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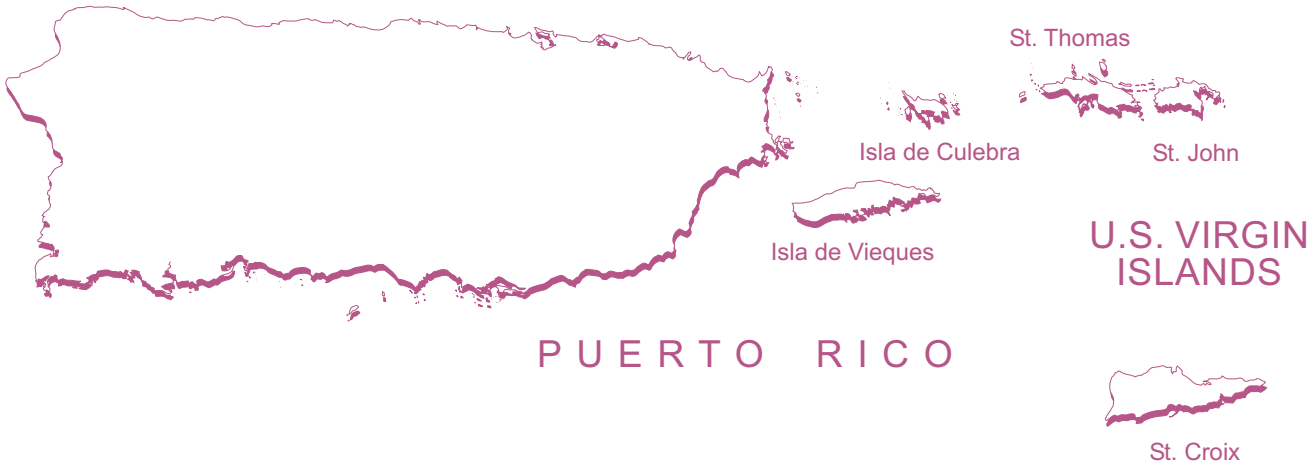
Water Resources Data
Puerto Rico and the U.S. Virgin Islands
Water Year 1999



U.S. Department of the Interior
U.S. Geological Survey

Prepared in cooperation with the Commonwealth of Puerto Rico, the Government of the U.S. Virgin Islands, and with other agencies

CALENDAR FOR WATER YEAR 1999

1998

OCTOBER

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1999

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AUGUST

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SEPTEMBER

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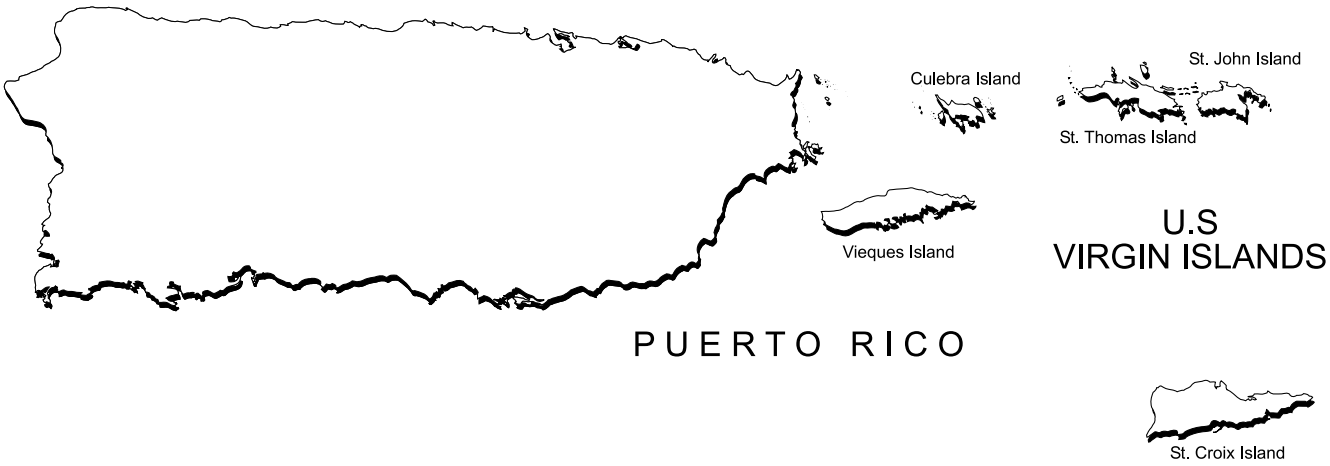
U.S. Department of the Interior
U.S. Geological Survey

Water Resources Data
Puerto Rico and the U.S. Virgin Islands
Water Year 1999

By Pedro L. Díaz, Zaida Aquino, Carlos Figueroa-Alamo, Ricardo J. Vachier, and Ana V. Sánchez

Water-Data Report PR-99-1



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U.S. DEPARTMENT OF THE INTERIOR
BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY
Charles G. Groat, Director

For additional information on the water resources investigation programs in Puerto Rico and the U.S. Virgin Islands write to:

Chief, Caribbean District, Water Resources Division
U.S. Geological Survey
GSA Center, 651 Federal Drive
Suite 400-15
Guaynabo, Puerto Rico 00965
Telephone: (787) 749-4346
2000

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 the U.S. Geological Survey policy and established guidelines, the following personnel contributed significantly to the collection, processing and tabulations of the data:

José M. Agis
George Arroyo
Gregory Cherry
Iris M. Concepción
Israel Cruz
Angel G. Ferrer
Robert Fitzhugh
Wilfredo García
Hector Guardiola
Evelyn S. Guevara
Senén Guzmán-Ríos
Felipe Hernández
Sandra Lagares
José Merced
Carlos Narvaez
Victoria Nuñez
Rafael Peña-Cortez
Ronald T. Richards
Carlos C. Rodríguez
Julio A. Rodríguez
Miguel Rodríguez
Rafael M. Rodríguez
José René Sánchez
Luis Santiago-Rivera
Carlos Santos
Luis Soler
Angel Torres
James Torres
José A. Torres
Ahmed Valencia
Luis Vega

Francisco Maldonado prepared the illustrations and Evelyn S. Guevara typed the text of the report and was mainly responsible for the assemble of the book using Automated Annual Report (AAR) Scripts for Surface Water Discharge and Water Quality Stations.

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 Rafael W. Rodríguez, District Chief, Caribbean District, San Juan, Puerto Rico.

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Pedro L. Díaz, Zaida Aquino, Carlos Figueroa-Alamo, Ricardo J. Vachier,
Ana V. Sánchez

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U.S. Geological Survey, Water Resources Division
GSA Center, 651 Federal Drive, Suite 400-15
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Water resources data for surface-water, quality-of-water, and ground-water records for the 1999 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 76 streamflow-gaging stations; daily sediment records for 25 streamflow stations; stage records for 18 reservoirs; water-quality records for 16 streamflow-gaging stations, 42 ungaged streamsites, 11 lake sites, 2 lagoons, and 1 bay; and water-level records for 107 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.

14. SUBJECT TERMS

*Surface water, *Water quality, *Ground water, Aquifers, Chemical analysis, Gaging stations, Hydrologic data sediments, Streamflow, Water analysis, Water levels, Lakes

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SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

(Letter after station name designates type of data:
(d) discharge, (c) chemical, (b) biological, (s) sediment, (p) pesticide, (e) elevation, gage heights)

	Station number	Page
RIO GUAJATACA BASIN		
Río Guajataca at Lares (d,c,b)	50010500	50
Lago Guajataca at Damsite near Quebradillas (e)	50010800	54
Canal Principal de Diversiones at Lago Guajataca (c,b)	50011000	55
Río Guajataca above mouth near Quebradillas (c,b)	50011400	57
RIO CAMUY BASIN		
Río Camuy near Bayaney (d)	50014800	60
RIO GRANDE DE ARECIBO BASIN		
Lago Garzas near Adjuntas (e)	50020100	64
Río Grande de Arecibo near Adjuntas (c,b)	50020500	65
Río Grande de Arecibo near Utuado (c,b)	50025000	67
Río Caonillas at Paso Palma (d,s)	50026025	69
Río Caonillas above Lago Caonillas near Jayuya (c,b)	50026050	75
Lago Caonillas at Damsite near Utuado (e)	50026140	77
Lago Dos Bocas at Damsite near Utuado (e)	50027100	78
Río Grande de Arecibo below Lago Dos Bocas near Florida (c,b)	50027250	79
Río Grande de Arecibo above Arecibo (d,s)	50027750	81
Río Tanamá near Utuado (d,c,b,s)	50028000	86
Río Tanamá at Charco Hondo (d)	50028400	93
Río Grande de Arecibo at Central Cambalache (d,c,b)	50029000	95
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Río Orocovis at Orocovis (d)	50030460	100
Río Orocovis near Orocovis (c,b)	50030700	102
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Río de la Plata at Highway 2 near Toa Alta (d,c,b,s,p)	50046000	153
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Río Hondo at Flood Channel near Cataño (c,b)	50047530	158

SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME--Continued

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Río Sabana at Vista Monte (d)	50047540	162
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Río de Bayamón below Cidra Dam (d,s)	50047560	165
Río de Bayamón near Aguas Buenas (c,b)	50047600	171
Río de Bayamón near Bayamón (d)	50047850	173
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Quebrada Las Curías below Las Curías Damsite (d)	50048690	180
Río Piedras at El Señorial(d,s)	50048770	186
Río Piedras near Río Piedras (c,b,p)	50048800	188
Río Piedras at Hato Rey (d,c,b)	50049100	190
Laguna San José:		
Laguna San José No. 2 at San Juan (c,b)	50049820	194
Bahía de San Juan:		
Bahía de San Juan No. 5 at San Juan (c,b)	50049920	195
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Río Grande de Loíza at Caguas (d,c,b,s)	50055000	228
Río Caguitas near Aguas Buenas (d,s)	50055100	235
Río Caguitas at Villa Blanca at Caguas (d,s)	50055225	241
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RIO FAJARDO BASIN		
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Río Fajardo below Fajardo (c,b)	50072500	324
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RIO GUAYANES BASIN		
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Río Guayanés above mouth at Playa de Guayanés (c,b)	50086500	337
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Río Chico at Providencia (c,b)	50091800	341
RIO GRANDE DE PATILLAS BASIN		
Río Grande de Patillas near Patillas (d,c,b)	50092000	343
Lago Patillas at Damsite near Patillas (e)	50093045	346
RIO SALINAS BASIN		
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IO INABON BASIN		
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Río Bucaná:		
Río Cerrillos above Lago Cerrillos near Ponce (d)	50113800	370
Lago Cerrillos at Damsite near Ponce (e)	50113950	372
Río Cerrillos near Ponce (d,c,b)	50114000	373
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SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME--Continued

	Station number	Page
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Río Portugués near Ponce (c,b)	50115000	385
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Lago Lucchetti at Damsite near Yauco (e)	50125780	395
RIO LOCO BASIN		
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Río Loco at Guánica (c,b,p)	50129700	397
RIO GUANAJIBO BASIN		
Río Guanajibo at Highway 119 at San Germán (d)	50131990	400
Río Guanajibo near San Germán (c,b)	50133600	402
Río Rosario near Hormigueros (d,c,b,s)	50136400	404
Río Guanajibo near Hormigueros (d,c,b,p)	50138000	411
RIO YAGUEZ BASIN		
Río Yagüez near Mayagüez (c,b)	50138800	416
RIO GRANDE DE AÑASCO BASIN		
Lago Guayo at Damsite near Castañer (e)	50141500	418
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Río Grande de Añasco near San Sebastián (d,c,b)	50144000	421
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Bonne Resolution Gut at Bonne Resolution (d)	50252000	576
Turpentine Run at Mount Zion (d)	50274000	578
ST. JOHN, U.S. VIRGIN ISLANDS		
Guinea Gut at Bethany (d)	50295000	580
ST. CROIX, U.S. VIRGIN ISLANDS		
Jolly Hill Gut at Jolly Hill (d)	50345000	582

GROUND-WATER WELLS, BY BASIN, FOR WHICH RECORDS ARE PUBLISHED

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RIO GUAJATACA BASIN
Well 182925067031100 Local number 1001 468
Well 182422067015100 Local number 165 469
Well 182647066552400 Local number 202 470

RIO CAMUY BASIN
Well 182723066511200 Local number 1026 471
Well 182431066463400 Local number 1027 472

RIO GRANDE DE ARECIBO BASIN
Well 182756066454700 Local number 1051 473
Well 182737066370900 Local number 204 474
Well 182616066364100 Local number 1052 475
Well 182626066345100 Local number 1053 476
Well 182603066333601 Local number 1054 477

Well 182642066394900 Local number 1055 478
Well 182639066385200 Local number 1056 479
Well 182544066341500 Local number 205 480
Well 182209066340600 Local number 1057 482

RIO GRANDE DE MANATI BASIN
Well 182757066325600 Local number 206 483
Well 182710066303700 Local number 207 484
Well 182549066304300 Local number 166 485
Well 182506066280200 Local number 1076 486
Well 182308066260400 Local number 210 487
Well 182548066265700 Local number 1077 488

RIO CIBUCO BASIN
Well 182614066261500 Local number 1101 489
Well 182712066251700 Local number 1102 490
Well 182615066235300 Local number 211 491
Well 182647066201700 Local number 70 492
Well 182515066194000 Local number 212 493
Well 182330066185700 Local number 213 494
Well 182426066260400 Local number 1103 495

RIO DE LA PLATA BASIN
Well 182804066173500 Local number 1126 496
Well 182526066165001 Local number 1127 497
Well 182548066164401 Local number 1128 498
Well 182620066163400 Local number 1129 499
Well 182620066163403 Local number 1130 500
Well 182657066162700 Local number 1131 501
Well 182657066162701 Local number 1132 502
Well 182654066150600 Local number 1133 503
Well 182530066135400 Local number 216 504

GROUND-WATER WELLS, BY BASIN, FOR WHICH RECORDS ARE PUBLISHED

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RIO DE LA PLATA BASIN--Continued
Well 182655066142400 Local number 217 505
Well 180649066095500 Local number 1134 506

RIO HONDO TO RIO PUERTO NUEVO BASINS
Well 182441066082600 Local number 219 507
Well 182531066075900 Local number 652 508
Well 182511066045401 Local number 1152 509
Well 182435066052700 Local number 1153 510
Well 182445066043401 Local number 1154 511
Well 182443066041502 Local number 1155 512
Well 182417066042700 Local number 1156 513
Well 182406066034700 Local number 1158 514
Well 182451066080200 Local number 1159 515

RIO GRANDE DE LOIZA BASIN
Well 181352066025300 Local number 1176 518
Well 181311066022500 Local number 1177 519
Well 181446066013400 Local number 1178 520
Well 181539066014500 Local number 1179 521
Well 181550065593200 Local number 50 522
Well 182515065594100 Local number 222 523
Well 181540065580300 Local number 1180 524
Well 181513065554600 Local number 1181 525

RIO HERRERA TO RIO ANTON RUIZ BASINS
Well 182344065490801 Local number 1201 526
Well 182223065455900 Local number 1202 527
Well 181230065444900 Local number 1203 528
Well 182138065431800 Local number 1204 529
Well 182131065421100 Local number 1205 530
Well 181823065401900 Local number 1206 531
Well 181917065382701 Local number 1207 532
Well 182234065440000 Local number 1208 533

RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS
Well 180358065503600 Local number 1226 535
Well 180415065513900 Local number 96 536
Well 175855066050500 Local number 1228 537
Well 175728066072200 Local number 1229 538
Well 175719066085500 Local number 1230 539
Well 175858066100200 Local number 6 540
Well 180002066132200 Local number 1231 541
Well 180001066122002 Local number 1232 542
Well 175947066130601 Local number 1233 543
Well 175957066123400 Local number 1234 544

GROUND-WATER WELLS, BY BASIN, FOR WHICH RECORDS ARE PUBLISHED

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RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS--Continued
Well 180027065541700 Local number 1235 545
Well 180018066010100 Local number 1236 546
Well 175903066024100 local number 1237 547
Well 175841066104500 Local number 1238 548
Well 175814066102200 Local number 1239 549

RIO SALINAS TO RIO JACAGUAS BASINS
Well 175809066133100 Local number 1251 551
Well 180206066135500 Local number 1252 552
Well 180104066152300 Local number 1253 553
Well 175910066155500 Local number 1254 554
Well 175903066165000 Local number 1256 555
Well 175943066224800 Local number 1257 556
Well 175829066232200 Local number 87 557
Well 180020066261500 Local number 1258 558
Well 180602066133100 Local number 1260 559

RIO INABON TO RIO LOCO BASINS
Well 175950066354200 Local number 141 560
Well 175934066364800 Local number 1276 561
Well 180045066381600 Local number 1277 562
Well 180156066434000 Local number 1278 563
Well 180133066503300 Local number 132 564
Well 175840066494400 Local number 1279 565

RIO GUANAJIBO BASIN
Well 180132067033800 Local number 143 566
Well 180542067084000 Local number 1301 567
Well 180628067084300 Local number 1302 568
Well 180628067084301 Local number 1303 569
Well 180802067073300 Local number 1304 570

RIO YAGÜEZ TO RIO GRANDE DE AÑASCO BASINS
Well 181232067083700 Local number 1326 571

RIO CULEBRINAS BASIN
Well 182017067143300 Local number 1352 572
Well 182442067091700 Local number 200 573

ST. CROIX, U.S. VIRGIN ISLANDS
Well 174225064472000 Local number 2 586
Well 174243064475100 Local number 3 587
Well 174316064480800 Local number 13 588

ST. THOMAS, U.S. VIRGIN ISLANDS
Well 182038064550300 Local number 6 589
Well 182038064580000 Local number 8 590

ST. JOHN, U.S. VIRGIN ISLANDS
Well 181956064464500 Local number 11 591

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1999
DISCONTINUED STREAMFLOW STATIONS

The following continuous-record streamflow stations in Puerto Rico and the U.S. Virgin Islands have been discontinued or converted to partial-record stations. Daily streamflow or stage records were collected for the period of record shown for each station.

Station number	Station name	Drainage area (mi^2)	Period of record
50007000	Quebrada de los Cedros near Isabela	6.91	1970
50010600	Río Guajataca above Lago de Guajataca	--	1984-89
50011000	Canal Diversion Lago Guajataca	--	1970
50011200	Río Guajataca below Lago Guajataca	--	1969-70,1984-87
50011400	Río Guajataca above mouth near Quebradillas	--	1969-70,1984-89
50013000	Río Camuy near Lares	7.62	1969-71
50014000	Río Criminales near Lares	4.68	1969-70
50014600	Río Camuy at Tres Pueblos Sinkhole	--	1990-96
50015700	Río Camuy near Hatillo	--	1984-96
50016000	Río Camuy near Camuy	--	1969-73
50021050	Río Pellejas below Central Pellejas	7.89	1972-75
50021500	Río Pellejas near Utuado	9.55	1969-71
50023000	Río Viví near Central Pellejas	5.66	1969-75
50027200	Río Grande de Arecibo blw. Lago dos Bocas	169	1970-71
50031500	Río Sana Muerto near Orocovis	3.68	1965-70
50035200	Río Grande de Manatí at Hwy 145 at Ciales	132	1972
50035950	Río Cialitos at Hwy 649 at Ciales	17	1970-82
50038360	Río Mavilla near Corozal	9.51	1969-70
50038600	Río Unibón near Morovis	5.29	1969-70
50038700	Río Morovis at Morovis	1.26	1968
50038900	Río Indio at Vega Baja	--	1963,66,71
50039600	Río Cibuco at Central San Vicente	--	1969-72
50043200	Río Usabon near Barranquitas	9.15	1968-69,71
50043400	Río Aibonito Tributary near Aibonito	1.13	1968-71
50044600	Río Guadiana near Naranjito	1.73	1971
50044650	Quebrada del Toro near Naranjito	0.54	1971
50044800	Quebrada Anones near Naranjito	2.32	1971
50045700	Río Lajas at Toa Alta	8.65	1966-75
50047820	Río de Bayamón at Hwy 174 near Bayamón	31.90	1966
50048000	Río de Bayamón at Bayamón	71.90	1963-67
50049000	Río Piedras at Río Piedras	12.5	1971-82, 1987-93
50049310	Quebrada Josefina at Piñero Avenue	3.84	1988-91
50053050	Río Turabo at Borinquen	7.89	1984-90
50054000	Quebrada de las Quebradillas near Caguas	6.25	1969-71,73
50055170	Río Cagüitas near Caguas	8.27	1992-97
50055650	Quebrada Caimito near Juncos	0.82	1984-87
50056000	Río Valenciano near Las Piedras	6.85	1971
50056900	Quebrada Mamey near Gurabo	2.30	1984-92
50058300	Quebrada Arena near Caguas	--	1971
50061300	Río Canovanillas near Loíza	14.40	1968-73

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1999
DISCONTINUED STREAMFLOW STATIONS--Continued

Station number	Station name	Drainage area (mi^2)	Period of record
50062500	Río Herrera near Colonia Dolores	2.75	1968-72
50063300	Río Espíritu Santo near El Verde	2.23	1968-73
50063500	Quebrada Toronja at El Verde	0.064	1983-96
50065700	Río Mameyes at Hwy 191 at Mameyes	11.80	1967-85
50072000	Río Fajardo at Fajardo	21.60	1960-63
50073200	Río Daguao at Daguao	2.26	1966-82
50073400	Quebrada Palma at Daguao	4.84	1972-77
50074000	Río Santiago at Naguabo	4.99	1966-82
50075500	Río Blanco at Florida	11.00	1966-82
50076000	Río Blanco near Florida	12.30	1983-85
50077000	Río Blanco at Río Blanco	17.60	1973-77
50077400	Río Blanco at Colonia La Fe	18.80	1967-70
50078500	Río Anton Ruíz at Central Pasto Viejo	4.33	1968
50081500	Río Humacao near Humacao	9.23	1973
50082000	Río Humacao at Hwy 3 at Humacao	17.30	1983-85
50082200	Río Humacao near La Suiza	19.90	1965-66, 1969-71
50082800	Río Guayanés near Colonia Laura	4.69	1969-82
50083500	Río Guayanés near Yabucoa	17.20	1969-71
50084000	Río Limones near Yabucoa	7.89	1969-71
50085100	Río Guayanés at Central Roig	26.60	1965-66, 1968,70
50086100	Río del Ingenio at Comunas	5.50	1965-66, 1968-69
50086500	Río Guayanés at Playa Guayanés	34.00	1965-66, 1968-71
50087200	Caño Santiago near Central Roig	6.04	1965-71
50091000	Río Maunabo at Maunabo	12.40	1965,67, 1969-82
50091200	Río Maunabo near Maunabo	12.70	1971-72
50091400	Río Jacaboa near Lamboglia	4.13	1965-73
50091700	Río Chico at Patillas	6.82	1965, 1969-72
50091800	Río Chico at Providencia	4.90	1965, 1967-69, 1971
50094200	Río Grande de Patillas at Patillas	27.90	1967, 1969, 1971
50094300	Río Grande de Patillas at Providencia	29.00	1971
50094400	Río Nigua at Pitahaya	5.86	1965, 1969, 1970-71, 1973
50095200	Río Guamaní at Guayama	8.22	1969-71
50095500	Río Guamaní near Guayama	12.30	1969-70
50099000	Quebrada Aguas Verdes near Salinas	0.39	1989
50106500	Río Coamo near Coamo	46.00	1967-68, 1984-85, 1986
50106900	Río Coamo below Lago Coamo near Coamo	65.40	1967-68
50107200	Río Coamo at mouth near Santa Isabel	69.30	1967-68
50108200	Río Descalabrado at Las Ollas	13.90	1965, 1967-71
50108500	Río Descalabrado near Santa Isabel	18.10	1966-67
50111200	Río Toa Vaca near Villalba	21.40	1966-70

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1999
DISCONTINUED STREAMFLOW STATIONS--Continued

Station number	Station name	Drainage area (mi^2)	Period of record
50111700	Río Jacaguas near Juana Díaz	53.20	1966-68
50111750	Río Jacaguas below Quebrada Guanábana	56.30	1989
50112100	Río Jacaguas near Arús	59.60	1966-67
50112600	Río Inabón at Coto Laurel	--	1967-71
50113100	Río Guayo near Coto Laurel	11.80	1965, 1968-71
50113500	Río Inabón near Arús	30.20	1964-65
50114400	Río Bucaná near Ponce	25.60	1965-81
50114700	Río Bucaná near Playa de Ponce	28.40	1964-67
50115000	Río Portugués near Ponce	8.82	1964-97
50116500	Río Portugués at Highway 2 Bypass at Ponce	20.50	1964-65
50119000	Río Matilde at Ponce	19.40	1965-66
50121000	Río Tallaboa at Peñuelas	24.20	1959-82
50122000	Río Tallaboa at Tallaboa	31.50	1959-63
50124000	Río Guayanilla nr Guayanilla	18.50	1961-69
50124500	Río Guayanilla at Guayanilla	20.80	1971-82
50125900	Río Duey above Diversion near Yauco	8.93	1977-80
50126150	Río Yauco above Diversion Monserrate near Yauco	27.20	1978-85
50128000	Río Yauco near Yauco	45.50	1962-64, 1977-85
50129000	Río Loco near Yauco	8.50	1963-67
50129500	Río Loco near Guánica	21.00	1963-69
50129900	Laguna Cartagena near Boquerón	--	1984-86
50130320	Quebrada Mamey at Joyuda	0.38	1986-88
50136000	Río Rosario at Rosario	16.40	1975-86
50141000	Río Yahuecas near Adjuntas	15.40	1980-85
50145000	Río Grande de Añasco at El Espino	108.00	1959-66, 1961-63
50147000	Río Culebrinas at San Sebastian	16.70	1960-82
50214500	Quebrada Resaca near Monte Resaca, Culebra	0.23	1991-93
50215000	Drainage Canal at Culebra Airport, Culebra	0.08	1991-93
50231000	Quebrada Confresí Tributary near Isabel II, Vieques	0.28	1991-93
50232000	Quebrada La Mina near Esperanza, Vieques	0.68	1991-96
50233000	Quebrada Pilón at Colonia Puerto Real, Vieques	0.67	1991-96
50276000	Turpentine Run at Mariendal	2.97	1963-69, 1978-86
50292600	Lameshur Bay Gut at Lameshur, St. John	0.38	1992-94
50294000	Fish Bay Gut at Fish Bay, St. John	1.48	1992-94
50295500	Cruz Bay Gut at Cruz Bay, St. John, V	0.09	1992-93
50332000	River Gut at River	1.42	1991-93
50333500	River Gut near Golden Grove	5.40	1990-93
50333700	River Gut at Hwy 66 at Fairplanes	5.89	1990-96
50334500	Bethehem Gut at Hwy 66 at Fairplanes	4.11	1990-96
50337500	Gut 4.5 at Cane Valley	0.2	1991-93
50348000	Salt River at Canaan	0.36	1991-93
50349000	Gut 10 near Altona	0.13	1991-93

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1999

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 U.S. Geological Survey, the data are published annually in this report series entitled "Water Resources Data for Puerto Rico and the U.S. Virgin Islands, 1999."

