagrams (Mg) or metric tons |
| | | |

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