This report includes records on both surface and ground water. Specifically, it contains: (1) discharge records for 76 streamflow gaging stations, daily sediment records for 25 streamflow stations, stage records for 18 reservoirs, and (2) water-quality records for 16 streamflow-gaging stations, and for 42 ungaged stream sites, 11 lake sites, 2 lagoons, and 1 bay, and (3) water-level records for 107 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 to 1998 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 U.S. 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-99-1." 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 the title page or by telephone (787) 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 U.S. Geological 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 and Environmental Resources
Puerto Rico Department of Health
Puerto Rico Electric Power Authority
Puerto Rico Solid Waste Management Authority
Puerto Rico Legislature
Puerto Rico Emergency Management Agency
U.S. Virgin Islands Department of Planning and Natural Resources
University of Puerto Rico

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

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1999

Summary of Hydrologic Conditions

Rainfall

Rainfall throughout Puerto Rico during the water year 1999 (October 1998 to September 1999) averaged about 107 percent of normal. During the months of October, November, December, January, March, June, July, and September, rainfall was above normal with averages that ranged from 4 to 66 percent above normal (table 1). During the month of February, April, May, and August, rainfall was deficient with averages that ranged from 7 to 46 percent below normal. Rainfall during the water year averaged 100 percent of normal in northern Puerto Rico, 105 percent of normal in southern Puerto Rico, 116 percent of normal in western Puerto Rico, and 110 percent of normal in eastern Puerto Rico. Islandwide monthly average rainfall for the 1999 water year and for the 30-year period 1961-1990 used to define normal rainfall, as reported by the National Oceanic and Atmospheric Administration, are listed in table 1.

Table 1. Islandwide monthly rainfall for the water year 1999 and annual averages for the 30-year reference period, 1961-1990

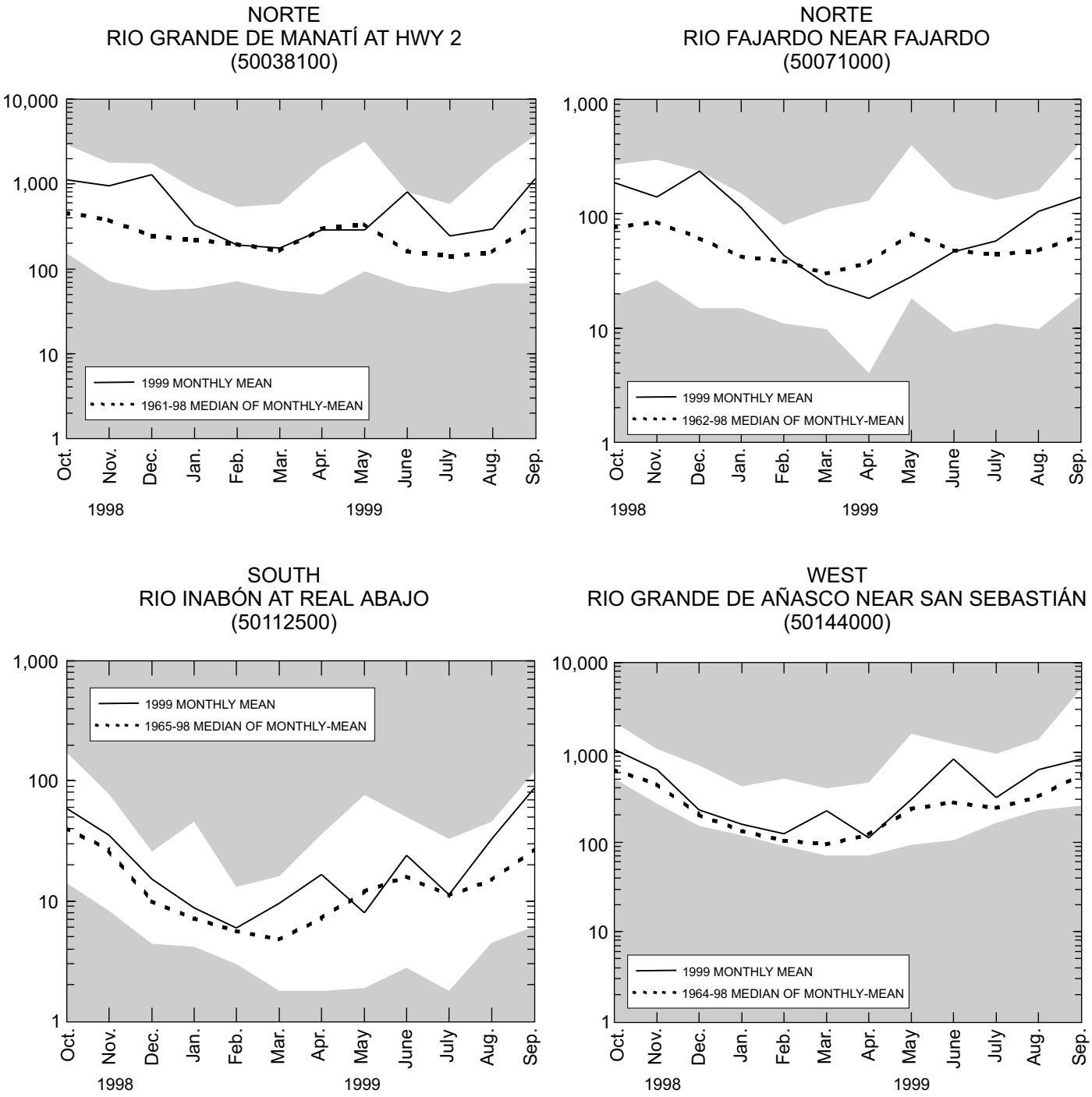
Month	1999 Water Year (inches)	30-year normal (inches)
October	9.07	8.29
November	7.46	6.55
December	7.27	4.38
January	3.51	2.87
February	1.77	2.53
March	3.14	3.02
April	2.75	4.44
May	3.76	6.96
June	6.98	4.99
July	5.54	5.09
August	6.40	6.89
September	9.76	7.14
TOTAL	67.41	63.15

Surface Water

Streamflow in Puerto Rico was in general, above normal in water year 1999, based on the index stations. Monthly mean discharges were larger than the long-term monthly mean median flow during several months. A comparison of the monthly mean flows during the 1999 water year, the long-term median of the monthly mean flows, and the minimum and maximum monthly mean flows for the periods of record at the index stations on the Río Grande de Manatí, the Río Fajardo, the Río Inabón, and the Río Grande de Añasco are shown in figure 1. Historical maximums for the month of June were recorded at two of the four index stations.

Hydrologic conditions were similar islandwide for the months of October to January, and July to September, with monthly-mean flows at the four index stations above the long-term median of the monthly-mean flows, at those stations. During this year there were no extraordinary streamflow events, but there was sufficient runoff during the entire period. During the months of February to May, streamflows were below the long-term median of the monthly-mean flows in some areas, as recorded by the index stations. An overview of the four areas represented by the index stations follows to describe those conditions in more detail.

In the northern area, represenred by the Río Grande de Manatí index station, the monthly mean flows were below the long-term median of the monthly-mean flows only during the months of February, April, and May. Those flows ranged between 2 to 16 percent below normal. The rest of the year, monthly mean flows were well above normal, ranging from 9 to 420 percent above the long-term median of the monthly-mean flows, with December the highest. A historical monthly mean maximum was recorded during the month of June by this index station.



Unshaded area indicates range between highest and lowest monthly-mean discharge for the period of record to water year 1999.

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

The eastern area, represented by the index station at the Río Fajardo, recorded monthly mean flows above the long-term median during eight of the twelve months of the 1999 water year. At this station, the months from March to June ranged from 1 to 57 percent below normal. The rest of the year, above normal flows ranging from 13 to 282 percent above normal were recorded.

In the southern area, the Río Inabón index station recorded monthly mean flows above the long-term median during eleven of the twelve months of the 1999 water year. At this station, only the May mean flow was below the long-term median. The flow in May was 67 percent of normal. The rest of the year, monthly mean flows ranged from 104 to 319 percent of the long-term median.

In the western area, the index station on the Río Grande de Añasco recorded monthly mean flows above the long-term median during the entire 1999 water year. Monthly mean flows ranged between 11 to 202 percent above the long-term median of the monthly mean flows. The highest was recorded during the month of June with the historical highest monthly mean since station was started in 1964.

In the U.S. Virgin Islands, rainfall was dificient with only91 percent of normal reported by the National Oceanic and Atmospheric Administration. Streamflow conditions were similarly below normal.

Ground Water

Water level trends and fluctuations during the 1999 water year followed a similar pattern as in previous years resulting from above normal rainfall accumulation combined with continuous ground-water withdrawals (Figure 2). In 39 ground-water monitoring sites, the highest water level recorded approached or was slightly above the historic high (Table 2). Similarly, in areas where the historic water level was below the historic low, ground-water withdrawals are an important resource, for drinking water purposes (Table 3).

The period of record of 56 ground-water monitoring sites dates back to 1997, when the ground-water monitoring network was established and a similar pattern, when ground-water levels are compared to historic ground-water levels at index stations. Figure 7 and 9 shows the locations of the ground-water stations maintanied by the USGS in Puerto Rico and the US Virgin Islands.

Table 2. Highest ground-water levels recorded during 1999 water year and previous high ground-water levels at selected wells in Puerto Rico

[PR, Puerto Rico; mm/dd/yy, month/day/year; ft-blsd, feet below land-surface datum; mm/yy, month/year]

Well name or number	Local number	Location	1999 Highest water level (ft-blsd)	Date (mm/dd/yy)	Previous highest water level (ft-blsd)	Date (mm/dd/yy)	Period of record (mm/yy)
Otilio No. 1	1001	PR	292.31	10-09-99	292.40	10-18-98 10-19-98	5-97 to 9-99
Saltos # 1	165	PR	38.24	10-16-98	38.36	07-12-93	1-82 to 9-99
Carmelo Barreto	202	PR	401.95	02-06-99	409.2	09-25-86	11-85 to 9-99
Campo Alegre # 4	1027	PR	183.48	04-09-99	183.90	10-03-96	9-96 to 9-99
Barreto # 1	1051	PR	159.38	11-01-98 11-02-98 11-03-98	159.6	09-24-98 to 09-28-98	10-97 to 9-99
Florida Afuera # 2	1054	PR	198.03	12-04-98 12-05-98	199.01	09-11-96 09-12-96	8-96 to 9-99
Florida # 1	1057	PR	135.73	10-30-98	137.91	09-22-98	8-96 to 9-99
Hill # 2	1076	PR	249.79	12-05-98	267.96	01-24-97	5-96 to 9-99
Palo Alto # 2	1101	PR	220.55	12-06-98	221.78	09-12-96	5-96 to 9-99
Tortuguero # 3	1102	PR	23.39	12-06-98	23.48	09-12-96	5-96 to 9-99
Maguayo # 2	1128	PR	24.02	12-11-98 12-12-98	24.89	09-18-96 09-19-96	6-95 to 9-99
Higuillar # 1	1129	PR	35.29	01-15-99	36.04	09-15-96 09-16-96	5-96 to 9-99
Higuillar # 4	1130	PR	31.10	12-11-98 12-12-98	31.84	09-11-96	1-95 to 9-99
USGS Bldg. 652	652	PR	5.42	12-05-98	6.20	05-26-98	5-97 to 9-99
La Esperanza # 2	1152	PR	7.63	12-06-98	7.71	09-23-98	7-89 to 9-99
Jardín Botánico # 3	1158	PR	2.05	12-04-98	2.84	09-22-98 09-23-98	6-91 to 9-99
CJ-TW-19A	1176	PR	21.06	12-07-98	22.07	09-25-98 09-26-98 09-27-98	6-92 to 9-99
CJ-TW-11	1177	PR	18.34	12-06-98 12-07-98 12-08-98	23.08	09-27-98 09-29-98	5-97 to 9-99
CJ-TW-20	1178	PR	11.75	12-07-98	14.19	09-22-98	5-97 to 9-99
CJ-TW-15	1179	PR	4.92	12-03-98	5.93	10-14-97	5-97 to 9-99
CJ-TW-3B	1181	PR	9.18	11-15-98 11-16-98	10.64	09-11-96	9-91 to 9-99
Río Espíritu Santo 2A	1201	PR	+0.36	12-04-98 12-05-98	0.41	02-02-97	12-96 to 9-99
Río Mameyes # 2	1202	PR	9.30	07-30-99 07-31-99	9.35	06-01-98	9-97 to 9-99
Arroyo TW-1	1203	PR	2.01	10-22-98	4.95	01-07-98	10-97 to 9-99
Río Pitahaya No. 4	1205	PR	0.32	12-10-98	0.91	09-18-95	8-95 to 9-99
Río Fajardo No. 12	1207	PR	1.90	12-30-98	2.71	10-14-97	8-95 to 9-99
Yabucoa Deep Observation	1226	PR	+0.05	12-09-98	0.50	03-02-98 03-03-98 03-04-98	9-97 to 9-99

Table 3. Lowest ground-water levels recorded during 1999 water year and previous low ground-water levels at selected wells in Puerto Rico

[PR, Puerto Rico; mm/dd/yy, month/day/year; ft-blsd, feet below land-surface datum; mm/yy, month/year]

Well name or number	Local number	Location	1999 Lowest water level (ft-blsd)	Date (mm/dd/yy)	Previous Lowest water level (ft-blsd)	Date (mm/dd/yy)	Period of record (mm/yy)
Monserrate # 2	217	PR	4.11	06-30-99	3.72	05-13-95	11-85 to 9-99
USGS Bldg. 652	652	PR	9.16	10-01-98 12-14-97	9.02	12-13-97	5-97 to 9-99
CJ-TW-18	1180	PR	15.83	05-11-99 07-16-97 07-17-97	15.81	07-15-97	6-97 to 9-99
Río Mameyes # 2	1202	PR	14.22	05-06-99 05-07-99 05-08-99	14.08	05-26-98	9-97 to 9-99
Arroyo TW-1	1203	PR	11.68	07-08-99 07-09-99	10.65	04-06-98	10-97 to 9-99
Río Fajardo No. 12	1207	PR	12.40	08-17-99 08-18-99	10.64	08-21-97 08-22-97	8-95 to 9-99
Yabucoa Deep Observation	1226	PR	5.90	08-09-99 08-10-99 08-11-99	5.83	06-10-98 to 06-17-98	9-97 to 9-99
Algarrobos	1228	PR	34.17	07-06-99 to 07-11-99 08-22-99 08-23-99	33.85	07-02-98	5-97 to 9-99
Cabo Rojo # 1	1301	PR	28.52	05-19-99	28.41	04-08-98	5-96 to 9-99
CR-TW-9A	1302	PR	13.39	06-02-99	8.53	03-21-98	7-92 to 9-99
Cervecería India	1326	PR	18.86	04-24-99	18.82	10-22-97	8-97 to 9-99
Rincón # 4	1352	PR	34.38	08-19-99	34.07	05-30-96	5-96 to 9-99

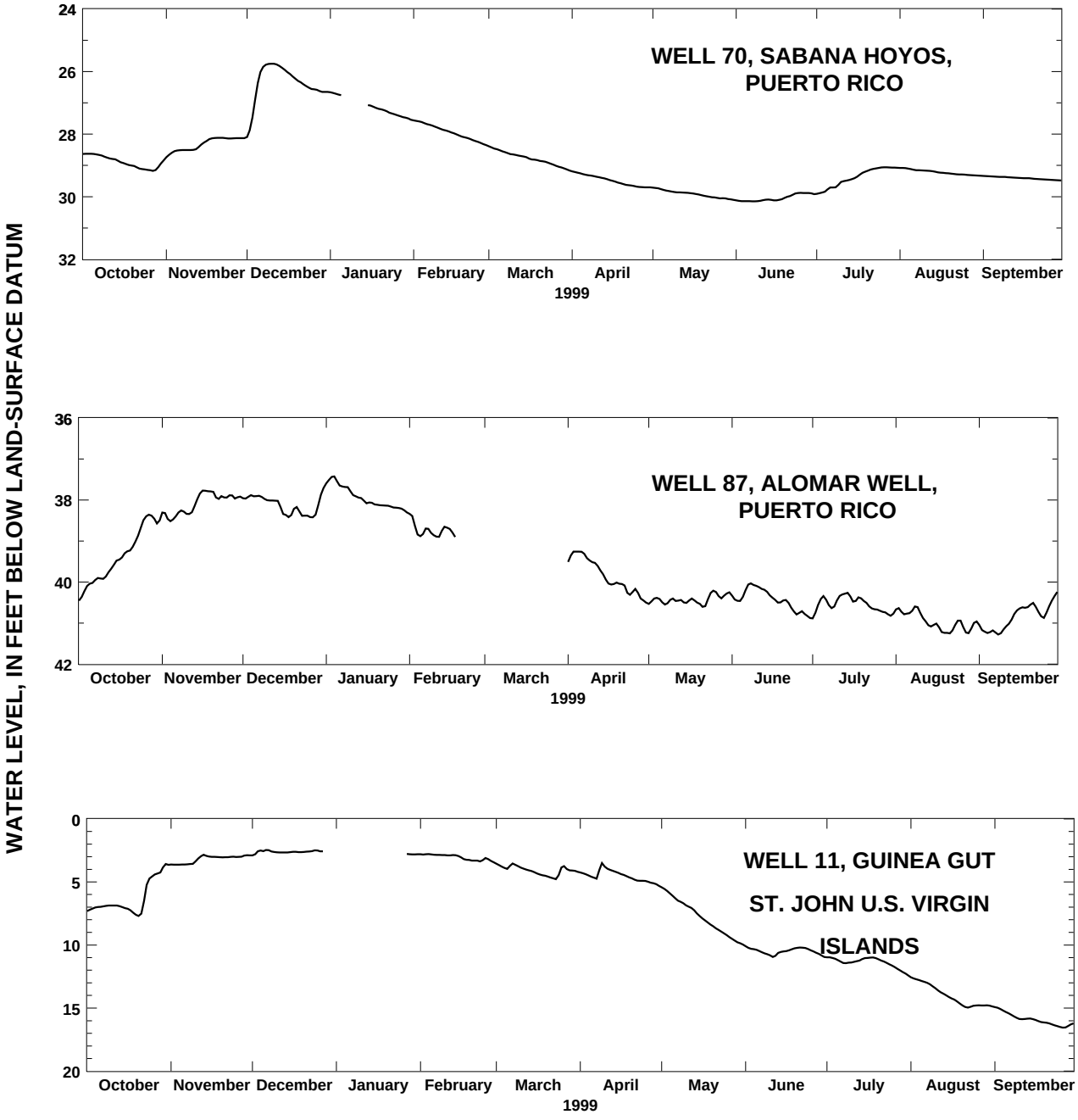


Figure 2. Ground-water levels at selected wells in Puerto Rico and the U.S. Virgin Islands.

Water Quality

The U.S. Geological Survey, in cooperation with several local government agencies, collected water-quality data at 73 surface-water stations in Puerto Rico during water year 1999. The water-quality data collected at these stations included the major chemical constituents and several others that are listed in table 4. The highest concentration of each of these constituents detected during water year 1999 and the station where it was detected are summarized in table 4.

Table 4. Surface-water quality stations in Puerto Rico with highest concentration of selected constituents during water year 1999

[All constituent concentrations are in milligrams per liter; MBAS, Methylene blue active substance]

Station number	Station name	Constituent	Concentration
*	--	Sulfide	<1.0
50047530	Río Hondo at Flood Channel	Boron	0.35
50031200	Río Grande de Manatí nr. Morovis	Manganese	1.0
50031200	Río Grande de Manatí nr. Morovis	Iron	27
50055250	Río Cagüitas at hwy 30 nr. Caguas	Zinc	0.23
50091000	Río Maunabo nr. Maunabo	Cyanide	0.308
50057025	Río Gurabo nr. Gurabo	Phenols	0.28
50055250	Río Cagüitas at hwy 30 nr. Caguas	MBAS	1.4

* Sulfide concentrations at all water-quality stations were below the detection limit (<1.0).

The presence of high concentrations of fecal coliform (fig. 3) and fecal streptococcal (fig. 4) bacteria continued to be the principal surface-water quality problem in Puerto Rico during water year 1999 . The highest concentration observed during this year ocurred in stations 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 the streams are also receiving effluents from the upper basin sewage treatment plants. The highest concentration of fecal coliform and fecal streptococcal bacteria in surface waters in Puerto Rico generally occurred in streams draining from densely populated and industrialized areas of the Island. Suspended-sediment concentrations were monitored at 25 stations in Puerto Rico during the 1999 water year as part of the cooperative program between the U.S. Geological Survey and various Commonwealth and Federal agencies. High suspended sediment concentrations are a common problem in many streams in Puerto Rico. Most of the streams with high suspended sediment concentration were related to land use, especially urban development, agriculture and activities where soil movement was involved. The high suspended-sediment concentrations affect the quality of drinking water and the storage capacities of reservoirs.

Water quality data for purposes other than long-term network monitoring were obteined at selected stations located in Laguna Tortuguero, Puerto Rico and in Saint Thomas, U.S. Virgin Island. The results are included in the miscellaneous station analysis section beginning on page 439 of this report.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 57 sites 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.

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.

The National Trends Network (NTN) is a 150-station 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).

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, diverse, and geographically distributed part of the Nation's ground- and surface-water resources, and to identify, describe, and explain the major natural and human factors that affect these observed conditions and trends.

Assessment activities have begun in more than one-third of the study units and ultimately will be conducted in 60 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

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

Tritium Network 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 precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF RECORDS

The surface- and ground-water records published in this report are for the 1999 water year that began October 1, 1998 and ended September 30, 1999. 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 9. 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 stream site 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. 10).

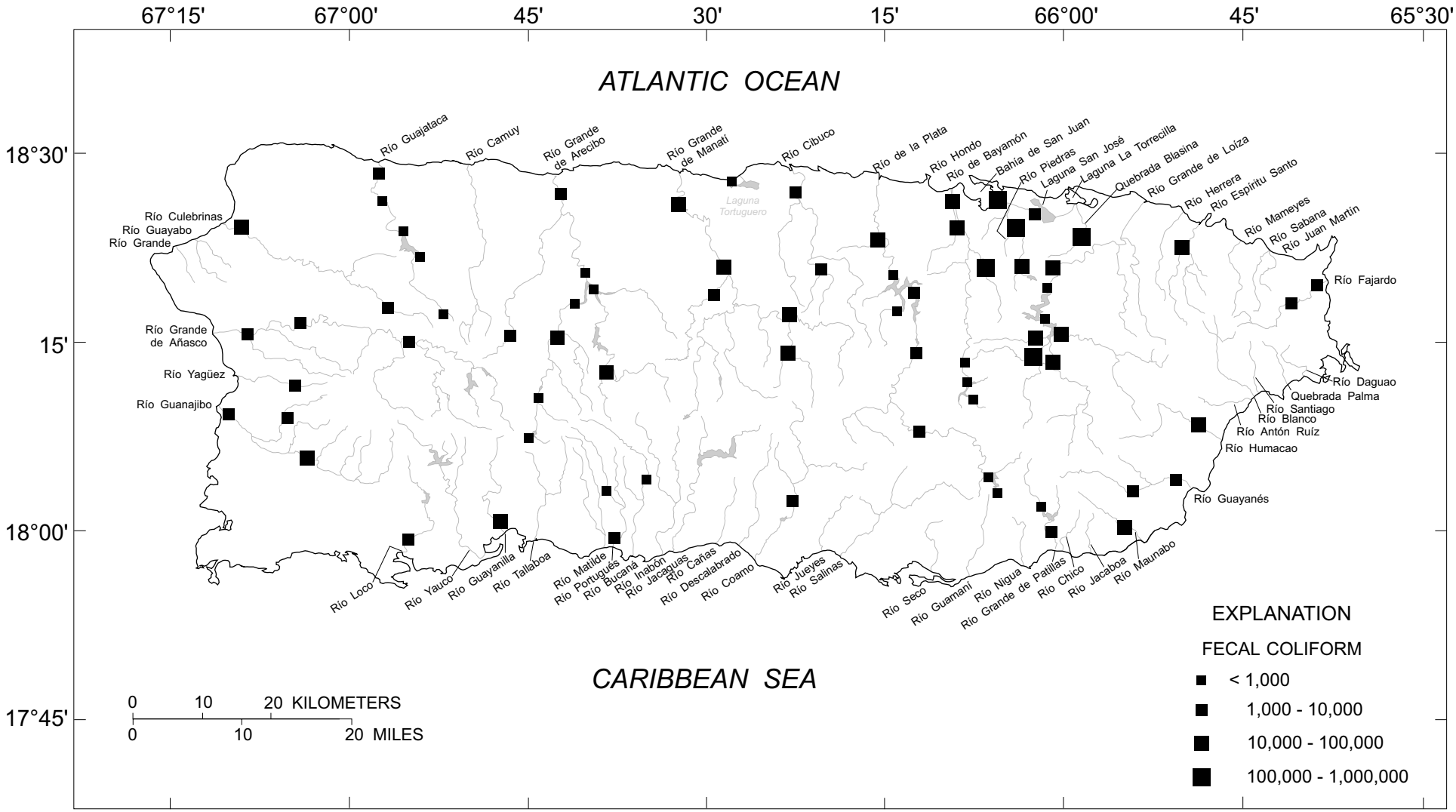


Figure 3. Location of maximum concentration of fecal coliform bacteria at the water-quality sampling sites in Puerto Rico.

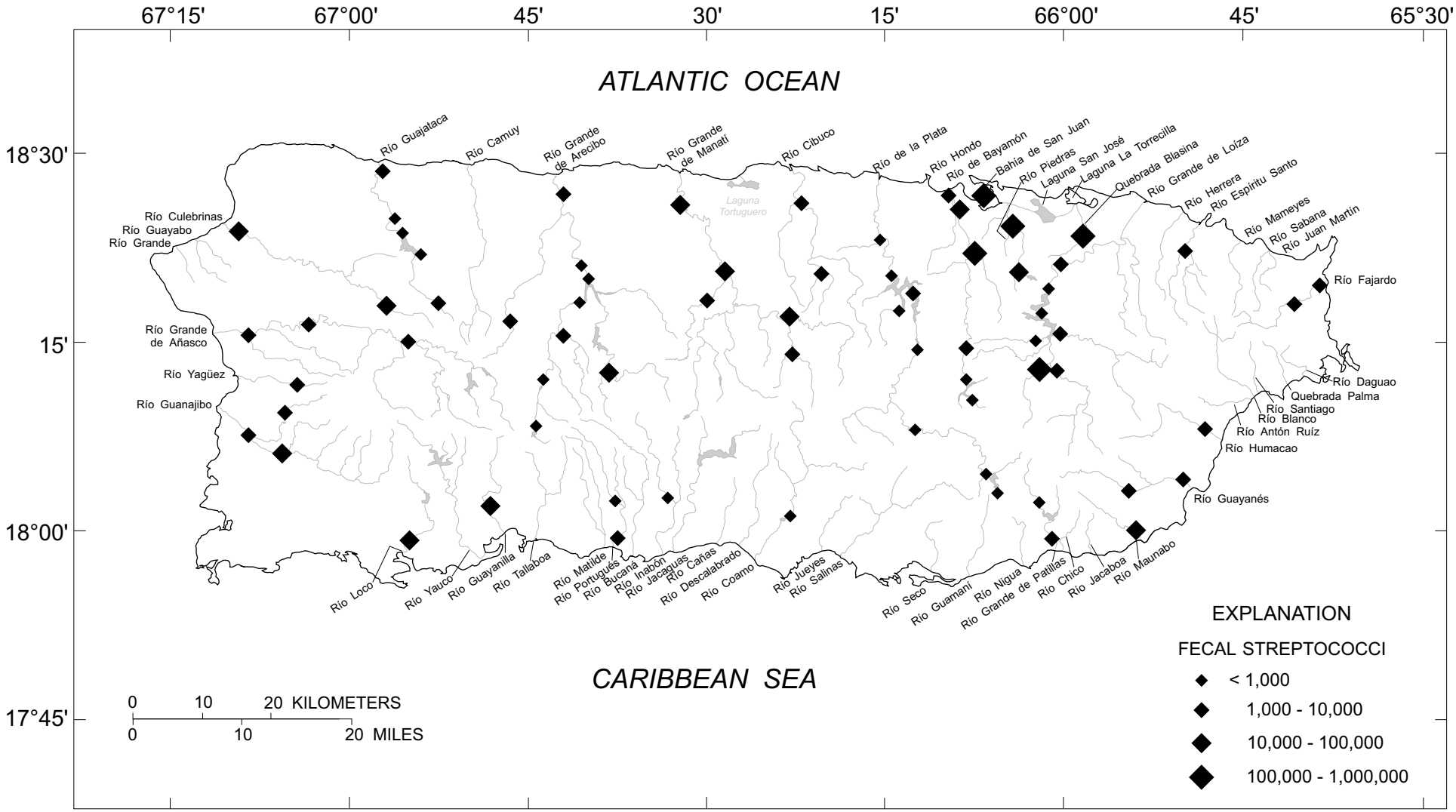
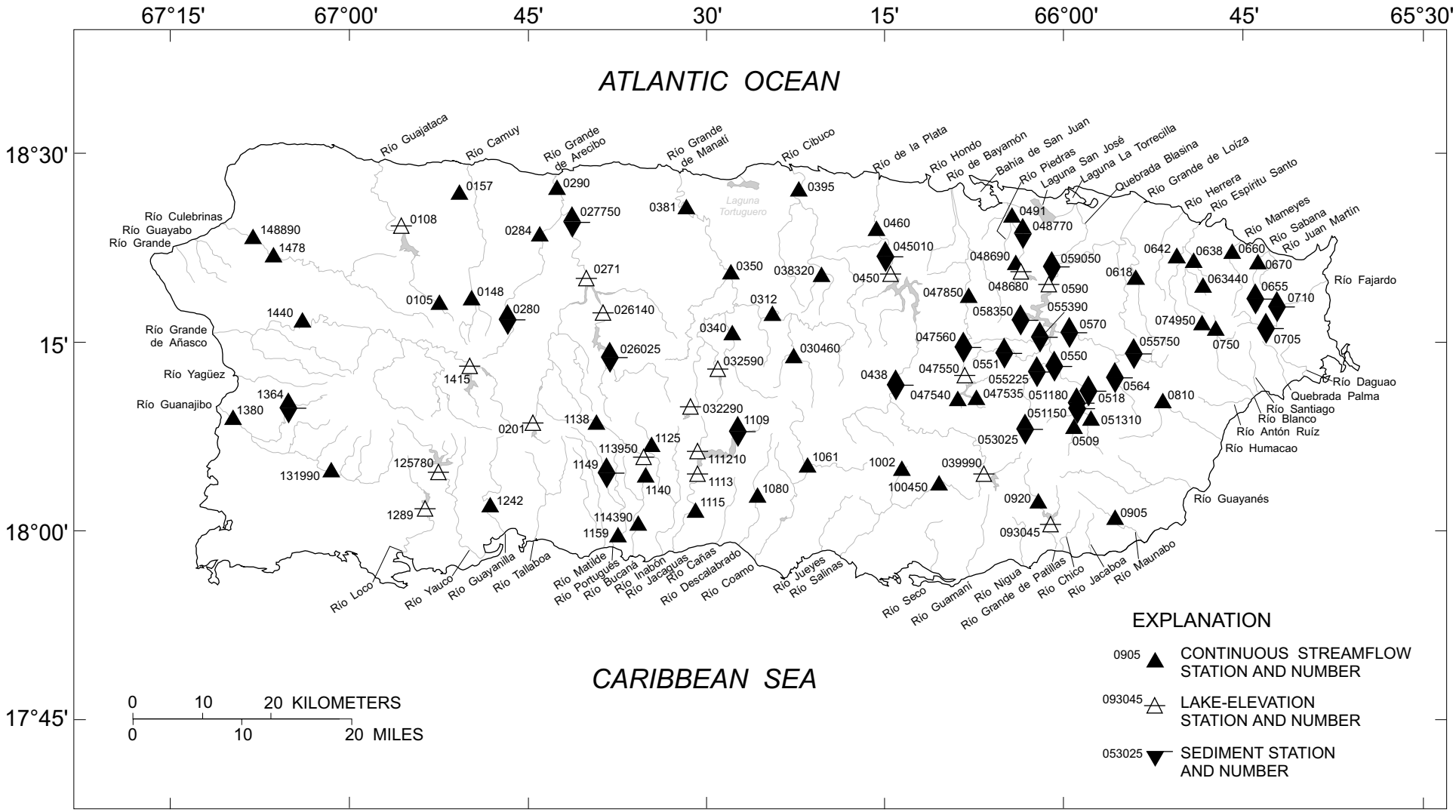


Figure 4. Location of maximum concentration of fecal streptococci bacteria at the water-quality sampling sites in Puerto Rico.



EXPLANATION

0905 ▲ CONTINUOUS STREAMFLOW STATION AND NUMBER

093045 △ LAKE-ELEVATION STATION AND NUMBER

053025 ▼ SEDIMENT STATION AND NUMBER

0 10 20 KILOMETERS

0 10 20 MILES

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

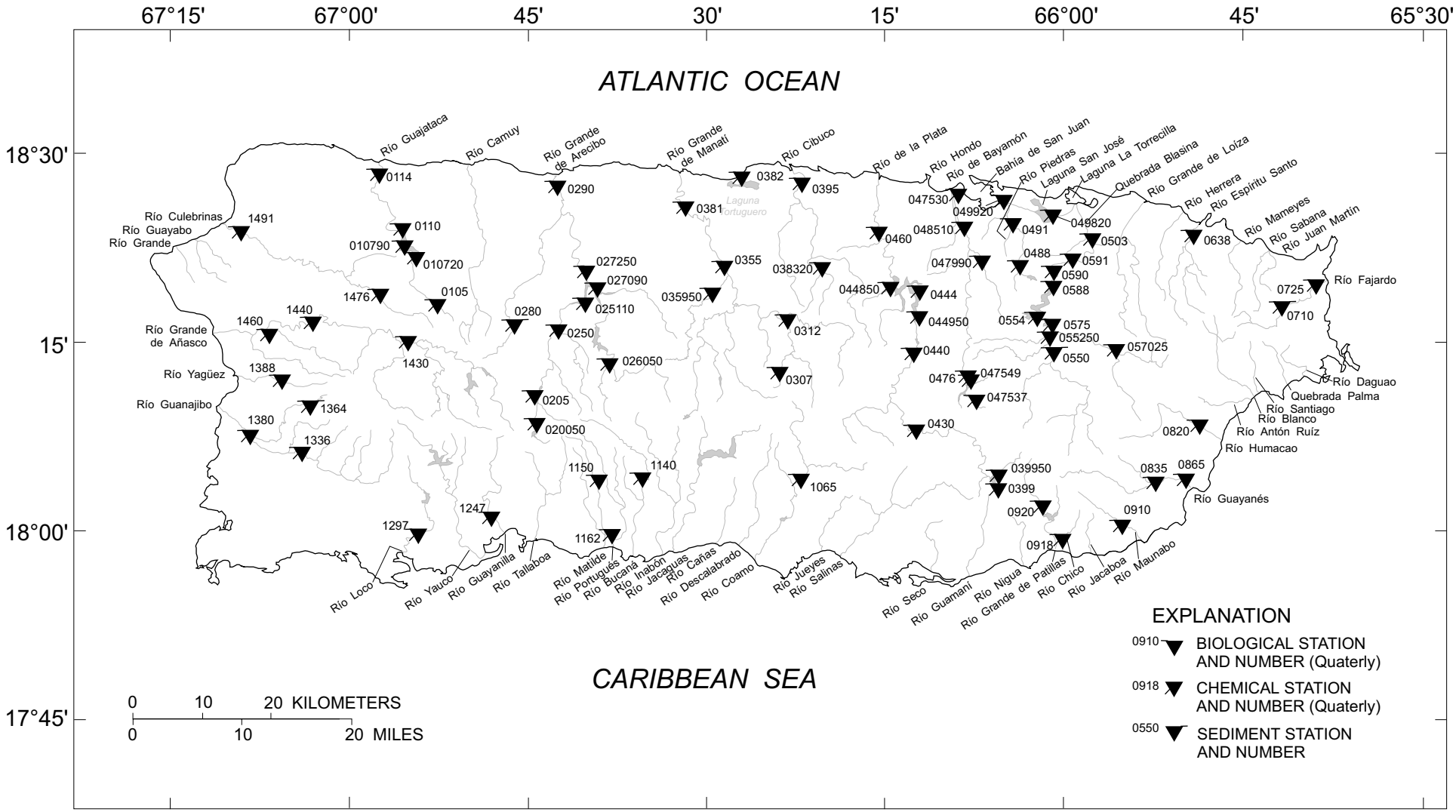


Figure 6. Location of water-quality stations in Puerto Rico.

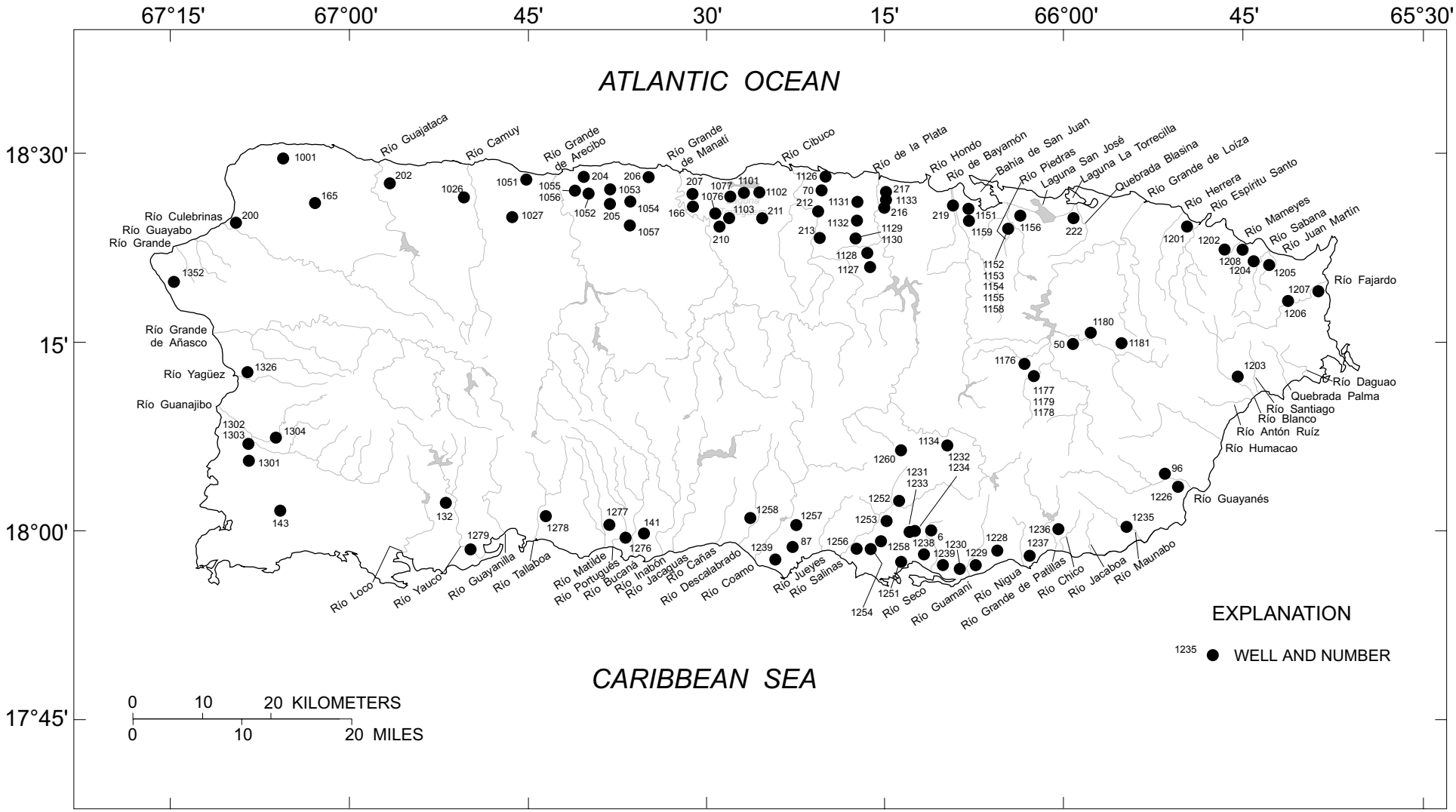


Figure 7. Location of ground-water stations in Puerto Rico.

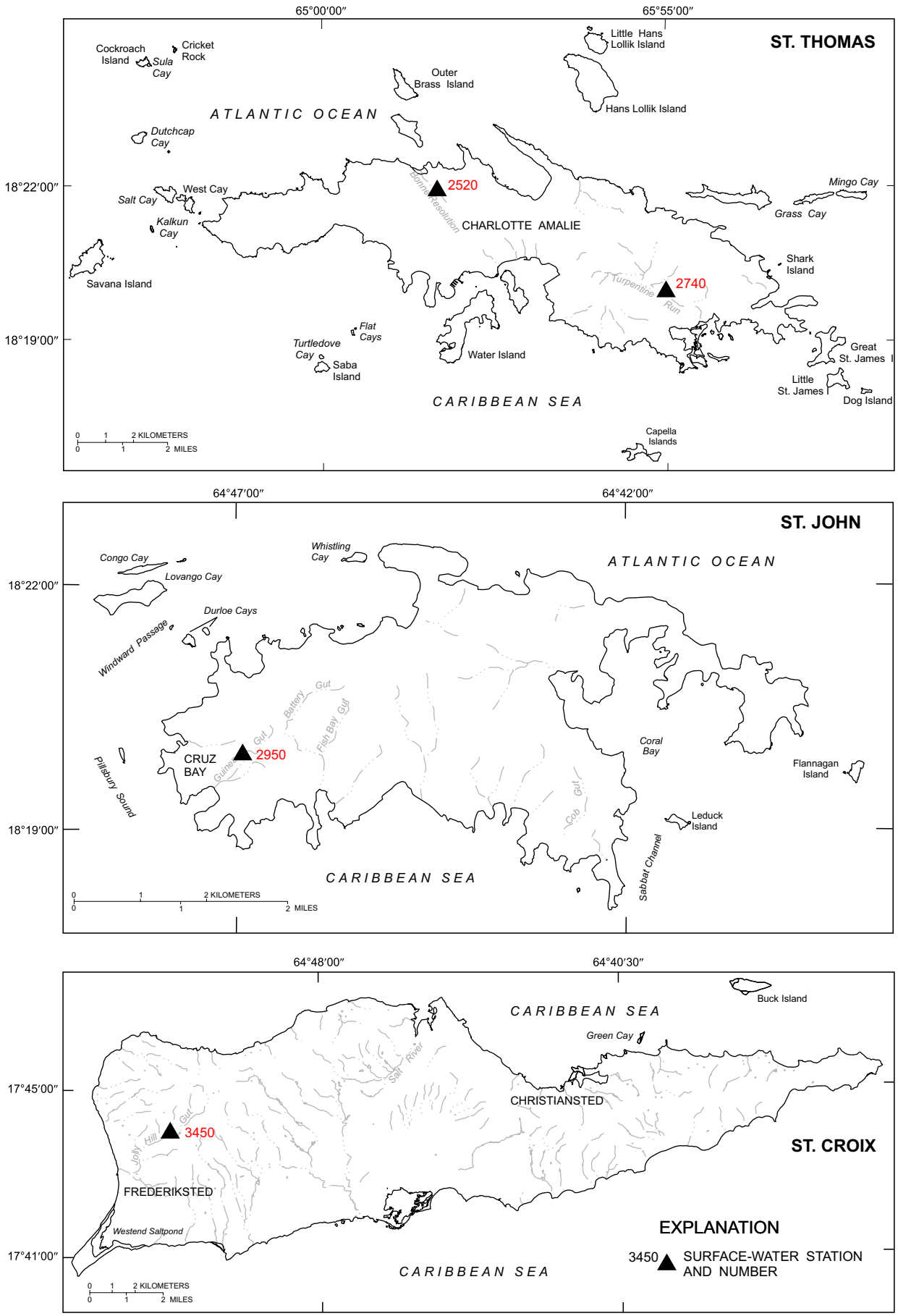


Figure 8. Location of surface-water stations in the U.S. Virgin Islands.

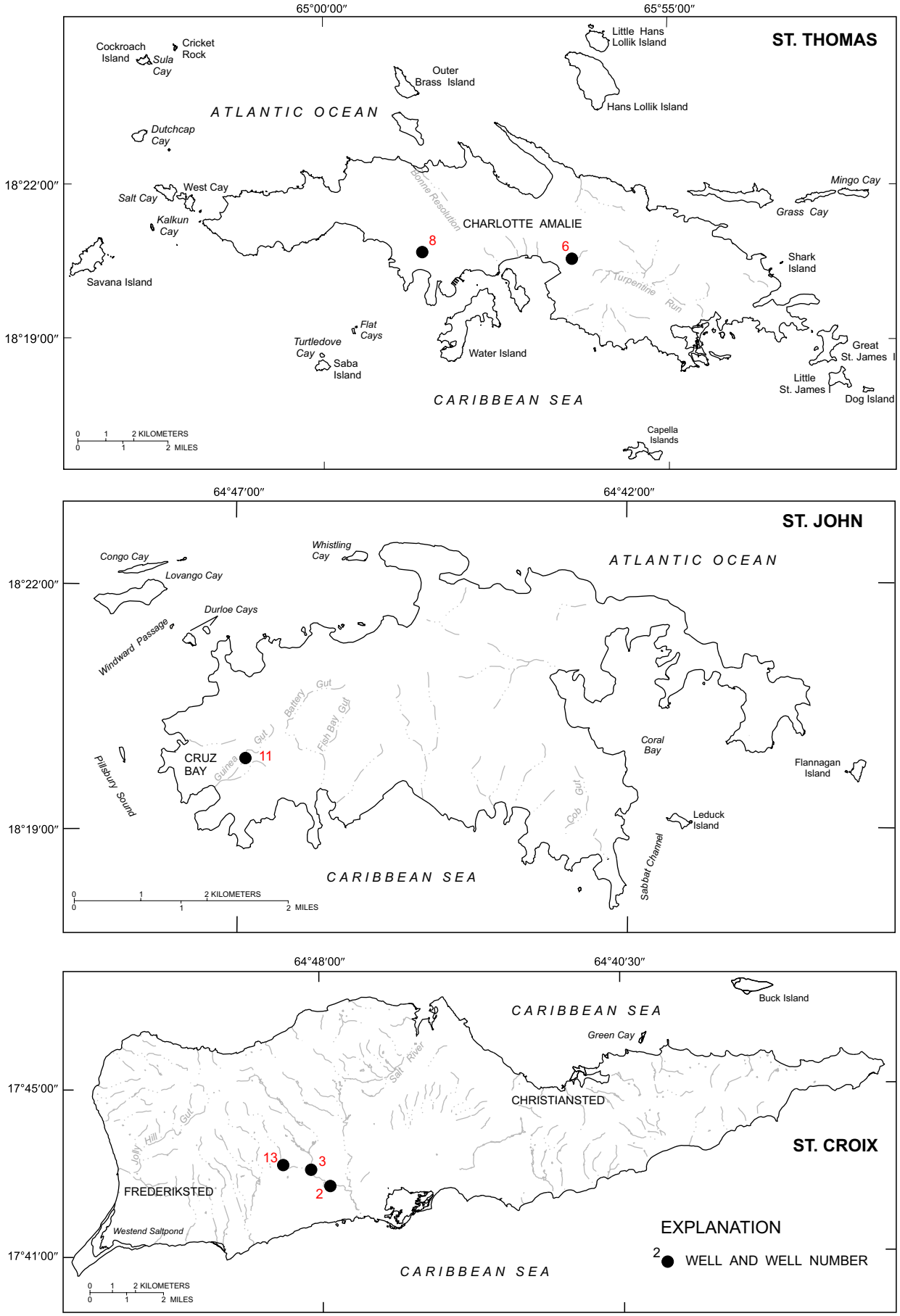


Figure 9. Location of ground-water stations in the U.S. Virgin Islands.

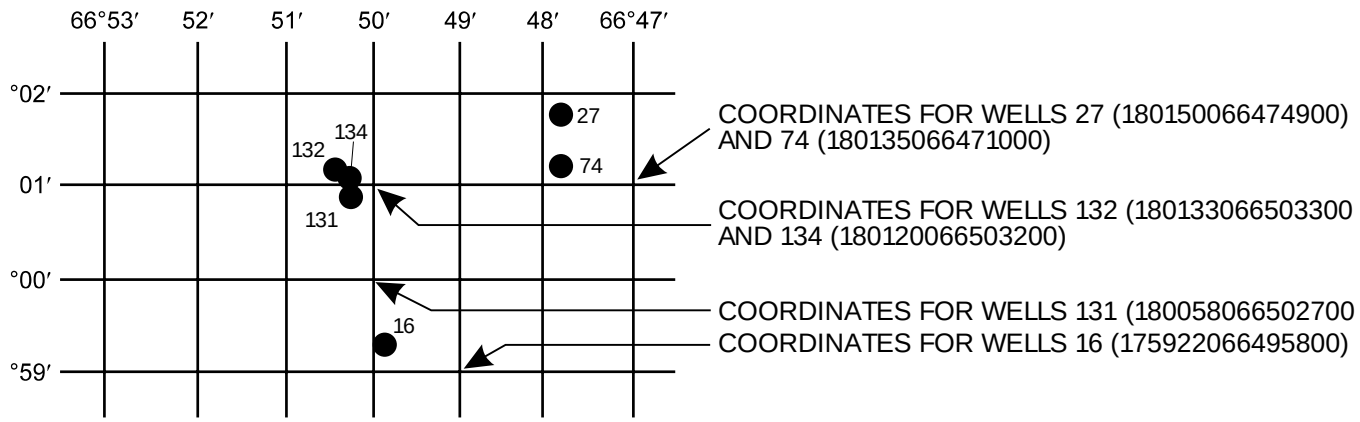


Figure 10. Grid showing system for numbering wells and miscellaneous sites (latitude and longitude).

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 "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 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 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

Steamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1992 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of four parts, the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period, by water year; and a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimum, and flow duration.

Station manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; 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 stations descriptions.

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.--Because of new information, published records 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.

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.

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.

Data table of daily mean value

The daily table of discharge records for stream gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed "TOTAL" gives the sum of the daily figures for each month; the line headed "MEAN" gives the average flow in cubic feet per second for the month; and the lines headed "MAX" and "MIN" give the maximum and minimum daily mean discharges, respectively, for each 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 or in acre-feet may be omitted if there is extensive regulations or diversion or if the drainage area includes large noncontributing areas.

Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flow are provided immediately below those figures. The designated period will be expressed as "FOR WATER YEARS ____-____, BY WATER YEAR (WY)," and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station records within the specified water years, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

Summary statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, "WATER YEARS ____-____," will consist of all of the station records within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (see line headings below), except for the "ANNUAL 7-DAY MINIMUM" statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN.--The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistics).

INSTANTANEOUS PEAK FLOW.--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office. (See address on back of the title page of this report.)

INSTANTANEOUS PEAK STAGE.--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW.--The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF.--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurements in presenting annual runoff data:

Acre-foot (AC-FT) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

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

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for given time period were uniformly distributed on it.

10 PERCENT EXCEEDS.--The discharge that is exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.--The discharge that is exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.--The discharge that is exceeded 90 percent of the time for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in a table of discharge measurements at low-flow partial-record stations. These measurements are generally made in times of drought to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

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 ft^3/s; to the nearest tenth between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures for more than 1,000 ft^3/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 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, suspended-sediment loads for other periods of similar discharge, and computed by the subdivided-day method using the transport curves.

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 particle-size distribution of the suspended sediment 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:

PRINTED OUTPUT	REMARK
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 9.

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 three parts, the station description, the data table of water levels observed during the water year and a graph of the water levels for the current water year and other selected period. 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 of the well description.

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.

INSTRUMENTATION.--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

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 (or below) sea level; it is reported with a 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 land-surface 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 and their dates of occurrence 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. A hydrograph for a selected period of record follows each water-level table.

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 U.S. GEOLOGICAL SURVEY WATER DATA

The U.S. Geological Survey provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the world wide web (WWW). These data may be accessed at

http://water.usgs.gov

Some water-quality and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on magnetic tape or 3-1/2 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 District 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 table for converting English units to International System (SI) Units on the inside of the back cover.

Acid neutralizing capacity (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point. This term designates titration of an "unfiltered" sample (formerly reported as alkalinity).

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet, 325,851 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 measurement of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter.

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

Algal 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 at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Alkalinity is the capacity of solutes in an aqueous system to neutralize acid. This term designates titration of a "filtered" sample.

Annual runoff is the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

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 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters

Cubic foot per second per square mile [CFSM, $(ft^3/s)/mi^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area.

Inch (IN., in.) as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were uniformly distributed on it.

Aroclor is the registered trademark for a group of polychlorinated biphenyls that were manufactured by the Monsanto Company prior to 1976. Aroclors are assigned specific 4-digit reference numbers dependent upon molecular type and degree of substitution of the biphenyl ring hydrogen atoms by chlorine atoms. The first two digits of a numbered aroclor represent the molecular type and the last two digits represent the weight percent of the hydrogen substituted chlorine.

Bacteria 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. This group includes coliforms that inhabit the intestine of warm-blooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48 hours at 35 °C. In the laboratory, these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C plus or minus 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 intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory, they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5 °C plus or minus 0.2 °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 in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria that are capable of growth in brain-heart infusion broth. In the laboratory, they are defined as all the organisms that produce red or pink colonies within 48 hours at 35 °C plus or minus 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.

Enterococcus bacteria are commonly found in the feces of humans and other warm-blooded animals. Although some strains are ubiquitous and not related to fecal pollution, the presence of enterococci in water is an indication of fecal pollution and the possible presence of enteric pathogens. Enterococcus bacteria are those bacteria that produce pink to red colonies with black or reddish-brown precipitate after incubation at 41 °C on mE agar and subsequent transfer to EIA medium. Enterococci include *Streptococcus feacalis, Streptococcus feacium, Streptococcus avium*, and their variants.

Escherichia coli (E. coli) are bacteria present in the intestine and feces of warm-blooded animals. *E. coli* are a member species of the fecal coliform group of indicator bacteria. In the laboratory, they are defined as those bacteria that produce yellow or yellow-brown colonies on a filter pad saturated with urea substrate broth after primary culturing for 22 to 24 hours at 44.5 ˚C on mTEC medium. Their concentrations are expressed as number of colonies per 100 mL of sample.

Base flow is flow in a channel sustained by ground-water discharge in the absence of direct runoff.

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

Benthic organisms (invertebrates) are the group of animals inhabiting the bottom of an aquatic environment. They include a number of types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are useful as indicators of water quality.

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

Biomass is the amount of living matter present at any given time, expressed as 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. Ash mass of zooplankton and phytoplankton is expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

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 is 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 ash mass and represents the actual mass of the living matter. Organic mass is expressed in the same units as for ash mass and dry mass.

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

Biomass pigment ratio is an indicator of the total proportion of periphyton which are autotrophic (plants). This is also called the Autotrophic Index.

Bottom material: See “Bed material.”

Cells/volume refers to the number of plankton cells or natural units counted using a microscope and grid or counting cell. Results are generally reported as cells or units per milliliter.

Cells volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are frequently used in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume (μm^3) is determined by obtaining critical cell measurements on cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

sphere $4/3\ \pi r^3$ cone $1/3\ \pi r^3 h$ cylinder $\pi r^3 h$.

From cell volume, total algal biomass expressed as biovolume ($\mu m^3/mL$) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes over all species.

Chemical oxygen demand (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 BOD or with carbonaceous organic pollution from sewage or industrial wastes.

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

Colloid is any substance with particles in such a fine state of subdivision dispersed in a medium (for example, water) that they do not settle out; but not in so fine a state of subdivision that they can be said to be truly dissolved.

Color unit is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Confined aquifer is a term used to describe an aquifer containing water between two relatively impermeable boundaries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases the water level can rise above the ground surface, yielding a flowing well.

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

Continuous-record station is a site that meets either of the following conditions:

1. Stage or streamflow are recorded at some interval on a continuous basis. The recording interval is usually 15 minutes, but may be less or more frequent.

2. Water-quality, sediment, or other hydrologic measure-ments are recorded at least daily.

Control designates a feature in the channel downstream from a gaging station that physically influences the water-surface elevation and thereby determines the stage-discharge relation at the station. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, an artificial structure, or a uniform cross section over a long reach of the channel.

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

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

Cubic foot per second-day (CFS-DAY, Cfs-day, [(ft^3/s)/d]) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.9835 acre-feet, 646,317 gallons, or 2,447 cubic meters.

Daily record is a summary of streamflow, sediment, or water-quality values computed from data collected with sufficient frequency to obtain reliable estimates of daily mean values.

Daily record station is a site for which daily records of streamflow, sediment, or water-quality values are computed.

Datum, as used in this report, is an elevation above mean sea level to which all gage height readings are referenced.

Diel is of or pertaining to a 24-hour period of time; a regular daily cycle.

Discharge, or flow, is the volume of water (or more broadly, volume of fluid including solid- and dissolved-phase material), that passes a given point in a given period of time.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days in a year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

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.

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

Dissolved oxygen (DO) content of water in equilibrium with air is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved solids, with small temperature changes having the more significant offset. Photosynthesis and respiration may cause diurnal variations in dissolved-oxygen concentration in water from some streams.

Dissolved-solids concentration 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 that analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to reflect the change. Alternatively, alkalinity concentration (as mg/L $CaCO_3$) can be converted to carbonate concentration by multiplying by 0.60.

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

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

where n_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.

Drainage area of a site on a stream is that area, measured in a horizontal plane, that has a common outlet at the site for its surface runoff. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the Earth's surface that is occupied by a drainage system with a common outlet for its surface runoff (see "Drainage area").

Dry weight refers to the weight of animal tissue after it has been dried in an oven at 65 ˚C until a constant weight is achieved. Dry weight represents total organic and inorganic matter in the tissue.

Flow-duration percentiles are values on a scale of 100 that indicate the percentage of time for which a flow is not exceeded. For example, the 90th percentile of river flow is greater than or equal to 90 percent of all recorded flow rates.

Gage datum is the elevation of the zero point of the reference gage from which gage height is determined as compared to sea level (see "Datum"). This elevation is established by a system of levels from known benchmarks, by approximation from topographic maps, or by geographical positioning system.

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

Gaging station is a site on a stream, canal, lake, or reservoir where systematic observations of stage, discharge, or other hydrologic data are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is computed.

Gas chromatography/flame ionization detector (GC/FID) is a laboratory analytical method used as a screening technique for semivolatile organic compounds that are extractable from water in methylene chloride
.

Ground-water level is the elevation of the water table or another potentiometric surface at a particular location.

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 the equivalent concentration of calcium carbonate ($CaCO_3$).

High tide is the maximum height reached by each rising tide. The high-high and low-high tides are the higher and lower of the two high tides, respectively, of each tidal day. *See NOAA web site: http://www.co-ops.nos.noaa.gov/tideglos.html*

Hydrologic benchmark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a benchmark station may be used to separate effects of natural from human-induced changes in other basins that have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped benchmark basin.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as defined by the former Office of Water Data Coordination and delineated on the State Hydrologic Unit Maps by the U.S. Geological Survey. Each hydrologic unit is identified by an 8-digit number.

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

Light-attenuation coefficient, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation

$$I = I_o e^{-\lambda L}$$

where I_o is the source light intensity, I is the light intensity at length L (in meters) from the source, λ is the light-attenuation coefficient, and e is the base of the natural logarithm. The light attenuation coefficient is defined as

$$\lambda = -\frac{1}{L}\log_e \frac{I}{I_o}$$

Lipid is any one of a family of compounds that are insoluble in water and that make up one of the principal components of living cells. Lipids include fats, oils, waxes, and steroids. Many environmental contaminants such as organochlorine pesticides are lipophilic.

Low tide is the minimum height reached by each falling tide. The high-low and low-low tides are the higher and lower of the two low tides, respectively, of each tidal day. *See NOAA web site:*

http://www.co-ops.nos.noaa.gov/tideglos.html

Macrophytes are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that are usually arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

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

Membrane filter is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

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

Micrograms per kilogram (UG/KG, µg/kg) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter.

Microsiemens per centimeter (US/CM, µS/cm) is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of Units nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

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

Miscellaneous site, or miscellaneous station, is a site where streamflow, sediment, and/or water-quality data are collected once, or more often on a random or discontinuous basis.

Most probable number (MPN) is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. MPN is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

Multiple-plate samplers are artificial substrates of known surface area used for obtaining benthic invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

Nanograms per liter (NG/L, ng/L) is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1 milligram per liter.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place. *See NOAA web site: http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88*

Nekton are the consumers in the aquatic environment and consist of large free-swimming organisms that are capable of sustained, directed mobility.

Nephelometric turbidity unit (NTU) is the measurement for reporting turbidity that is based on use of a standard suspension of Formazin. Turbidity measured in NTU uses nephelometric methods that depend on passing specific light of a specific wavelength through the sample.

Open or screened interval is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

Organic carbon (OC) is a measure of organic matter present in aqueous solution, suspension, or bottom sediments. May be reported as dissolved organic carbon (DOC), suspended organic carbon (SOC), or total organic carbon (TOC).

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 area habitat, usually square meter (m^2), acre, 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 milliliter (mL) or liter (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.

Organochlorine compounds are any chemicals that contain carbon and chlorine. Organochlorine compounds that are important in investigations of water, sediment, and biological quality include certain pesticides and industrial compounds.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property.

Partial-record station is a site where discrete measurements of one or more hydrologic parameters are obtained over a period of time without continuous data being recorded or computed. A common example is a crest-stage gage partial-record station at which only peak stages and flows are recorded.

Particle size is the diameter, in millimeters (mm), of a particle determined by sieve or sedimentation methods. The sedimentation method utilizes the principle of Stokes Law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, Sedigraph) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

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

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.

Classification	Size (mm)	Method of analysis
Clay	0.00024 - 0.004	Sedimentation
Silt	0.004 - 0.062	Sedimentation
Sand	0.062 - 2.0	Sedimentation/sieve
Gravel	2.0 - 64.0	Sieve

Percent composition or **percent of total** 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, weight, or volume.

Periodic station is a site where stage, discharge, sediment, chemical, or other hydrologic measurements are made one or more times during a year, but at a frequency insufficient to develop a daily record.

Periphyton 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. Periphyton are useful indicators of water quality.

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

pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7 are termed “acidic,” and solutions with a pH greater than 7 are termed “basic.” Solutions with a pH of 7 are neutral. The presence and concentration of many dissolved chemical constituents found in water are, in part, influenced by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms are also influenced, in part, by the hydrogen-ion activity of water
.

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

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers. Concentrations are expressed as a number of cells per milliliter (cells/mL of sample).

Phytoplankton 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 (*Cyanophyta*) 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.

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

Euglenoids (*Euglenophyta*) are a group of algae that are usually free-swimming and rarely creeping. They have the ability to grow either photosynthetically in the light or heterotrophically in the dark.

Fire algae (*Pyrrhophyta*) are a group of algae that are free-swimming unicells characterized by a red pigment spot.

Green algae have chlorophyll pigments similar in color to those 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.

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

Polychlorinated naphthalenes (PCN's) are industrial chemicals that are mixtures of chlorinated naphthalene compounds. They have properties and applications similar to polychlorinated biphenyls (PCB's) and have been identified in commercial PCB preparations.

Primary productivity 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 (carbon method) by the plants.

Primary productivity (carbon method) is expressed as milligrams of carbon per area per unit time [mg C/(m^2/time)] for periphyton and macrophytes or per volume [mg C/(m^3/time)] for phytoplankton. Carbon method defines 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 the hour or day, depending on the incubation period.

Primary productivity (oxygen method) is expressed as milligrams of oxygen per area per unit time [mg O/(m^2/time)] for periphyton and macrophytes or per volume [mg O/(m^3/time)] for phytoplankton. Oxygen method defines 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.

Radioisotopes are isotopic forms of an element that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight, but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus; for example, ordinary chlorine is a mixture of isotopes having atomic weights of 35 and 37, and the natural mixture has an atomic weight of about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron. There are 275 isotopes of the 81 stable elements, in addition to more than 800 radioactive isotopes.

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.

Recurrence interval, also referred to as return period, is the average time, usually expressed in years, between occurrences of hydrologic events of a specified type (such as exceedances of a specified high flow or non-exceedance of a specified low flow). The terms "return period" and "recurrence interval" do not imply regular cyclic occurrence. The actual times between occurrences vary randomly, with most of the times being less than the average and a few being substantially greater than the average. For example, the 100-year flood is the flow rate that is exceeded by the annual maximum peak flow at intervals whose average length is 100 years (that is, once in 100 years, on average); almost two-thirds of all exceedances of the 100-year flood occur less than 100 years after the previous exceedance, half occur less than 70 years after the previous exceedance, and about one-eighth occur more than 200 years after the previous exceedance. Similarly, the 7-day 10-year low flow ($7Q_{10}$) is the flow rate below which the annual minimum 7-day-mean flow dips at intervals whose average length is 10 years (that is, once in 10 years, on average); almost two-thirds of the non-exceedances of the $7Q_{10}$ occur less than 10 years after the previous non-exceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous non-exceedance. The recurrence interval for annual events is the reciprocal of the annual probability of occurrence. Thus, the 100-year flood has a 1-percent chance of being exceeded by the maximum peak flow in any year, and there is a 10-percent chance in any year that the annual minimum 7-day-mean flow will be less than the $7Q_{10}$.

Replicate samples are a group of samples collected in a manner such that the samples are thought to be essentially identical in composition.

River mile is the distance of a point on a river measured in miles from the river's mouth along the low-water channel.

River mileage is the linear distance along the meandering path of a stream channel determined in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council.

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

Sea level refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment of the first-order level nets of the United States and Canada, formerly called Sea Level Datum of 1929. *See*: *http://www.co-ops.nos.noaa.gov/ glossary/gloss_n.html#NGVD*

Sediment is solid material that is transported by, suspended in, or deposited from water. It originates mostly from disintegrated rocks; it also 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.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along or very close to the bed. In this report, bed load is considered to consist of particles in transit from the bed to an elevation equal to the top of the bed-load sampler nozzle (usually within 0.25 ft of the streambed).

Bed-load discharge (tons per day) is the quantity of sediment moving as bed load, reported as dry weight, that passes a cross section in a given time.

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

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

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

Suspended-sediment discharge (tons/day) is the quantity of sediment moving in suspension, reported as dry weight, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027.

Suspended-sediment load is a term that refers to material in suspension. The term needs to be qualified, such as “annual suspended-sediment load” or “sand-size suspended-sediment load,” and so on. It is not synonymous with either suspended-sediment discharge or concentration.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, reported as dry weight, that passes a cross section in a given time.

Total sediment load or total load is a term that refers to the total sediment (bed load plus suspended-sediment load) that is in transport. The term needs to be qualified, such as “annual suspended-sediment load” or “sand-size suspended-sediment load,” and so on. It is not synonymous with total sediment discharge.

Seven-day 10-year low flow (7Q10, $7Q_{10}$) is the minimum flow averaged over 7 consecutive days that is expected to occur on average, once in any 10-year period. The 7Q10 has a 10-percent chance of occurring in any given year.

Sodium adsorption ratio (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 electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stable isotope ratio (per MILL/MIL) is a unit expressing the ratio of the abundance of two radioactive isotopes. Isotope ratios are used in hydrologic studies to determine the age or source of specific waters, to evaluate mixing of different waters, as an aid in determining reaction rates, and other chemical or hydrologic processes.

Stage: See "Gage height."

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

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

Substrate is the physical surface 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 collection.

Natural substrate refers to any naturally occurring immersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

Surface area of a lake or impoundment is that area encompassed by the boundary of the lake or impoundment as shown on USGS topographic maps, or on other available maps or photographs. The computed surface areas reflect the water levels of the lakes or impoundments at the times when the information for the maps or photographs was obtained.

Surficial bed material is the top 0.1 to 0.2 ft of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material 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 suspended-sediment sample that is retained on a 0.45-micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures 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) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative suspended-sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. 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.

Synoptic Studies are short-term investigations of specific water-quality conditions during selected seasonal or hydrologic periods to provide improved spatial resolution for critical water-quality conditions. For the period and conditions sampled, they assess the spatial distribution of selected water-quality conditions in relation to causative factors, such as land use and contaminant sources.

Taxonomy 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, *Hexagenia limbata*, is the following:

Kingdom	Animal
Phylum	Arthropoda
ClassI	insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	*Hexagenia*
Species	*Hexagenia limbata*

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot is 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, tons/d) is the rate representing a mass of 1 ton of a constituent in streamflow passing a cross section in 1 day. It is equivalent to 2,000 pounds per day, or 0.9072 metric tons per day.

Total is the total amount of a given constituent in a representative 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 suspended-sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the quantity of a given constituent, measured as dry mass or volume, that passes a stream cross section per unit of time. When referring to constituents other than water, this term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

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

Total length (fish) is the straight-line distance from the anterior point of a fish specimen's snout, with the mouth closed, to the posterior end of the caudal (tail) fin, with the lobes of the caudal fin squeezed together.

Total load refers to all of a constituent in transport. When referring to sediment, it includes suspended load plus bed load.

Total recoverable is the amount of a given constituent that is in solution after a representative 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.

Turbidity is a measurement of the collective optical properties of a water sample that cause light to be scattered and absorbed rather than transmitted in straight lines; the higher the intensity of scattered light, the higher the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU) or Formazin turbidity units (FTU) depending on the method and equipment used.

Volatile organic compounds (VOC's) are organic compounds that can be isolated from the water phase of a sample by purging the water sample with inert gas, such as helium, and subsequently analyzed by gas chromatography. Many VOC's are manmade chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They are often components of fuels, solvents, hydraulic fluids, paint thinners, and dry cleaning agents commonly used in urban settings. VOC contamination of drinking-water supplies is a human health concern because many are toxic and are known or suspected human carcinogens (U.S. Environmental Protection Agency, 1996).WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1999

Water level is the water-surface elevation or stage of the free surface of a body of water above or below any datum (see "Gage height"), or the surface of water standing in a well, usually indicative of the position of the water table or other potentiometric surface.

Water table is the surface of a ground-water body at which the water is at atmospheric pressure.

Water-table aquifer is an unconfined aquifer within which is found the water table.

Water year in U.S. 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, 1999, is called the "1999 water year."

WDR 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.

Well is an excavation (pit, hole, tunnel), generally cylindrical in form and often walled in, drilled, dug, driven, bored, or jetted into the ground to such a depth as to penetrate water-yielding geologic material and allow the water to flow or to be pumped to the surface.

Wet weight refers to the weight of animal tissue or other substance including its contained water.

WSP is used as an abbreviation for "Water-Supply Paper" in reference to previously published report

TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS OF THE U.S. GEOLOGICAL SURVEY

The U.S.G.S. 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.G.S., Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be made in the form of a 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 mention the "U.S. Geological Survey Techniques of Water-Resources Investigations."

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

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, chap. 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, chap. D2. 1976. 24 pages.

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

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, chap. D1. 1974. 116 pages.

2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS–TWRI book 2, chap. D2. 1988. 86 pages.

Section E. Subsurface Geophysical Methods

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

2-E2. *Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS–TWRI book 2, chap. E2. 1990. 150 pages.

Section F. Drilling and Sampling Methods

2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W.E. Teasdale: USGS–TWRI book 2, chap. F1. 1989. 97 pages.

Book 3. Applications of Hydraulics

Section A. Surface-Water Techniques

3-A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS–TWRI book 3, chap. 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, chap. A2. 1967. 12 pages.

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

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

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

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

3-A7. *Stage measurement at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A7. 1968. 28 pages.

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

3-A9. *Measurement of time of travel in streams by dye tracing,* by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS–TWRI book 3, chap. A9. 1989. 27 pages.

3-Al0. *Discharge ratings at gaging stations,* by E.J. Kennedy: USGS–TWRI book 3, chap. A10. 1984. 59 pages.

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

3-A12. *Fluorometric procedures for dye tracing,* Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS–TWRI book 3, chap. A12. 1986. 34 pages.

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

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

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

3-A16. *Measurement of discharge using tracers,* by F.A. Kilpatrick and E.D. Cobb: USGS–TWRI book 3, chap. A16. 1985. 52 pages.

3-A17. *Acoustic velocity meter systems,* by Antonius Laenen: USGS–TWRI book 3, chap. A17. 1985. 38 pages.

3-A18. *Determination of stream reaeration coefficients by use of tracers,* by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS–TWRI book 3, chap. A18. 1989. 52 pages.

3-A19. *Levels at streamflow gaging stations,* by E.J. Kennedy: USGS–TWRI book 3, chap. A19. 1990. 31 pages.

3-A20. *Simulation of soluable waste transport and buildup in surface waters using tracers,* by F.A. Kilpatrick: USGS–TWRI book 3, chap. A20. 1993. 38 pages.

3-A21 *Stream-gaging cableways,* by C. Russell Wagner: USGS–TWRI book 3, chap. A21. 1995. 56 pages.

Section B. Ground-Water Techniques

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

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

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

3-B4. *Regression modeling of ground-water flow,* by R.L. Cooley and R.L. Naff: USGS–TWRI book 3, chap. B4. 1990. 232 pages.

3-B4. *Supplement 1. Regression modeling of ground-water flow --Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems,* by R.L. Cooley: USGS–TWRI book 3, chap. B4. 1993. 8 pages.

3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction,* by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS–TWRI book 3, chap. B5. 1987. 15 pages.

3-B6. *The principle of superposition and its application in ground-water hydraulics,* by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS–TWRI book 3, chap. B6. 1987. 28 pages.

3-B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow,* by E.J. Wexler: USGS–TWRI book 3, chap. B7. 1992. 190 pages.

Section C. Sedimentation and Erosion Techniques

3-C1. *Fluvial sediment concepts,* by H.P. Guy: USGS–TWRI book 3, chap. C1. 1970. 55 pages.

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

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

Book 4. Hydrologic Analysis and Interpretation

Section A. Statistical Analysis

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

4-A2. *Frequency curves,* by H.C. Riggs: USGS–TWRI book 4, chap. A2. 1968. 15 pages.

Section B. Surface Water

4-B1. *Low-flow investigations,* by H.C. Riggs: USGS–TWRI book 4, chap. B1. 1972. 18 pages.

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

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

Section D. Interrelated Phases of the Hydrologic Cycle

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

Book 5. Laboratory Analysis

Section A. Water Analysis

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments,* by M.J. Fishman and L.C. Friedman, editors: USGS–TWRI book 5, chap. A1. 1989. 545 pages.

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

5-A3. *Methods for the determination of organic substances in water and fluvial sediments,* edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS–TWRI book 5, chap. A3. 1987. 80 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples,* by L.J. Britton and P.E. Greeson, editors: USGS–TWRI book 5, chap. A4. 1989. 363 pages.

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

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

Section C. Sediment Analysis

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

Book 6. Modeling Techniques

Section A. Ground Water

6-A1. *A modular three-dimensional finite-difference ground-water flow model,* by M.G. McDonald and A.W. Harbaugh: USGS–TWRI book 6, chap. A1. 1988. 586 pages.

6-A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model,* by S.A. Leake and D.E. Prudic: USGS–TWRI book 6, chap. A2. 1991. 68 pages.

6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual,* by L.J. Torak: USGS–TWRI book 6, chap. A3. 1993. 136 pages.

6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions,* by R.L. Cooley: USGS–TWRI book 6, chap. A4. 1992. 108 pages.

6-A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details,* by L.J. Torak: USGS–TWRI book 6, chap. A5, 1993. 243 pages.

6-A6. A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction, by Eric D. Swain and Eliezer J. Wexler. 1996. 125 pages.

Book 7. Automated Data Processing and Computations

Section C. Computer Programs

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

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

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

Book 8. Instrumentation

Section A. Instruments for Measurement of Water Level

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

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

Section B. Instruments for Measurement of Discharge

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

Book 9. Handbooks for Water-Resources Investigations

Section A. National Field Manual for the Collection of Water-Quality Data

9-A1. *National Field Manual for the Collection of Water-Quality Data: Preparations for Water Sampling*, by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A1. 1998. 47 p.

9-A2. *National Field Manual for the Collection of Water-Quality Data: Selection of Equipment for Water Sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A2. 1998. 94 p.

9-A3. *National Field Manual for the Collection of Water-Quality Data: Cleaning of Equipment for Water Sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A3. 1998. 75 p.

9-A4. *National Field Manual for the Collection of Water-Quality Data: Collection of Water Samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A4. 1999. 156 p.

9-A5. *National Field Manual for the Collection of Water-Quality Data: Processing of Water Samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A5. 1999, 149 p.

9-A6. *National Field Manual for the Collection of Water-Quality Data: Field Measurements*, edited by F.D. Wilde and D.B. Radtke: USGS–TWRI book 9, chap. A6. 1998. Variously paginated.

9-A7. *National Field Manual for the Collection of Water-Quality Data: Biological Indicators*,edited by D.N. Myers and F.D. Wilde: USGS–TWRI book 9, chap. A7. 1997 and 1999. Variously paginated.

9-A8. *National Field Manual for the Collection of Water-Quality Data: Bottom-material samples*, by D.B. Radtke: USGS–TWRI book 9, chap. A8. 1998. 48 pages.

9-A9. *National Field Manual for the Collection of Water-Quality Data: Safety in Field Activities*, by S.L. Lane and R.G. Fay: USGS–TWRI book 9, chap. A9. 1998. 60 pages.

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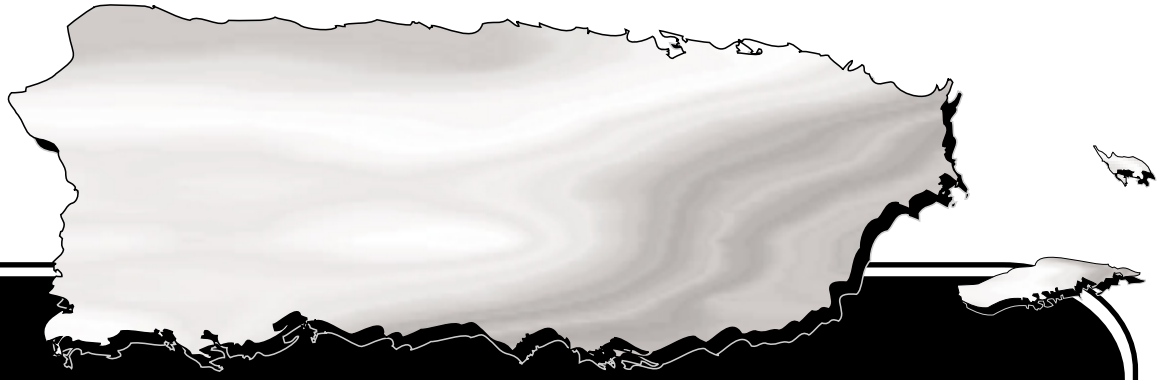

Surface and Quality-of-Water Records for Puerto Rico

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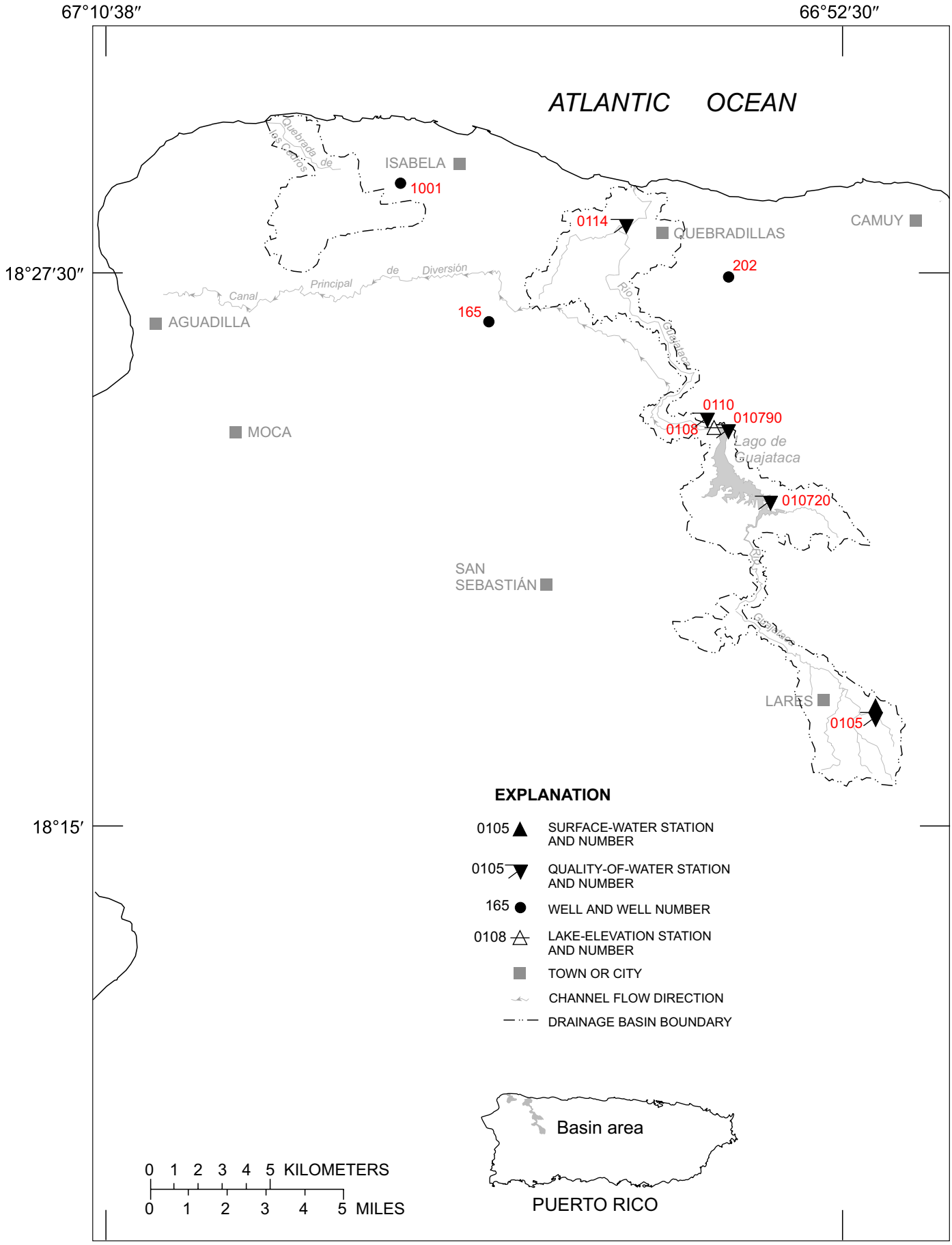


Figure 11. Río Guajataca basin.

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 mi^2 (8.18 km^2).

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. Elevation of gage is 935 ft (285 m), from topographic map.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	19	6.8	2.7	2.6	3.0	7.1	5.0	37	9.7	4.3	3.9
2	23	15	17	2.7	2.5	23	16	4.1	22	9.8	4.1	18
3	18	20	13	2.5	2.1	7.4	10	3.6	55	9.1	5.9	19
4	17	e32	7.1	2.5	2.4	3.0	6.4	30	22	9.5	6.0	16
5	15	16	6.0	2.3	2.4	2.5	5.0	11	15	21	15	32
6	14	e13	5.7	2.3	2.4	2.4	4.6	64	14	10	5.3	71
7	15	39	5.3	2.1	2.3	3.0	4.3	64	15	7.7	23	24
8	36	17	5.0	2.1	2.2	2.7	4.6	36	28	13	9.1	29
9	39	16	5.0	2.1	2.3	3.4	4.1	17	31	8.3	5.1	41
10	34	17	5.0	2.3	2.3	4.7	7.3	12	60	7.7	5.1	18
11	15	e14	4.6	2.9	2.6	4.4	4.8	10	74	11	17	34
12	13	e12	5.1	2.3	2.7	2.6	3.1	8.9	31	6.5	8.1	16
13	10	11	4.0	4.6	2.5	2.4	3.0	7.9	22	6.1	5.7	15
14	9.4	10	4.1	3.1	2.4	2.8	2.7	7.1	20	5.7	12	11
15	29	13	4.0	16	2.5	2.6	2.6	6.7	17	5.6	6.2	13
16	12	22	3.8	11	2.5	2.9	2.6	6.2	16	7.2	4.4	10
17	9.5	11	3.3	4.3	e2.7	2.5	2.6	26	13	5.5	56	8.9
18	39	9.1	3.2	2.6	e2.1	4.7	2.4	8.1	22	5.0	9.0	8.4
19	14	8.6	3.2	2.6	e2.3	37	2.5	7.4	25	4.6	7.3	8.0
20	10	8.1	4.9	2.9	e2.6	6.1	2.4	6.6	23	4.6	5.3	7.3
21	9.2	7.4	4.1	11	e2.5	18	11	14	14	17	5.8	6.9
22	10	7.2	3.7	5.0	e2.3	17	9.1	24	37	11	16	6.7
23	10	6.9	4.1	2.4	e2.0	6.5	16	15	17	14	8.2	6.4
24	16	6.7	3.8	2.2	e1.8	36	40	11	13	7.3	5.7	16
25	26	6.7	3.3	2.3	e2.0	52	14	11	12	5.2	39	26
26	30	6.2	3.2	2.9	e47	16	5.5	11	11	4.9	13	18
27	e20	11	3.3	3.2	6.2	8.7	7.7	45	10	4.6	5.5	22
28	19	7.6	3.1	4.6	4.7	16	4.9	121	9.4	4.4	4.3	14
29	37	5.8	3.0	2.3	---	15	29	19	8.8	4.0	3.8	12
30	27	5.8	2.8	2.3	---	13	9.5	108	9.0	4.5	6.5	11
31	22	---	2.8	2.2	---	8.1	---	66	---	3.7	7.2	---
TOTAL	632.1	394.1	153.3	116.3	116.9	329.4	244.8	786.6	703.2	248.2	328.9	542.5
MEAN	20.4	13.1	4.95	3.75	4.18	10.6	8.16	25.4	23.4	8.01	10.6	18.1
MAX	39	39	17	16	47	52	40	121	74	21	56	71
MIN	9.2	5.8	2.8	2.1	1.8	2.4	2.4	3.6	8.8	3.7	3.8	3.9
AC-FT	1250	782	304	231	232	653	486	1560	1390	492	652	1080
CFSM	6.45	4.16	1.56	1.19	1.32	3.36	2.58	8.03	7.42	2.53	3.36	5.72
IN.	7.44	4.64	1.80	1.37	1.38	3.88	2.88	9.26	8.28	2.92	3.87	6.39

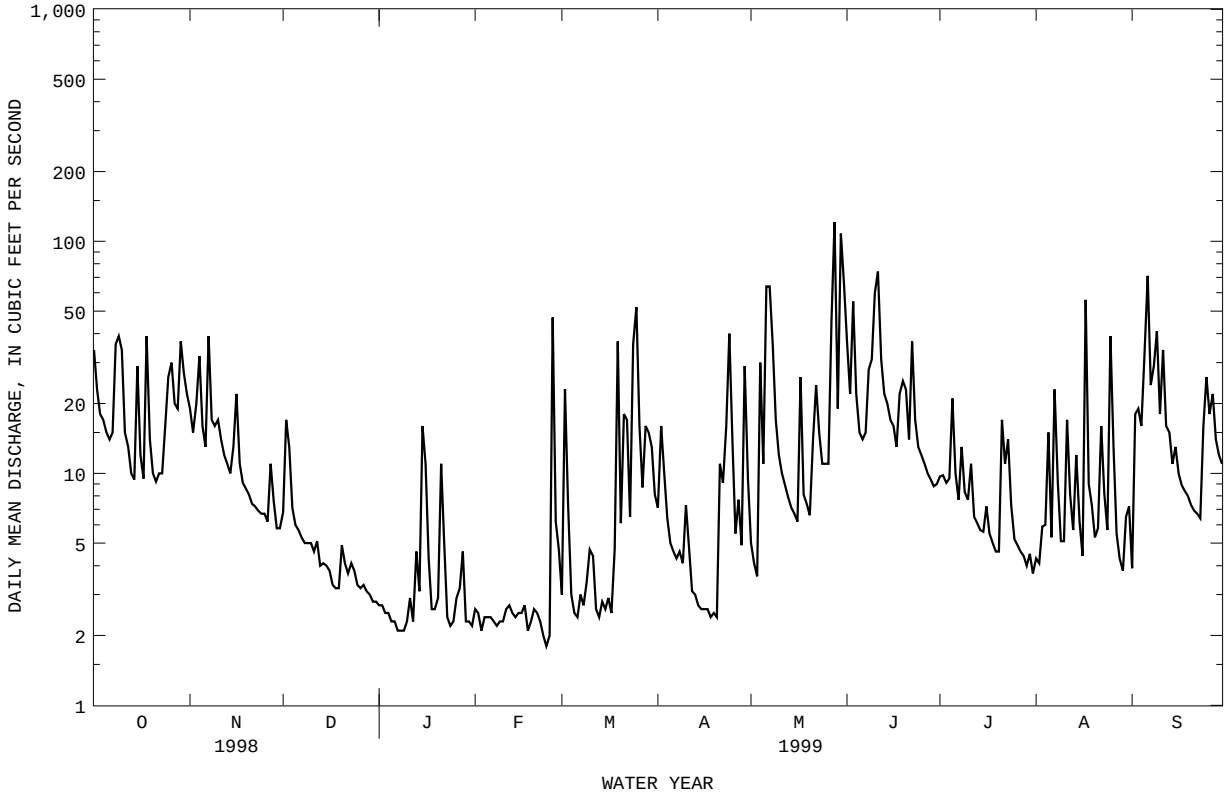
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1999, BY WATER YEAR (WY)

MEAN	16.8	8.49	3.81	3.39	2.78	2.84	3.60	10.4	8.61	4.57	6.65	15.1
MAX	33.7	16.7	7.31	8.91	7.21	10.6	8.16	25.4	23.4	9.85	11.1	45.2
(WY)	1991	1971	1971	1997	1996	1999	1999	1999	1999	1969	1996	1998
MIN	8.52	2.42	1.35	.66	.93	.92	1.09	2.37	1.70	1.73	3.34	5.95
(WY)	1995	1998	1991	1991	1992	1994	1994	1997	1997	1997	1970	1993

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1969 - 1999	
ANNUAL TOTAL	3569.47		4596.3			
ANNUAL MEAN	9.78		12.6		7.18	
HIGHEST ANNUAL MEAN					12.6	1999
LOWEST ANNUAL MEAN					4.13	1994
HIGHEST DAILY MEAN	505	Sep 22	121	May 28	505	Sep 22 1998
LOWEST DAILY MEAN	.55	Apr 6	1.8	Feb 24	.47	Jan 13 1991
ANNUAL SEVEN-DAY MINIMUM	.68	Apr 9	2.2	Feb 19	.51	Jan 9 1991
INSTANTANEOUS PEAK FLOW			2790	May 28	5300	Oct 7 1990
INSTANTANEOUS PEAK STAGE			17.16	May 28	21.30	Oct 7 1990
ANNUAL RUNOFF (AC-FT)	7080		9120		5200	
ANNUAL RUNOFF (CFSM)	3.09		3.99		2.27	
ANNUAL RUNOFF (INCHES)	42.02		54.11		30.89	
10 PERCENT EXCEEDS	22		29		16	
50 PERCENT EXCEEDS	3.2		7.7		3.6	
90 PERCENT EXCEEDS	.84		2.5		.99	

e Estimated

50010500 RIO GUAJATACA AT LARES, PR--Continued



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 Anón, and 0.4 mi (0.6 km) northeast of Lares plaza.

DRAINAGE AREA.--3.16 mi^2 (8.18 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
02...	1050	14	219	7.6	24.0	8.0	7.7	94	<10	K1100	690
FEB											
23...	1315	1.8	232	7.9	23.5	3.9	9.6	117	<10	2300	260
MAY											
18...	1145	7.8	225	7.5	23.5	8.3	7.3	90	<10	K1600	1600
AUG											
16...	1355	3.5	210	7.6	27.0	1.8	7.3	95	<10	2100	620

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
02...	82	24	5.3	10	.5	2.5	77	<1.0	6.8	11
FEB										
23...	--	--	--	--	--	--	89	--	--	--
MAY										
18...	84	25	5.4	11	.5	2.8	79	<1.0	8.7	11
AUG										
16...	85	24	5.8	12	.6	2.5	89	--	4.7	13

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
02...	<.10	29	135	5.30	12	2.39	.011	2.40	.010	--
FEB										
23...	--	--	--	--	7	--	<.010	1.10	.030	--
MAY										
18...	<.10	31	142	2.98	8	--	<.010	1.90	.020	--
AUG										
16...	<.10	32	148	1.40	6	1.89	.010	1.90	.030	.18

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
02...	<.20	--	--	.040	<1	<100	20	<1	<1	<10
FEB										
23...	<.20	--	--	.060	--	--	--	--	--	--
MAY										
18...	<.20	--	--	E.050	1	30	30	<1	<1	<12
AUG										
16...	.21	2.1	9.3	.060	--	--	--	--	--	--

50010500 RIO GUAJATACA AT LARES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
02...	330	<1	36	<.10	<1	<1	<10	<.010	<4	<.02
FEB										
23...	--	--	--	--	--	--	--	--	--	--
MAY										
18...	320	<1	37	<.10	4	<1	<40	<.010	<4	<.02
AUG										
16...	--	--	--	--	--	--	--	--	--	--

50010800 LAGO GUAJATACA AT DAMSITE NEAR QUEBRADILLAS, PR

LOCATION.--Lat 18°24'02", long 66°55'25", Hydrologic Unit 21010002, on right bank, in a concrete intake tower at Damsite, 5.2 mi (8.4 km) southeast from Quebradillas plaza, 0.5 mi (0.8 km) northeast from Iglesia San Antonio de Padua and 2.8 mi (4.5 km) from Escuela Segunda Unidad Baldorioty de Castro.

DRAINAGE AREA.--24.6 mi^2 (63.71 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--April 1995 to current year.

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

REMARKS.--Lago Guajataca was completed in 1928. The dam is a semihydraulic earthfill structure about 123 ft (37 m) high, a top width of 31 ft (9.5 m) at crest elevation of 664 ft (202.5 m), a base width of 623 ft (190 m), a crest length of 1,036 ft (316 m) and has a maximum storage capacity of 49,200 acre- feet (60.6 hm^3). The Guajataca Dam is owned by the Puerto Rico Electric Power Authority (P.R.E.P.A) and provides water for the municipalities of Aguadilla, Isabela, Moca, Aguada and Quebradillas although its primary purpose is for agricultural irrigation for the flatlands of the area. Gage-height and precipitation satellite telemetry at station. New capacity table based on U.S. Geological Survey Water-Resources Investigations Report 00-4044,January 1999.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 648.3 ft (197.60 m), Sept. 23, 1998; minimum elevation, 608.07 ft (185.34 m) May 17, 1998.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 646.04 ft (196.91 m), Oct. 31; minimum elevation, 636.37 ft (193.96 m), Feb. 25.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 00-4044,Puerto Rico-1999)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
557	0	616	13,393
577	916	636	26,332
597	5,253	646	34,277

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	645.64	645.54	642.68	641.06	639.73	637.97	641.09	642.56	644.23	641.02	639.95	A
2	645.12	644.90	643.32	640.94	639.61	638.53	641.25	642.57	644.04	640.90	639.89	A
3	644.44	644.21	644.26	640.83	639.47	638.82	641.37	642.55	644.85	640.78	639.85	A
4	643.72	643.70	643.94	640.70	639.34	638.76	641.42	642.57	645.21	640.65	639.80	A
5	642.95	643.20	643.50	640.58	639.19	638.68	641.46	642.74	645.21	640.69	639.76	A
6	642.31	642.88	643.02	640.46	639.06	A	641.50	643.01	645.06	640.59	639.70	A
7	641.96	642.98	642.84	640.34	638.92	A	641.54	643.54	645.03	640.67	639.66	A
8	642.00	643.00	642.80	640.21	638.79	638.30	641.57	644.00	644.70	640.64	639.62	A
9	642.17	643.00	642.77	640.09	638.64	A	A	643.92	645.31	640.61	639.55	642.04
10	642.52	643.08	642.69	640.00	638.53	A	A	643.64	645.46	640.55	639.49	641.79
11	642.76	643.17	642.64	639.89	638.40	A	A	643.32	645.42	640.54	639.44	641.64
12	642.83	643.36	642.58	639.78	638.25	638.18	A	642.96	645.17	640.52	639.38	641.37
13	643.42	643.57	642.52	640.04	638.11	638.20	641.34	642.78	644.81	640.48	639.34	641.20
14	643.53	643.34	642.46	639.98	637.98	638.22	641.32	642.76	644.40	640.42	639.38	641.19
15	643.73	643.37	642.53	640.69	637.83	638.23	641.29	642.76	643.99	640.37	639.35	641.17
16	643.50	643.69	642.46	641.10	637.67	638.26	641.26	642.74	643.55	640.40	639.28	641.15
17	643.12	643.59	642.38	641.14	637.53	638.28	641.23	642.87	643.13	640.37	639.50	641.10
18	642.91	643.35	642.29	641.06	637.38	638.29	641.19	642.92	642.72	640.33	639.52	641.07
19	642.51	643.17	642.24	641.01	637.25	638.45	641.16	642.91	642.33	640.27	639.59	641.03
20	642.36	643.12	642.20	640.92	637.10	638.54	641.13	642.90	642.23	640.22	639.62	640.99
21	642.36	643.05	642.15	640.87	636.95	638.63	641.10	642.91	642.12	640.20	639.67	640.95
22	642.41	642.96	642.06	640.78	636.79	638.80	641.06	642.99	642.26	640.29	639.67	640.93
23	642.73	642.92	641.98	640.68	636.63	639.00	641.05	643.09	642.28	640.32	A	640.89
24	642.99	642.86	641.91	640.55	636.47	639.35	641.14	643.14	642.13	640.29	A	640.87
25	643.30	642.79	641.81	640.42	636.59	640.10	641.13	643.16	641.91	640.26	A	640.88
26	643.57	642.74	641.70	640.32	637.73	640.38	641.10	643.20	641.66	640.24	A	640.88
27	643.56	642.72	641.61	640.20	637.95	640.47	641.08	643.54	641.48	640.21	A	640.88
28	644.82	642.68	641.53	640.16	638.01	640.69	641.05	643.95	641.37	640.14	A	640.86
29	645.47	642.64	641.42	640.06	---	640.84	642.05	643.96	641.25	640.07	A	641.00
30	645.84	642.64	641.31	639.93	---	640.97	642.48	644.13	641.13	640.05	A	641.05
31	645.94	---	641.19	639.80	---	641.04	---	644.23	---	640.00	A	---
MAX	645.94	645.54	644.26	641.14	639.73	---	---	644.23	645.46	641.02	---	---
MIN	641.96	642.64	641.19	639.78	636.47	---	---	642.55	641.13	640.00	---	---

A No gage-height record

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 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)
NOV										
16...	1215	65	327	7.2	25.5	1.0	.3	4	<10	100
MAR										
01...	1445	75	342	7.6	24.5	2.4	2.2	27	14	23
MAY										
25...	1430	70	294	7.3	24.5	1.7	.7	8	<10	K21
AUG										
16...	1615	65	286	7.8	26.5	6.4	1.0	13	<10	K4

DATE	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
NOV										
16...	80	150	55	3.3	5.3	.2	2.4	150	<1.0	7.0
MAR										
01...	22	--	--	--	--	--	--	150	--	--
MAY										
25...	K10	140	49	3.3	5.0	.2	2.2	130	<1.0	8.0
AUG										
16...	<2	140	50	3.5	5.3	.2	2.2	136	--	7.1

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
16...	8.2	<.10	7.3	179	31.4	4	<.010	.220	.110	.14
MAR										
01...	--	--	--	--	--	3	<.010	.080	.060	.20
MAY										
25...	7.7	<.10	5.9	159	30.0	<1	<.010	.140	.020	--
AUG										
16...	7.3	<.10	7.1	164	28.8	1	<.010	.020	.070	.22

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
16...	.25	.47	2.1	.020	1	<100	30	<1	<1	<10
MAR										
01...	.26	.34	1.5	<.020	--	--	--	--	--	--
MAY										
25...	E.32	--	--	E.020	1	20	E20	<1	<1	<12
AUG										
16...	.29	.31	1.4	<.020	--	--	--	--	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
16...	50	<1	100	<.10	<1	<1	<10	<.010	<4	.02
MAR										
01...	--	--	--	--	--	--	--	--	--	--
MAY										
25...	40	<1	51	<.10	<1	<1	<40	<.010	<4	.02
AUG										
16...	--	--	--	--	--	--	--	--	--	--

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS, PR.

WATER-QUALITY RECORDS

LOCATION.--Lat 18°28'31", long 66°57'46", Hydrologic Unit 21010002, on left bank at ford 1.7 mi (2.7 km) upstream from bridge on highway 2, 1.6 mi (2.6 km) west of Quebradillas plaza, 2.1 mi (3.4 km) upstream from Atlantic Ocean, and 6.6 mi (10.6 km) downstream from Lago Guajataca.

DRAINAGE AREA.--Indeterminate

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)
NOV										
10...	1215	57	385	7.8	25.5	4.6	7.2	87	<10	2300
MAR										
03...	0715	35	406	7.4	23.0	2.1	6.3	73	<10	K73
MAY										
27...	1045	21	433	7.6	25.5	8.0	6.9	85	<10	K60
AUG										
18...	0950	38	392	8.1	25.3	--	6.8	82	<10	80

DATE	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
NOV										
10...	2200	180	65	4.1	7.8	.3	1.7	180	<1.0	7.1
MAR										
03...	300	--	--	--	--	--	--	180	--	--
MAY										
27...	140	210	72	6.8	14	.4	1.3	200	<1.0	7.9
AUG										
18...	980	170	61	4.9	9.7	.3	1.6	170	--	5.5

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
10...	14	<.10	6.2	214	33.0	4	<.010	1.10	<.010	--
MAR										
03...	--	--	--	--	--	<1	<.010	1.60	.010	--
MAY										
27...	23	<.10	7.3	252	14.6	<1	<.010	1.80	.020	--
AUG										
18...	16	<.10	6.7	207	21.4	5	<.010	.910	.020	.19

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
10...	<.20	--	--	<.020	<1	<100	10	<1	1	<10
MAR										
03...	<.20	--	--	<.020	--	--	--	--	--	--
MAY										
27...	<.20	--	--	<.020	<1	10	40	<1	1	<12
AUG										
18...	.21	1.1	5.0	<.020	--	--	--	--	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
10...	140	<1	37	<.10	<1	<1	<10	<.010	<4	<.02
MAR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
27...	50	<1	12	<.10	<1	<1	<40	<.010	<4	.04
AUG										
18...	--	--	--	--	--	--	--	--	--	--

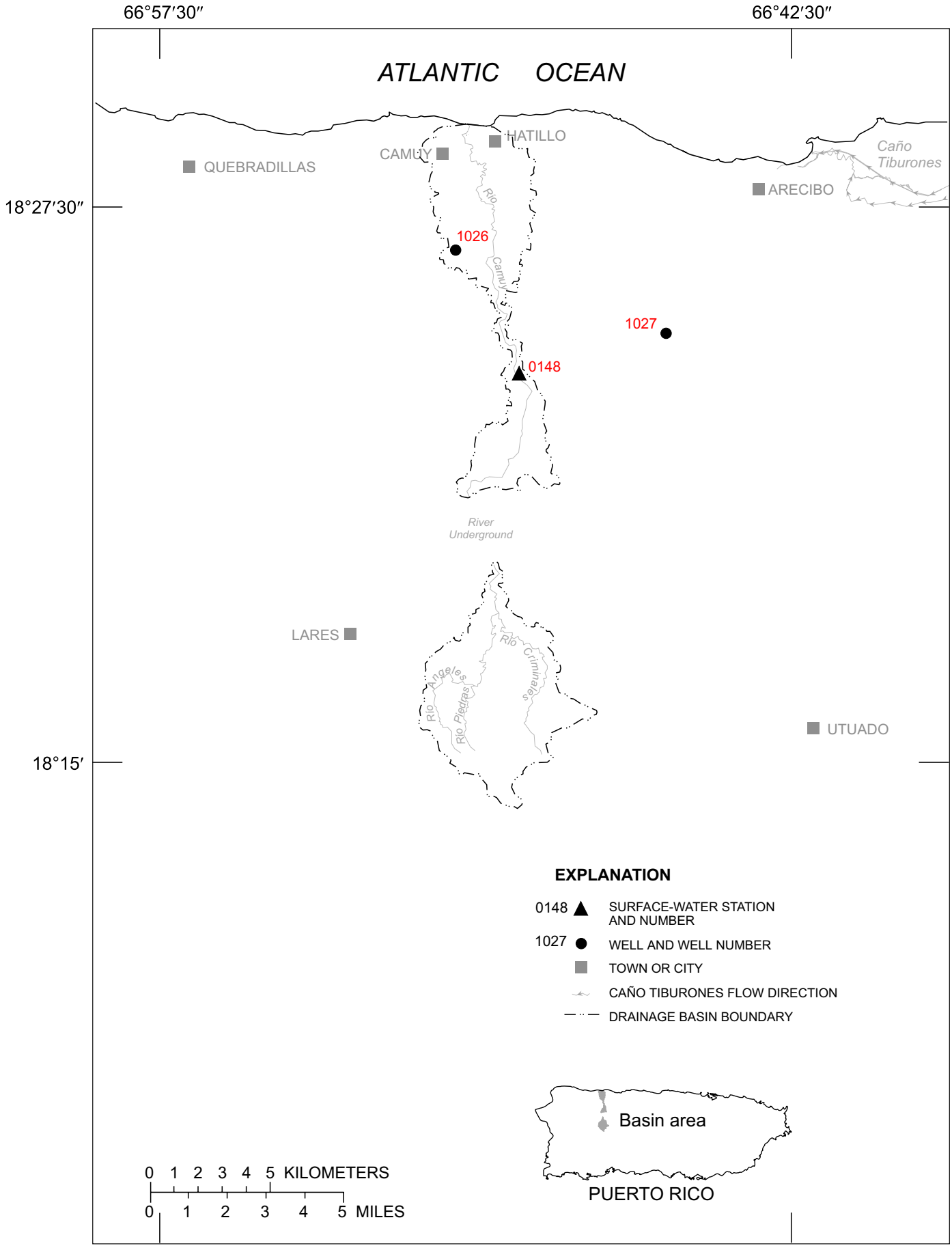


Figure 12. Río Camuy basin.

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 mouth.

DRAINAGE AREA.--Indeterminate.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e176	675	e192	64	61	74	73	101	492	102	60	86
2	e158	465	e328	63	63	124	118	64	367	102	60	116
3	e146	472	e305	63	55	156	133	57	343	96	68	410
4	e134	355	e154	62	53	69	91	138	479	92	70	265
5	e126	233	e130	61	52	59	69	134	282	94	149	166
6	e125	184	e118	62	50	56	63	411	198	92	95	481
7	e193	223	e112	61	50	54	59	366	259	84	112	240
8	e517	232	e105	60	49	50	59	499	e221	100	99	292
9	387	e167	e100	60	48	53	62	289	e887	98	66	313
10	240	e351	94	60	48	71	71	130	636	81	61	143
11	e138	e240	90	62	47	108	66	95	e418	85	119	235
12	e136	e217	86	58	50	60	56	83	e273	91	104	163
13	e137	e250	84	59	47	54	54	76	e247	e79	80	120
14	e129	e205	82	61	47	47	53	71	e351	e74	70	89
15	e138	e193	78	155	46	45	52	65	e616	e73	72	78
16	e342	e228	77	204	48	42	51	62	e491	80	61	75
17	e265	e189	75	99	45	41	50	160	e393	95	185	66
18	e189	e175	73	70	44	41	48	175	e342	72	109	62
19	e160	e173	74	64	44	90	47	80	e386	67	89	67
20	e141	e168	87	62	44	196	47	67	e289	65	109	61
21	e125	e165	89	84	43	115	46	66	e243	151	103	54
22	e140	e155	75	100	42	115	45	97	e303	184	84	51
23	119	e163	79	66	42	131	44	109	e218	147	290	48
24	116	e208	79	61	42	140	65	72	e171	103	141	55
25	242	e175	73	59	68	150	67	63	147	80	160	75
26	216	e168	71	58	203	90	52	58	135	112	187	75
27	314	e374	69	66	137	67	48	143	126	102	116	79
28	446	288	69	86	68	173	70	424	119	75	87	58
29	1250	e199	68	65	---	178	332	e337	114	67	133	68
30	1260	e186	66	57	---	155	278	472	108	65	107	52
31	857	---	66	55	---	102	---	666	---	63	108	---
TOTAL	9062	7476	3248	2267	1636	2906	2369	5630	9654	2871	3354	4143
MEAN	292	249	105	73.1	58.4	93.7	79.0	182	322	92.6	108	138
MAX	1260	675	328	204	203	196	332	666	887	184	290	481
MIN	116	155	66	55	42	41	44	57	108	63	60	48

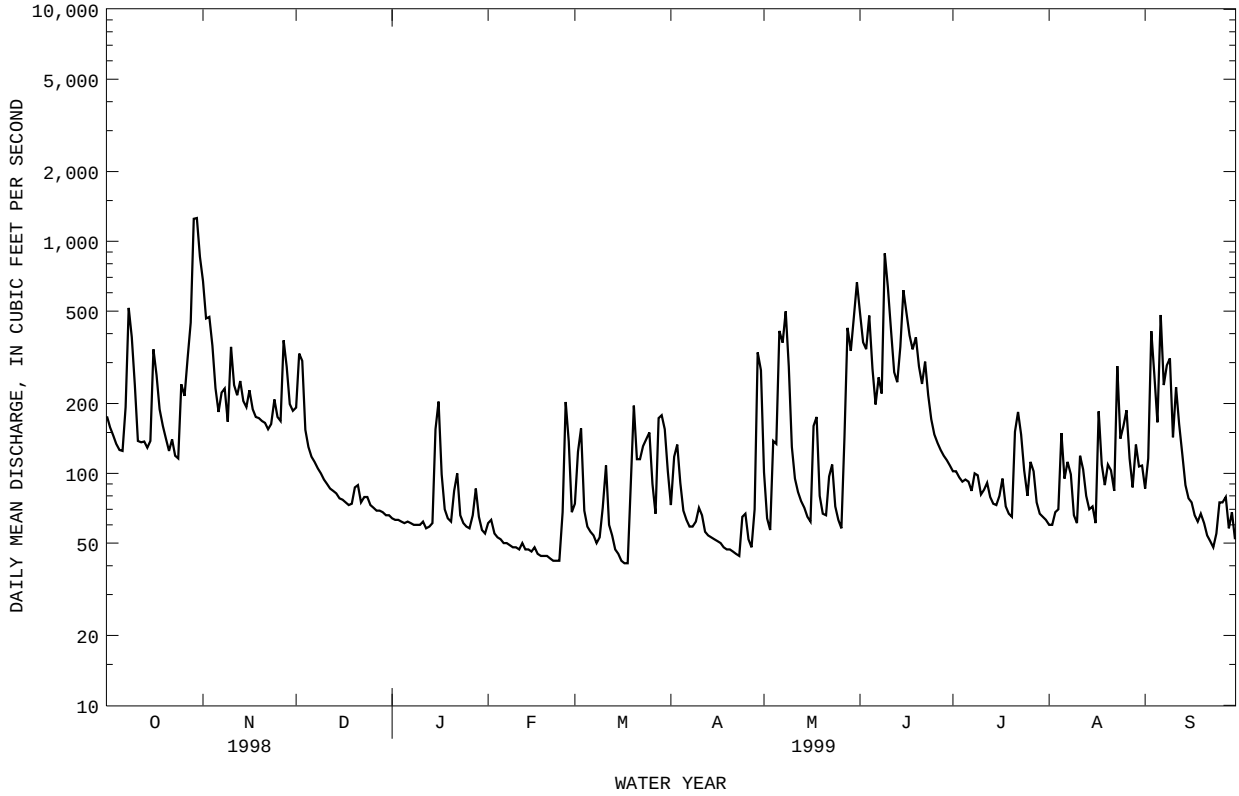
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1999, BY WATER YEAR (WY)

MEAN	203	122	69.0	58.2	50.6	49.9	86.1	168	124	76.3	98.5	197
MAX	427	249	105	163	96.4	93.7	202	624	322	109	187	726
(WY)	1986	1999	1999	1997	1996	1999	1986	1986	1999	1989	1998	1998
MIN	81.6	53.4	36.5	33.1	29.1	23.7	28.0	43.2	42.7	38.8	47.9	61.8
(WY)	1988	1998	1998	1991	1998	1994	1994	1989	1997	1994	1993	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1984 - 1999	
ANNUAL TOTAL	61495		54616			
ANNUAL MEAN	168		150		109	
HIGHEST ANNUAL MEAN					179	1986
LOWEST ANNUAL MEAN					61.5	1994
HIGHEST DAILY MEAN	9010	Sep 22	1260	Oct 30	9010	Sep 22 1998
LOWEST DAILY MEAN	22	Mar 25	41	Mar 17	16	Mar 18 1994
ANNUAL SEVEN-DAY MINIMUM	23	Mar 22	43	Feb 18	17	Mar 16 1994
INSTANTANEOUS PEAK FLOW			5650	Oct 29	11600	Sep 22 1998
INSTANTANEOUS PEAK STAGE			16.88	Oct 29	21.69	Sep 22 1998
INSTANTANEOUS LOW FLOW			39	Mar 18	15	Mar 22 1994
10 PERCENT EXCEEDS	309		330		212	
50 PERCENT EXCEEDS	75		95		68	
90 PERCENT EXCEEDS	26		52		33	

e Estimated

50014800 RIO CAMUY NEAR BAYANEY, PR--Continued



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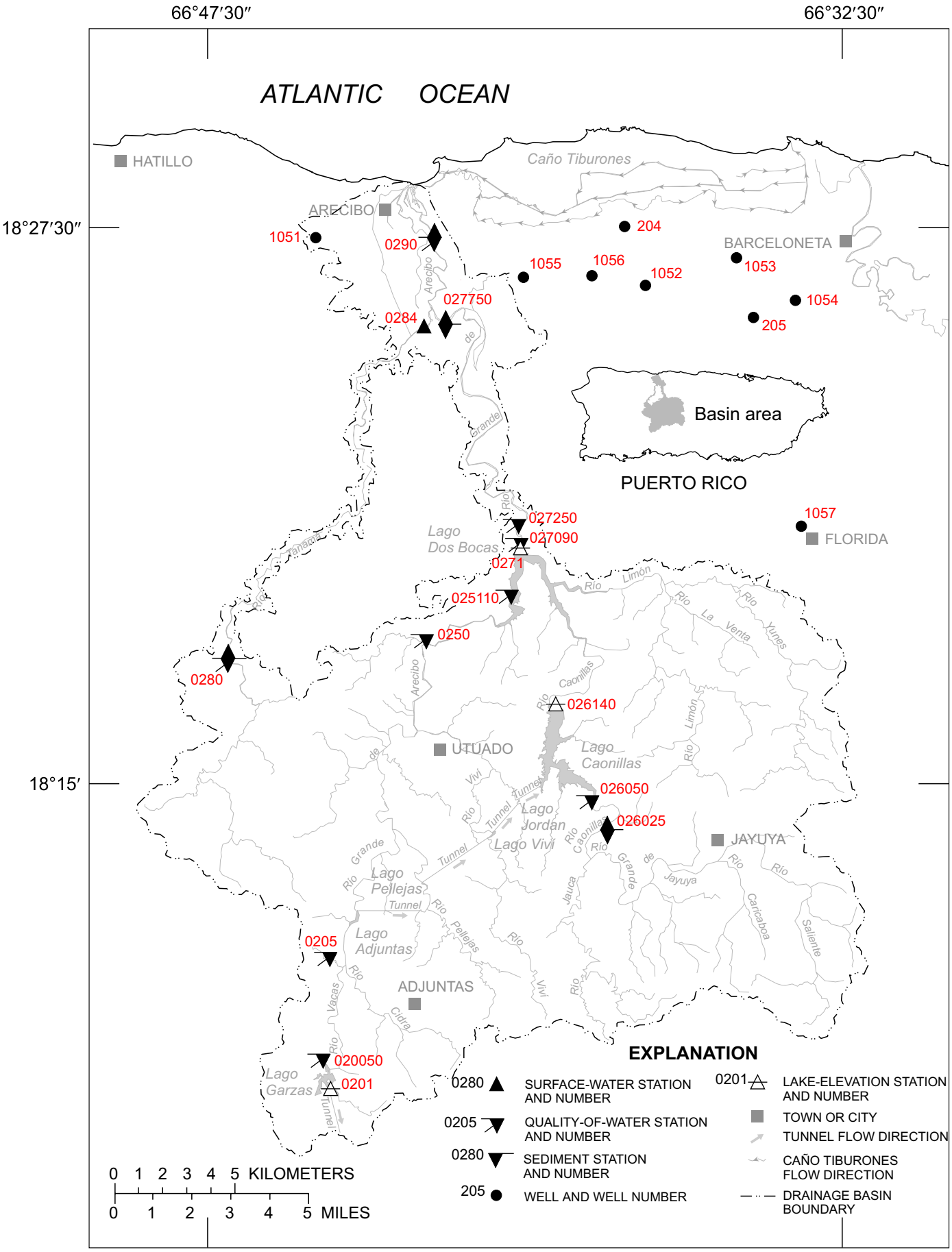


Figure 13. Río Grande de Arecibo basin.

50020100 LAGO GARZAS NEAR ADJUNTAS, PR

LOCATION.--Lat 18°08'20", long 66°44'29", Hydrologic Unit 21010002, in power gate tower of Garzas Dam on Río Vacas, 1.7 mi (2.7 km) upstream from Río Garzas, and 2.2 mi (3.5 km) southwest of Adjuntas.

DRAINAGE AREA.--6.02 mi^2 (15.6 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--January 1988 to May 1989, March 1993 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,400.00 ft (731.520 m) above mean sea level. Prior to May 25, 1988 at datum 2,376.80 ft (724.449 m), May 25 to July 13, 1988 at datum 2,338.08 ft (712.647 m), July 14, 1988 to May 25, 1989 at datum 2,337.82 ft (712.560 m), above mean sea level.

REMARKS.--Lake is formed by earthfill dam completed in 1943. Outflow from lake controlled by vertical-lift sluice gate and fixed-crest concrete spillway. Spillway elevation, 2,415.00 ft (736.09 m).Lake is used for irrigation and power production. Operated by P.R. Electric Power Authorithy. Gage-height and precipitation satellite telemetry at station. New capacity table based on U.S. Geological Survey Water-Resources Investigations Report 99-4143,September 1996.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,418.28 ft (737.092 m),Sept. 22, 1998; minimum elevation, 2,364.79 ft (720.788 m), Aug. 23, 1988.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,416.00 ft (736.40 m), Oct.08; minimum elevation, 2,405.23 ft (733.110 m), Aug. 25.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 99-4143,1996)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
2,317	0	2,376	1,419
2,336	243	2,399	2,700
2,359	794	2,415	4,143

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2414.97	A	2414.82	A	A	A	A	A	2414.85	2414.74	2412.91	2409.20
2	2414.97	A	A	A	A	A	A	A	2414.75	2414.75	2412.91	2411.33
3	A	A	2414.85	A	A	A	A	A	2414.73	2414.75	2410.73	2412.02
4	2414.91	2414.90	2414.85	A	A	A	A	A	2414.73	2414.75	2411.31	2412.52
5	2414.91	2414.89	2414.92	A	A	A	A	A	2414.73	2414.74	2411.55	2413.33
6	A	2414.89	A	A	A	A	A	A	2414.73	2414.74	2411.78	2414.12
7	2414.97	A	2414.85	A	A	A	A	A	2414.73	2414.74	2412.00	2414.64
8	2415.14	2414.86	A	A	A	A	A	A	2414.79	2414.74	2412.01	2414.91
9	A	A	A	A	A	A	A	A	2414.79	2414.73	2412.03	2414.94
10	2414.91	A	A	A	A	A	A	A	2414.70	2414.73	2409.77	2414.92
11	2414.91	A	A	A	A	A	A	A	2414.77	2414.74	A	2414.92
12	A	2414.86	A	A	A	A	A	A	2414.79	2414.74	A	2414.92
13	2414.87	A	A	A	A	A	A	A	2414.85	2414.74	A	2415.11
14	A	A	A	A	A	A	A	A	2414.85	2414.73	A	2415.02
15	2414.87	A	A	A	A	A	A	A	2414.85	2414.73	A	2414.92
16	2414.93	A	A	A	A	A	A	A	2414.78	2414.73	A	2414.88
17	2414.87	2414.85	A	A	A	A	A	A	2414.79	2414.73	A	2414.53
18	2414.87	A	A	A	A	A	A	A	2414.79	2414.73	A	2414.35
19	2414.86	2414.80	A	A	A	A	A	A	2414.81	2414.71	A	2414.80
20	2414.87	2414.83	A	A	A	A	A	A	2414.79	A	A	2414.90
21	2414.89	2414.83	A	A	A	A	A	2414.67	2414.79	2412.80	A	2414.91
22	A	2414.82	A	A	A	A	A	2414.67	2414.79	2412.78	A	2414.45
23	2414.95	2414.81	A	A	A	A	A	2414.68	2414.79	2412.77	A	2414.81
24	A	2414.82	A	A	A	A	A	2414.68	2414.75	2412.78	2405.27	2414.70
25	2414.87	2414.80	A	A	A	A	A	2414.68	2414.73	2412.79	2405.23	2414.91
26	2414.96	A	A	A	A	A	A	2414.68	2414.73	2412.80	2405.49	2414.91
27	A	A	A	A	A	A	A	2414.68	2414.73	2412.81	2405.85	2414.94
28	A	2414.88	A	A	A	A	A	2414.68	2414.73	2412.82	2406.13	2414.66
29	2414.93	2414.83	A	A	---	A	A	2414.68	2414.74	2412.88	2407.77	2414.32
30	A	2414.82	A	A	---	A	A	2414.68	2414.74	2412.89	2407.91	2413.88
31	A	---	A	---	---	A	---	2414.68	---	2412.90	2408.12	---
MAX	---	---	---	---	---	---	---	---	2414.85	---	---	2415.11
MIN	---	---	---	---	---	---	---	---	2414.70	---	---	2409.20

A No gage-height record

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 mi^2 (32.9 km^2) this does not include 6.0 mi^2 (15.6 km^2) above Lago Garzas.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
23...	1300	55	233	7.8	25.5	9.7	7.8	100	<10	410	470
FEB											
22...	1350	15	321	8.2	25.5	--	8.2	104	<10	320	900
MAY											
20...	0900	13	348	8.0	24.0	1.7	8.8	111	<10	400	K220
AUG											
11...	0950	18	351	8.5	25.7	3.0	8.9	115	<10	E150	E160

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
23...	81	21	7.0	13	.6	1.8	79	<1.0	6.5	13
FEB										
22...	--	--	--	--	--	--	110	--	--	--
MAY										
20...	130	33	10	19	.7	1.9	120	<1.0	11	25
AUG										
11...	130	34	10	18	.7	2.2	110	--	10	23

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
23...	<.10	25	134	19.9	14	--	<.010	1.20	.020	.44
FEB										
22...	--	--	--	--	--	1.18	.024	1.20	.040	.52
MAY										
20...	<.10	32	204	7.01	1	.750	.010	.760	.040	--
AUG										
11...	<.10	32	196	9.30	5	.840	.020	.860	.020	--

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
23...	.46	1.7	7.3	.100	<1	<100	20	<1	1	<10
FEB										
22...	.56	1.8	7.8	.300	--	--	--	--	--	--
MAY										
20...	<.20	--	--	E.060	<1	20	30	<1	<1	<12
AUG										
11...	<.20	--	--	.070	--	--	--	--	--	--

50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
23...	620	1	45	<.10	<1	<1	10	<.010	<4	<.02
FEB										
22...	--	--	--	--	--	--	--	--	--	--
MAY										
20...	40	<1	24	<.10	<1	<1	<40	<.010	<4	.03
AUG										
11...	--	--	--	--	--	--	--	--	--	--

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 mi^2 (170.9 km^2) this excludes 6.0 mi^2 (15.5 km^2) upstream from Lago Garzas to R!o Guayanes in the Río Tallaboa basin.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
13...	1130	347	237	7.8	24.5	54	7.8	94	<10	26000	6100
FEB											
22...	1105	72	300	7.7	22.0	170	8.0	92	<10	3000	3000
MAY											
19...	1230	68	283	7.8	33.0	10	7.0	99	<10	2900	240
AUG											
09...	1215	81	270	8.1	32.0	7.9	6.8	95	<10	E11000	7700

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
13...	89	24	7.2	11	.5	2.5	77	<1.0	17	11
FEB										
22...	--	--	--	--	--	--	98	--	--	--
MAY										
19...	100	28	7.9	14	.6	2.4	95	<1.0	19	17
AUG										
09...	100	28	8.0	13	.6	2.5	90	--	18	13

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
13...	<.10	26	144	135	128	1.38	.020	1.40	.020	.21
FEB										
22...	--	--	--	--	400	1.26	.038	1.30	.030	.96
MAY										
19...	.11	25	171	31.2	7	.650	.030	.680	.030	--
AUG										
09...	<.10	28	164	36.0	32	1.07	.030	1.10	.060	.20

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
13...	.23	1.6	7.2	.210	<1	<100	20	<1	3	<10
FEB										
22...	.99	2.3	10	.340	--	--	--	--	--	--
MAY										
19...	<.20	--	--	E.070	<1	40	30	<1	<1	<12
AUG										
09...	.26	1.4	6.0	.120	--	--	--	--	--	--

50025000 RIO GRANDE DE ARECIBO NEAR UTUADO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
13...	--	3	220	<.10	<1	<1	20	<.010	<4	<.02
FEB										
22...	--	--	--	--	--	--	--	--	--	--
MAY										
19...	260	<1	26	<.10	<1	<1	<40	<.010	<4	.09
AUG										
09...	--	--	--	--	--	--	--	--	--	--

50026025 RIO CAONILLAS AT PASO PALMA, PR

LOCATION.--Lat 18°13'53", long 66°38'14", Hydrologic Unit 21010001, 3.5 mi (5.6 km) south of Lago Caonillas Dam,4.8 mi (7.72 km) southeast of Utuado Plaza and 2.78 mi (4.47 km) east of Lago Viví Dam.

DRAINAGE AREA.--37.94 mi^2 (98.26 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 984 ft (300 m), from topographic map.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	254	298	e149	87	e68	43	29	35	131	49	104	160
2	226	e329	e190	86	e75	46	44	32	323	81	69	237
3	188	e330	e191	85	e62	41	153	30	220	57	40	177
4	160	236	e157	82	e59	37	133	30	139	47	47	118
5	143	200	e144	82	e57	37	79	49	e142	53	216	236
6	125	176	e134	80	e54	36	61	58	e109	46	113	349
7	142	175	e128	78	e54	38	51	47	e79	40	63	458
8	235	159	e123	76	e52	44	52	67	299	81	46	340
9	222	158	e119	76	e51	41	76	54	333	62	35	599
10	156	157	e114	78	e50	44	86	45	345	38	29	328
11	146	146	115	79	e50	38	65	81	255	36	25	238
12	123	203	113	73	e49	41	46	72	206	36	24	181
13	110	229	111	72	e48	41	41	50	138	36	59	e486
14	e129	184	109	e71	e52	36	38	55	102	39	117	e492
15	140	188	110	e72	e60	34	35	43	205	48	66	348
16	213	187	105	e102	e55	34	33	39	289	37	76	251
17	150	163	102	e92	e50	34	31	37	272	45	73	202
18	110	145	100	e75	e46	34	30	36	205	34	30	173
19	e93	135	99	e68	e45	51	30	35	165	29	64	675
20	81	130	109	e65	e44	62	29	32	129	31	73	484
21	109	122	99	e62	e43	38	29	31	99	58	37	e287
22	196	117	95	e61	e43	52	29	63	100	31	207	e207
23	176	123	104	e60	e42	36	83	47	83	46	124	e173
24	139	129	96	e59	e41	36	119	33	65	67	69	e179
25	214	113	92	e58	e42	36	75	34	56	25	46	e164
26	473	110	90	e58	e46	40	99	34	50	22	40	161
27	e1200	146	e88	e57	45	34	65	35	47	22	61	140
28	792	169	e90	86	45	33	47	35	45	25	45	214
29	396	e146	e107	64	---	34	66	34	112	31	766	159
30	382	e129	91	59	---	38	52	42	80	30	416	142
31	458	---	89	59	---	35	---	59	---	24	220	---
TOTAL	7681	5232	3563	2262	1428	1224	1806	1374	4823	1306	3400	8358
MEAN	248	174	115	73.0	51.0	39.5	60.2	44.3	161	42.1	110	279
MAX	1200	330	191	102	75	62	153	81	345	81	766	675
MIN	81	110	88	57	41	33	29	30	45	22	24	118
AC-FT	15240	10380	7070	4490	2830	2430	3580	2730	9570	2590	6740	16580
CFSM	6.53	4.60	3.03	1.92	1.34	1.04	1.59	1.17	4.24	1.11	2.89	7.34
IN.	7.53	5.13	3.49	2.22	1.40	1.20	1.77	1.35	4.73	1.28	3.33	8.19

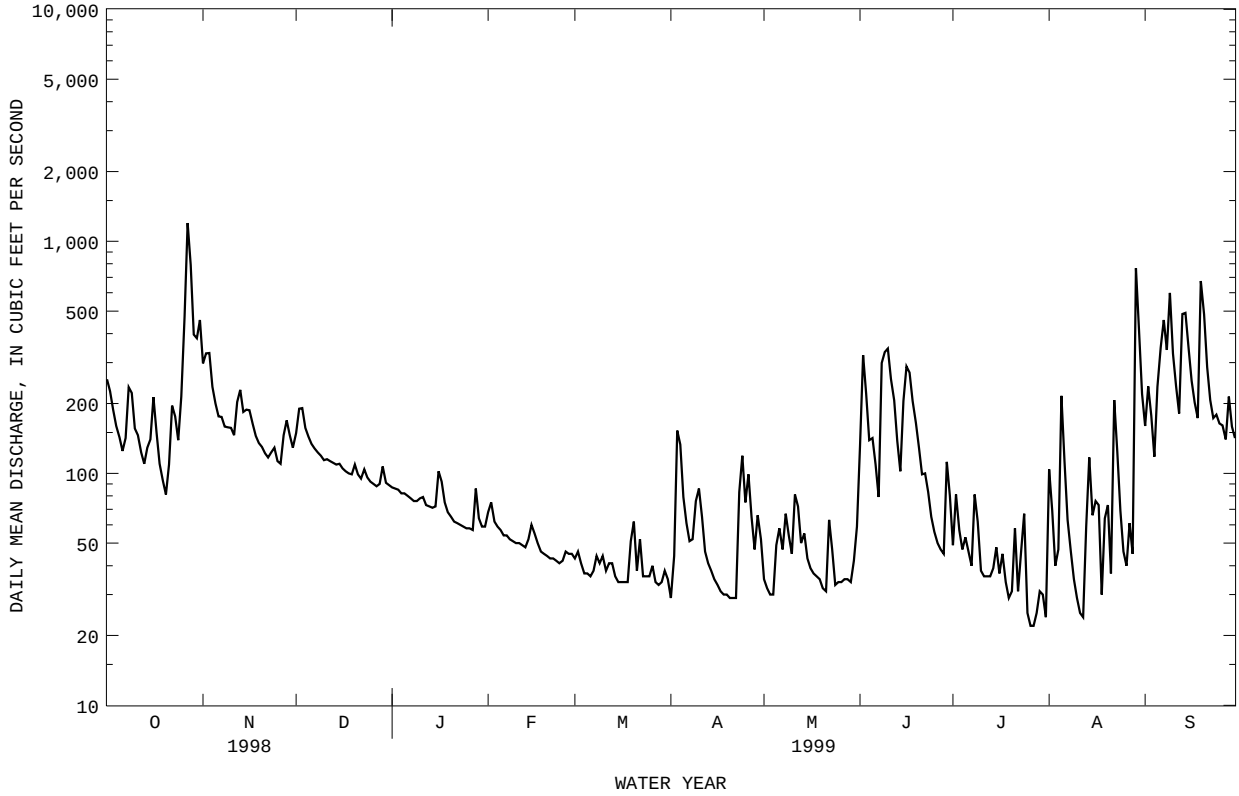
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1999, BY WATER YEAR (WY)

MEAN	151	105	65.2	58.1	57.6	39.7	61.7	82.5	83.5	59.2	94.1	379
MAX	248	174	115	89.8	86.0	51.3	112	130	161	117	156	815
(WY)	1999	1999	1999	1997	1996	1996	1998	1998	1999	1996	1998	1998
MIN	72.9	44.2	21.0	19.6	41.9	25.7	17.0	29.1	16.1	15.5	47.9	33.2
(WY)	1997	1998	1998	1998	1997	1997	1997	1997	1997	1997	1996	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1996 - 1999	
ANNUAL TOTAL	60677.0		42457			
ANNUAL MEAN	166		116		103	
HIGHEST ANNUAL MEAN					137	1998
LOWEST ANNUAL MEAN					49.9	1997
HIGHEST DAILY MEAN	13000	Sep 22	1200	Oct 27	13000	Sep 22 1998
LOWEST DAILY MEAN	14	Jan 4	22	Jul 26	10	Jul 4 1997
ANNUAL SEVEN-DAY MINIMUM	14	Jan 28	26	Jul 25	11	Jul 1 1997
INSTANTANEOUS PEAK FLOW			10100	Oct 27	36000	Sep 22 1998
INSTANTANEOUS PEAK STAGE			18.80	Oct 27	31.15	Sep 22 1998
INSTANTANEOUS LOW FLOW					9.5	Jul 6 1997
ANNUAL RUNOFF (AC-FT)	120400		84210		74510	
ANNUAL RUNOFF (CFSM)	4.38		3.07		2.71	
ANNUAL RUNOFF (INCHES)	59.49		41.63		36.83	
10 PERCENT EXCEEDS	264		231		187	
50 PERCENT EXCEEDS	92		75		52	
90 PERCENT EXCEEDS	21		34		19	

e Estimated

50026025 RIO CAONILLAS AT PASO PALMA, PR--Continued



50026025 RIO CAONILLAS AT PASO PALMA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- October, 1995 to current water year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October, 1995 to current water year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1996.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediments samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 24,800 mg/L September 22, 1998 ; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, e952,ooo tons (e864,000 tonnes) September 22, 1998; Minimum daily mean, 0.04 ton (0.03 tonne) December 29-30, 1998.

EXTREMES FOR CURRENT YEAR 1999.
SEDIMENT CONCENTRATION: Maximum daily mean, 5,360 mg/L August 29, 1999; Minimum daily mean, 7 mg/L July 28, 1999.

SEDIMENT LOADS: Maximum daily mean, 62,600 tons (56,800 tonnes) October 27, 1998; Minimum daily mean, 0.72 ton (0.65 tonne) April 20, 1999.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	254	10	6.8	298	114	92	e149	e49	e20
2	226	43	26	e329	e470	e580	e190	e118	e67
3	188	54	28	e330	e717	e908	e191	e500	e263
4	160	26	11	236	309	203	e157	e183	e78
5	143	31	12	200	88	48	e144	e174	e67
6	125	24	8.1	176	77	37	e134	e169	e61
7	142	97	50	175	135	70	e128	e164	e57
8	235	413	393	159	213	92	e123	e158	e53
9	222	236	151	158	194	84	e119	e175	e56
10	156	47	20	157	182	77	e114	e218	e67
11	146	77	35	146	165	65	115	64	20
12	123	111	38	203	344	298	113	44	14
13	110	125	38	229	1200	1090	111	40	12
14	e129	e176	e65	184	470	590	109	51	15
15	140	208	88	188	630	628	110	59	17
16	213	364	507	187	630	632	105	44	12
17	150	74	33	163	350	436	102	34	9.3
18	110	71	21	145	244	96	100	32	8.6
19	e93	e57	e14	135	176	65	99	31	8.4
20	81	45	9.8	130	54	19	109	32	9.3
21	109	89	37	122	37	12	99	33	8.9
22	196	356	218	117	20	6.4	95	39	10
23	176	186	95	123	27	9.2	104	44	12
24	139	77	30	129	69	24	96	31	8.1
25	214	358	456	113	84	26	92	21	5.3
26	473	1100	3760	110	36	11	90	21	5.0
27	e1200	e4120	e62600	146	96	52	e88	e21	e4.9
28	792	666	2120	169	202	104	e90	e20	e4.9
29	396	148	159	e146	e120	e49	e107	e98	e29
30	382	481	822	e129	e51	e18	91	66	16
31	458	470	916	---	---	---	89	27	6.6
TOTAL	7681	---	72767.7	5232	---	6421.6	3563	---	1025.3

50026025 RIO CAONILLAS AT PASO PALMA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	87	20	4.7	e68	e28	e5.8	43	27	3.2
2	86	17	3.9	e75	e53	e11	46	31	4.1
3	85	19	4.5	e62	e26	e4.4	41	28	3.1
4	82	23	5.1	e59	e22	e3.5	37	19	1.9
5	82	27	6.1	e57	e19	e3.0	37	16	1.6
6	80	34	7.3	e54	e15	e2.2	36	20	2.0
7	78	46	9.8	e54	e12	e1.8	38	27	2.8
8	76	62	13	e52	e13	e1.8	44	36	4.2
9	76	47	9.6	e51	e13	e1.8	41	33	3.6
10	78	29	6.1	e50	e12	e1.6	44	30	3.6
11	79	37	7.8	e50	e11	e1.5	38	25	2.5
12	73	58	11	e49	e11	e1.4	41	23	2.7
13	72	59	11	e48	e10	e1.3	41	39	4.4
14	e71	e51	e9.7	e52	e11	e1.6	36	20	1.9
15	e72	e49	e9.7	e60	e66	e11	34	12	1.1
16	e102	e100	e28	e55	e32	e4.7	34	11	1.0
17	e92	e48	e12	e50	e17	e2.2	34	11	1.0
18	e75	e26	e5.2	e46	e18	e2.3	34	11	.96
19	e68	e32	e5.9	e45	e19	e2.3	51	27	6.2
20	e65	e40	e7.1	e44	e14	e1.6	62	45	9.3
21	e62	e39	e6.6	e43	e10	e1.2	38	24	2.8
22	e61	e34	e5.6	e43	e13	e1.6	52	36	5.7
23	e60	e23	e3.8	e42	e19	e2.1	36	16	1.6
24	e59	e19	e3.0	e41	e18	e2.0	36	13	1.2
25	e58	e33	e5.2	e42	e17	e1.9	36	10	1.0
26	e58	e56	e8.8	e46	e18	e2.3	40	10	1.1
27	e57	e58	e8.9	45	21	2.5	34	10	.94
28	86	84	20	45	24	2.9	33	11	1.0
29	64	79	14	---	---	---	34	13	1.2
30	59	72	12	---	---	---	38	17	1.9
31	59	36	5.8	---	---	---	35	28	2.7
TOTAL	2262	---	271.2	1428	---	83.3	1224	---	82.30

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	29	16	1.3	35	30	2.8	131	830	855
2	44	25	4.0	32	22	1.9	323	778	1750
3	153	1090	1260	30	17	1.4	220	750	962
4	133	182	74	30	16	1.3	139	132	52
5	79	44	9.5	49	36	7.3	e142	e366	e548
6	61	28	4.6	58	180	48	e109	e69	e22
7	51	21	3.0	47	40	5.3	e79	32	6.9
8	52	27	4.1	67	180	78	299	698	1720
9	76	66	17	54	60	9.2	333	632	684
10	86	81	21	45	120	20	345	420	484
11	65	96	17	81	99	24	255	600	1440
12	46	46	5.7	72	138	28	206	230	138
13	41	23	2.5	50	73	9.7	138	134	51
14	38	13	1.3	55	41	6.1	102	59	16
15	35	9	.82	43	32	3.7	205	366	546
16	33	9	.82	39	24	2.5	289	499	697
17	31	10	.82	37	18	1.8	272	447	355
18	30	9	.76	36	12	1.1	205	129	75
19	30	9	.73	35	9	.88	165	61	28
20	29	9	.72	32	16	1.4	129	39	13
21	29	10	.75	31	24	2.1	99	39	10
22	29	12	.92	63	100	37	100	70	23
23	83	103	92	47	198	27	83	53	12
24	119	129	59	33	87	7.8	65	19	3.3
25	75	171	40	34	40	3.7	56	13	2.0
26	99	116	38	34	19	1.7	50	10	1.4
27	65	136	25	35	11	1.1	47	8	1.0
28	47	46	5.9	35	15	1.5	45	7	.83
29	66	48	16	34	20	1.9	112	360	453
30	52	43	6.2	42	33	4.4	80	83	21
31	---	---	---	59	54	11	---	---	---
TOTAL	1806	---	1713.44	1374	---	353.58	4823	---	10970.43

50026025 RIO CAONILLAS AT PASO PALMA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	49	35	4.6	104	622	560	160	85	39
2	81	58	14	69	81	19	237	630	708
3	57	51	7.9	40	38	4.1	177	253	140
4	47	37	4.7	47	34	6.8	118	42	14
5	53	39	5.9	216	996	1560	236	368	489
6	46	48	6.0	113	110	38	349	944	1960
7	40	34	3.7	63	37	6.5	458	1330	2640
8	81	78	34	46	29	3.6	340	821	808
9	62	46	8.5	35	25	2.3	599	1900	8780
10	38	26	2.7	29	21	1.6	328	462	447
11	36	31	3.1	25	17	1.2	238	228	162
12	36	38	3.7	24	14	.94	181	550	608
13	36	30	2.9	59	157	97	e486	e1570	e2640
14	39	22	2.3	117	137	60	e492	e843	e1210
15	48	30	4.2	66	59	12	348	321	321
16	37	24	2.4	76	170	100	251	342	236
17	45	33	4.2	73	50	12	202	162	89
18	34	39	3.6	30	21	1.8	173	77	36
19	29	20	1.6	64	181	91	675	615	2880
20	31	14	1.3	73	162	12	484	994	1420
21	58	170	78	37	32	3.2	e287	e416	e344
22	31	33	2.8	207	485	751	e207	e122	e69
23	46	146	58	124	146	57	e173	e117	e55
24	67	77	20	69	39	7.3	e179	e204	e110
25	25	32	2.1	46	25	3.2	e164	e218	e101
26	22	27	1.6	40	20	2.3	161	180	79
27	22	23	1.4	61	45	8.4	140	148	56
28	25	19	1.3	45	28	4.6	214	322	224
29	31	25	3.2	766	5360	47000	159	183	79
30	30	36	3.2	416	541	878	142	133	53
31	24	10	.65	220	273	170	---	---	---
TOTAL	1306	---	293.55	3400	---	51474.84	8358	---	26797
YEAR	42457		172254.24						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
07...	1600	119	197	63	95
22...	0700	208	1260	708	93
29...	1315	358	143	138	83
NOV					
03...	0900	260	227	159	84
29...	0700	150	128	52	93
DEC					
07...	0700	129	949	331	74
29...	1100	122	178	59	96
JAN					
30...	1500	59	76	12	98
APR					
03...	1700	286	6070	4690	88
03...	1915	446	6020	7240	83
MAY					
23...	1100	46	192	24	81
AUG					
01...	1800	300	5110	4140	93
05...	1600	815	5850	12900	78
29...	1958	4420	53200	634000	35
SEP					
02...	1930	609	3410	5610	66
07...	1615	1330	8080	29000	61
09...	1628	2260	12600	77000	61
13...	0900	707	2640	5040	73
13...	2228	938	3510	8890	68

RIO GRANDE DE ARECIBO BASIN

50026025 RIO CAONILLAS AT PASO PALMA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
OCT							
22...	0700	208	1260	708	42	53	69
APR							
03...	1915	446	6020	7240	32	43	56
AUG							
05...	1600	815	5850	12900	27	35	47
29...	1958	4420	53200	634000	6	9	12
SEP							
07...	1615	1330	8080	29000	20	26	35

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
OCT							
22...	79	90	93	98	100	100	100
APR							
03...	70	78	83	90	95	98	100
AUG							
05...	60	72	78	84	90	96	99
29...	16	25	35	62	90	98	100
SEP							
07...	44	55	61	75	88	96	99

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 mi^2 (104.6 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
24...	1100	147	170	7.7	24.5	120	7.5	93	<10	42000	26000
FEB											
23...	1015	37	265	7.8	22.5	3.5	8.3	98	<10	K10	K90
MAY											
20...	1310	35	256	8.0	32.0	1.9	6.6	94	<10	K20	K30
AUG											
10...	1100	47	245	8.0	27.4	1.4	8.6	113	<10	K40	K20

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
24...	74	19	6.1	9.4	.5	1.7	69	<1.0	12	10
FEB										
23...	--	--	--	--	--	--	91	--	--	--
MAY										
20...	98	27	7.4	13	.6	1.8	85	<1.0	17	14
AUG										
10...	93	25	7.2	11	.5	1.8	81	--	15	11

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
24...	<.10	23	124	49.2	232	1.19	.013	1.20	.020	.74
FEB										
23...	--	--	--	--	5	--	<.010	1.10	.020	.20
MAY										
20...	<.10	26	157	14.8	<1	--	<.010	.380	.020	--
AUG										
10...	<.10	26	147	18.6	6	--	<.010	.590	<.010	--

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
24...	.76	2.0	8.7	.250	<1	<100	20	<1	3	26
FEB										
23...	.22	1.3	5.8	.070	--	--	--	--	--	--
MAY										
20...	<.20	--	--	E.040	<1	30	30	<1	<1	E6
AUG										
10...	<.20	--	--	.060	--	--	--	--	--	--

50026050 RIO CAONILLAS ABOVE LAGO CAONILLAS NEAR JAYUYA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
24...	4600	2	250	<.10	<1	<1	30	<.010	<4	.06
FEB										
23...	--	--	--	--	--	--	--	--	--	--
MAY										
20...	120	<1	8	<.10	<1	<1	<40	<.010	<4	--
AUG										
10...	--	--	--	--	--	--	--	--	--	--

50026140 LAGO CAONILLAS AT DAMSITE NEAR UTUADO, PR

LOCATION.--Lat 18°16'43",long 66°39'24", Hydrologic Unit 21010001, at Lago Caonillas Dam on Río Caonillas, 2.9 mi (4.7 km) northeast of Plaza de Utuado, 0.3 mi (0.6 km) west from Iglesia Santa María del Monte Carmelo, and 1.8 mi (3.0 km) northwest from Hacienda Carbonell.

DRAINAGE AREA.--48.4 mi^2 (125.4 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--March 1991 to current year. (March 16 to September 30, 1999, no records available due to repairs conducted by Puerto Rico Electric and Power Authority; inspections data available at District Office). Prior to October 1994, published as Lago Caonillas at Caonillas.

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). Non-overflow sections on each abutment have a total length of 603 ft (184 m). The dam is the main unit of Caonillas Hydroelectric Project, and provides 49,000 acre-feet (60 hm^3) of usable storage for power generation at Caonillas Power Plant 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. New capacity table based on U.S. Geological Survey Water-Resources Investigations Report 96-4153,Februay 1995.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 841.29 ft (256.42 m), Sept. 22, 1998; minimun elevation, 737.92 ft (224.92 m), Aug. 8, 1997.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 830.10 ft (253.01 m), Oct. 27; minimum elevation, 826.88 ft (252.03 m), Oct. 27.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 96-4153,Puerto Rico-1995)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
689	0	745	6,015
705	778	764	10,077
725	2,919	830	42,295

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	826.57	826.94	826.77	826.05	826.40	826.29	A	A	A	A	A	A
2	826.53	827.14	827.36	826.07	826.44	826.34	A	A	A	A	A	A
3	826.46	827.16	827.13	826.07	826.40	826.28	A	A	A	A	A	A
4	826.43	826.81	826.80	826.09	826.37	826.22	A	A	A	A	A	A
5	826.44	826.67	826.63	826.14	826.34	826.16	A	A	A	A	A	A
6	826.42	826.60	826.52	826.16	826.33	826.11	A	A	A	A	A	A
7	826.50	826.59	826.45	826.16	826.32	826.09	A	A	A	A	A	A
8	827.19	826.52	826.41	826.16	826.30	826.07	A	A	A	A	A	A
9	826.69	826.55	826.39	826.17	826.30	826.09	A	A	A	A	A	A
10	826.50	826.56	826.38	826.21	826.30	826.08	A	A	A	A	A	A
11	826.45	826.53	826.37	826.21	826.30	826.07	A	A	A	A	A	A
12	826.41	826.85	826.34	826.20	826.30	826.07	A	A	A	A	A	A
13	826.42	826.78	826.34	826.22	826.29	826.07	A	A	A	A	A	A
14	826.52	826.69	826.33	826.20	826.30	826.04	A	A	A	A	A	A
15	826.65	826.70	826.33	826.55	826.36	826.02	A	A	A	A	A	A
16	826.94	826.73	826.30	826.45	826.37	A	A	A	A	A	A	A
17	826.67	826.66	826.28	826.33	826.35	A	A	A	A	A	A	A
18	826.52	826.61	826.23	826.25	826.27	A	A	A	A	A	A	A
19	826.47	826.57	826.24	826.23	826.17	A	A	A	A	A	A	A
20	826.42	826.56	826.26	826.23	826.10	A	A	A	A	A	A	A
21	826.47	826.53	826.21	826.23	826.05	A	A	A	A	A	A	A
22	826.63	826.51	826.19	826.23	826.01	A	A	A	A	A	A	A
23	826.63	826.52	826.18	826.25	825.96	A	A	A	A	A	A	A
24	826.59	826.53	826.13	826.26	825.95	A	A	A	A	A	A	A
25	827.13	826.49	826.09	826.28	826.20	A	A	A	A	A	A	A
26	827.50	826.46	826.05	826.33	826.44	A	A	A	A	A	A	A
27	829.55	826.59	826.02	826.32	826.34	A	A	A	A	A	A	A
28	827.64	826.69	826.02	826.42	826.36	A	A	A	A	A	A	A
29	827.04	826.65	826.05	826.38	---	A	A	A	A	A	A	A
30	827.16	826.63	826.05	826.33	---	A	A	A	A	A	A	A
31	827.04	---	826.05	826.32	---	A	---	A	---	A	A	---
MAX	829.55	827.16	827.36	826.55	826.44	---	---	---	---	---	---	---
MIN	826.41	826.46	826.02	826.05	825.95	---	---	---	---	---	---	---

A No gage-height record

50027100 LAGO DOS BOCAS AT DAMSITE NEAR UTUADO, PR

LOCATION.--Lat 18°20'16",long 66°40'05", Hydrologic Unit 21010001, on upstream side of road 146 near bridge center, 10 mi (16.09 km) southeast of the city of Arecibo, 4.10 mi (6.596 km) north of Lago Caonillas Dam, 5.30 mi (8.527 km) northeast of Plaza de Utuado, and 3.80 mi (6.114 km) southeast of Escuela Antonio Sánchez de Padilla.

DRAINAGE AREA.--169.45 mi^2 (438.87 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--March 1999 to current year.

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

REMARKS.--Lago Dos Bocas was completed in 1942. The dam is a concrete gravity structure with a total length of 1,317 ft (401.42 m), a maximum height of 188 ft (57.302 m), and a maximum base width of 158 ft (48.158 m). No-overflow sections on each abutment have a total lenght of 957 ft (292 m). The dam and the powerplant comprise the Dos Bocas Hydroelectric Project, and provides 32,000 acre-feet (39.456 hm^3). A three-unit powerplant is located on the right bank of the slitting basin. The dam is owned by Puerto Rico Electric Power Authority. The capacity of Lago Dos Bocas was computed to be 714.40 million ft^3 (20.23 million m3) for June 1997. The Puerto Rico Aqueduct and Sewer Authority (PRASA) plans to withdraw water from the Río Grande de Arecibo, south of the town of Arecibo, to supply potable water for areas between Arecibo and San Juan town. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation,296.83 ft (90.473 m), June 9, 1999; minimum elevation,286.39 ft (87.291 m), Aug. 8, 1999.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 98-4188,1997)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
216	0	275	9,283
236	1,403	288	13,684
256	4,491	295	16,400

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							289.90	290.97	291.92	291.89	290.42	A
2							290.96	290.67	293.92	293.10	290.30	A
3							293.69	290.64	295.05	290.23	289.02	A
4							294.09	290.61	293.19	290.44	290.22	A
5							293.18	291.48	290.75	292.33	292.05	A
6							291.58	293.96	291.09	292.11	292.30	A
7							290.07	293.09	291.57	291.02	289.89	A
8							289.86	294.64	295.50	292.06	288.40	A
9							289.09	292.15	296.08	292.87	288.28	A
10							290.03	292.18	294.70	292.09	287.90	A
11							291.13	290.79	295.17	292.96	290.33	A
12							290.76	291.56	294.13	292.70	291.49	A
13							288.26	290.99	293.83	291.24	292.51	A
14							287.94	290.29	292.82	A	293.03	A
15							287.97	289.76	294.97	292.85	292.91	290.73
16							288.71	290.53	294.85	A	292.49	A
17							289.37	289.97	293.93	294.15	291.39	A
18							290.02	290.36	293.46	291.38	290.11	288.39
19							290.37	290.00	293.79	291.95	287.25	290.42
20							290.16	290.61	293.44	290.80	289.84	A
21							290.53	290.08	293.32	290.49	291.77	A
22							289.86	290.94	293.98	290.24	293.83	A
23							292.17	291.82	292.94	290.76	292.75	A
24							293.22	290.84	292.34	291.47	291.36	A
25							293.24	289.46	291.80	292.24	A	A
26							293.26	290.11	293.50	293.21	A	291.41
27							292.83	290.62	293.27	293.39	A	291.02
28							293.11	290.96	293.47	293.63	A	290.78
29							291.78	291.57	293.54	293.14	292.17	290.85
30						288.09	291.43	293.41	292.78	292.60	292.10	290.79
31						288.86	---	294.71	---	290.02	---	---
MAX						---	294.09	294.71	296.08	---	---	---
MIN						---	287.94	289.46	290.75	---	---	---

A No gage-height record

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 mi^2 (436 km^2) does not include 6.0 mi^2 (15.6 km^2) above Lago Garzas.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
24...	0945	E1500	209	7.3	25.0	22	6.4	77	<10	300	400
FEB											
22...	0800	33	258	7.6	23.0	3.2	6.8	79	<10	K10	280
MAY											
19...	0845	28	216	7.3	26.5	5.7	5.8	73	<10	<10	K80
AUG											
10...	0835	41	209	8.0	26.5	3.5	6.0	75	11	E110	E180

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
24...	77	21	6.3	9.1	.5	2.3	69	<1.0	12	10
FEB										
22...	--	--	--	--	--	--	89	--	--	--
MAY										
19...	78	21	6.1	9.9	.5	2.2	74	<1.0	12	12
AUG										
10...	82	22	6.4	9.2	.4	2.1	76	--	11	10

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
24...	<.10	23	126	--	18	--	<.010	1.30	.020	.22
FEB										
22...	--	--	--	--	2	.830	.020	.850	.040	.19
MAY										
19...	<.10	20	128	9.54	1	.550	.010	.560	.050	--
AUG										
10...	<.10	22	129	14.3	4	.180	.020	.200	.150	.09

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
24...	.24	1.5	6.8	.060	<1	<100	<10	<1	1	<10
FEB										
22...	.23	1.1	4.8	.060	--	--	--	--	--	--
MAY										
19...	E.21	--	--	E.020	<1	40	E20	<1	<1	<12
AUG										
10...	.24	.44	1.9	.020	--	--	--	--	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
24...	760	<1	91	.17	<1	<1	<10	<.010	<4	<.02
FEB										
22...	--	--	--	--	--	--	--	--	--	--
MAY										
19...	300	<1	88	<.10	<1	<1	<40	<.010	7	<.02
AUG										
10...	--	--	--	--	--	--	--	--	--	--

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.--174 mi^2 (451 km^2), approximately, of which an undetermined amount does not contribute directly to surface runoff.

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. Flow regulated by Lago Dos Bocas Dam 10.4 mi (16.7 km) upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1100	e165	e440	e220	e310	344	69	176	975	411	328	420
2	e920	e150	e470	e180	e240	248	80	234	785	226	319	355
3	e960	e145	e1300	e160	e260	84	547	211	726	445	396	500
4	e720	e155	e1200	e310	e230	197	579	279	843	394	273	530
5	e860	e165	e780	e380	e160	317	567	68	1020	200	187	614
6	e860	e180	e680	e310	e115	416	541	126	208	194	322	498
7	e850	e88	e600	e260	e91	210	459	565	442	359	348	843
8	e890	e250	e520	e160	e110	67	324	386	168	328	441	722
9	e2200	e720	e330	e270	e86	203	315	749	1010	153	258	894
10	e1000	e680	e520	e210	e123	212	248	397	1270	334	297	728
11	e700	e560	e440	e280	e103	68	137	594	993	286	204	640
12	e600	e500	e180	e350	e170	198	159	120	807	258	155	632
13	e480	e780	e150	e90	e390	339	494	288	560	296	137	574
14	e315	e740	e300	e120	e230	223	272	314	499	241	e110	731
15	e270	e470	e190	e490	e145	105	306	157	611	131	350	875
16	e340	e560	e150	e150	e160	178	84	273	946	292	474	870
17	e580	e580	e145	e300	e190	70	57	204	1160	e190	501	446
18	e370	e510	e152	e440	e160	149	54	124	754	e370	399	562
19	e250	e500	e260	e280	e56	60	48	198	738	e350	784	555
20	e170	e580	e190	e58	e53	494	135	122	441	319	324	396
21	e135	e350	e160	e120	e72	340	122	98	575	371	e150	481
22	e129	e250	e210	e215	e52	485	130	191	327	450	184	512
23	e96	e440	e190	e130	e45	625	191	70	510	291	559	534
24	e430	e450	e165	e115	e45	239	115	274	425	e200	434	382
25	e148	e425	e190	e220	e220	87	153	331	410	85	e480	276
26	e125	e260	e148	e370	441	352	536	149	186	118	e542	397
27	e103	e310	e370	e220	716	210	322	e70	134	e120	457	547
28	e1500	e660	e270	e140	268	511	148	e82	293	e90	317	549
29	e780	e560	e240	e110	---	578	446	201	367	183	176	399
30	e330	e410	e210	e96	---	540	316	194	308	291	356	460
31	e210	---	e170	e92	---	174	---	367	---	466	491	---
TOTAL	18421	12593	11320	6846	5241	8323	7954	7612	18491	8442	10753	16922
MEAN	594	420	365	221	187	268	265	246	616	272	347	564
MAX	2200	780	1300	490	716	625	579	749	1270	466	784	894
MIN	96	88	145	58	45	60	48	68	134	85	110	276
AC-FT	36540	24980	22450	13580	10400	16510	15780	15100	36680	16740	21330	33560
CFSM	3.42	2.41	2.10	1.27	1.08	1.54	1.52	1.41	3.54	1.57	1.99	3.24
IN.	3.94	2.69	2.42	1.46	1.12	1.78	1.70	1.63	3.95	1.80	2.30	3.62

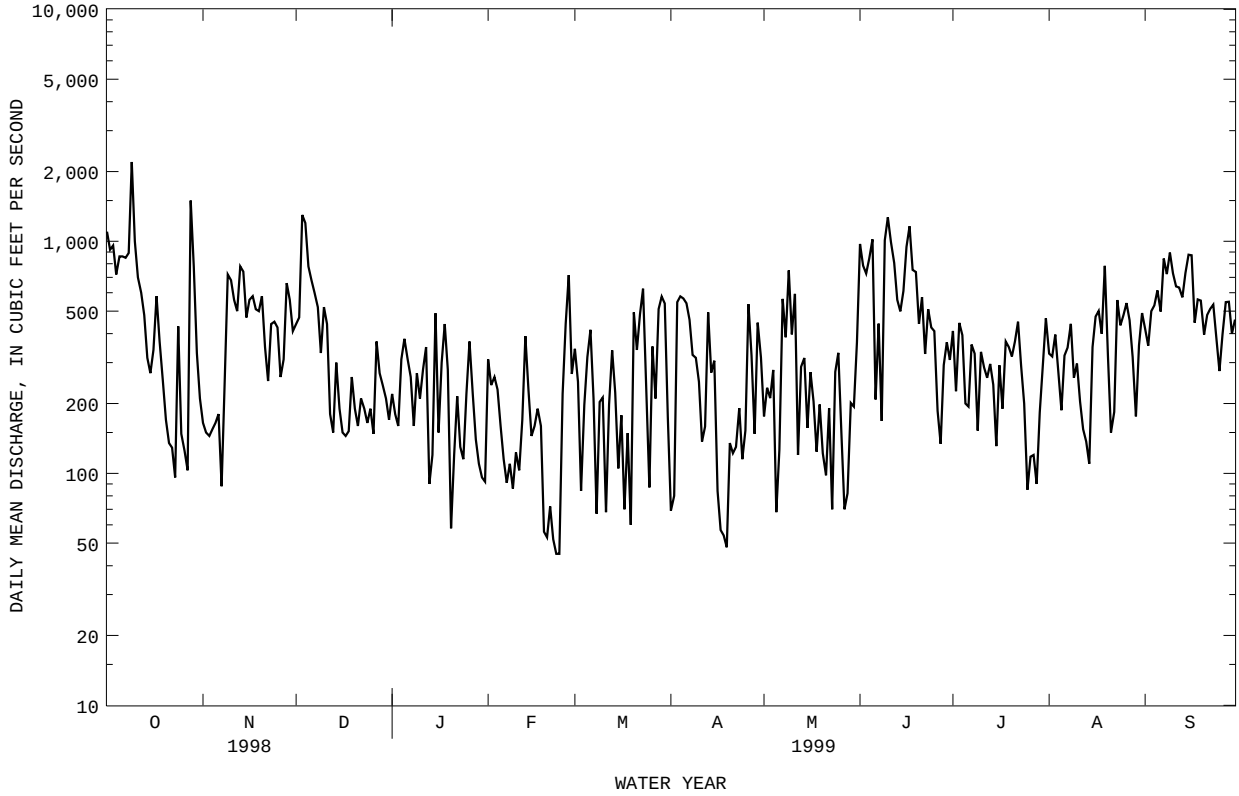
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1999, BY WATER YEAR (WY)

MEAN	585	496	282	239	221	211	326	530	349	244	264	529
MAX	1984	1413	570	437	428	351	617	2000	683	374	474	1479
(WY)	1986	1986	1988	1988	1988	1985	1986	1986	1987	1987	1988	1996
MIN	171	123	72.4	83.5	61.2	60.1	65.7	178	69.3	62.7	82.8	99.9
(WY)	1995	1995	1995	1995	1995	1998	1995	1994	1994	1994	1994	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1982 - 1999	
ANNUAL TOTAL	116991		132918			
ANNUAL MEAN	321		364		356	
HIGHEST ANNUAL MEAN					729	1986
LOWEST ANNUAL MEAN					132	1994
HIGHEST DAILY MEAN	7290	Sep 22	2200	Oct 9	14800	May 18 1985
LOWEST DAILY MEAN	22	Mar 11	45	Feb 23	16	Apr 14 1994
ANNUAL SEVEN-DAY MINIMUM	24	Mar 11	69	Feb 18	22	Mar 30 1994
INSTANTANEOUS PEAK FLOW			Not determined	Oct 28	45800	May 18 1985
INSTANTANEOUS PEAK STAGE			Not determined	Oct 28	18.22	May 18 1985
ANNUAL RUNOFF (AC-FT)	232100		263600		257700	
ANNUAL RUNOFF (CFSM)	1.84		2.09		2.04	
ANNUAL RUNOFF (INCHES)	25.01		28.42		27.78	
10 PERCENT EXCEEDS	684		727		732	
50 PERCENT EXCEEDS	210		306		236	
90 PERCENT EXCEEDS	41		108		55	

e Estimated

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



RIO GRANDE DE ARECIBO BASIN

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

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water year 1982 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October, 1995 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1995.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediments samples were collected by automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 3,510 mg/L September 22, 1998; Minimum daily mean, 2 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, e84,900 tons (77,000 tonnes) September 22,1998; Minimum daily mean, 0.14 ton (0.013 tonne) March 24, 1998.

EXTREMES FOR CURRENT YEAR 1999.
SEDIMENT CONCENTRATION: Maximum daily mean, 398 mg/L October 9, 1998; Minimum daily mean, 11 mg/L April 19 and August 21, 1999.

SEDIMENT LOADS: Maximum daily mean, 946 tons (858 tonnes) June 10, 1999; Minimum daily mean, 1.6 ton (1.45 tonnes) April 19, 1999.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	e1100	e206	e427	e165	e43	e64	e440	e91	e170
2	e920	e160	e357	e150	e40	e58	e470	e96	e182
3	e960	e181	e372	e145	e39	e56	e1300	e241	e504
4	e720	e140	e279	e155	e41	e60	e1200	e223	e465
5	e860	e164	e333	e165	e43	e64	e780	e150	e302
6	e860	e164	e333	e180	e45	e69	e680	e133	e263
7	e850	e163	e330	e88	e29	e34	e600	e119	e232
8	e890	e169	e345	e250	e58	e97	e520	e105	e201
9	e2200	e398	e854	e720	e140	e279	e330	e72	e128
10	e1000	e188	e388	e680	e133	e263	e520	e105	e201
11	e700	e136	e271	e560	e112	e217	e440	e91	e170
12	e600	e119	e232	e500	e101	e194	e180	e45	e69
13	e480	e98	e186	e780	e150	e302	e150	e40	e58
14	e315	e69	e122	e740	e143	e287	e300	e66	e116
15	e270	e62	e104	e470	e96	e182	e190	e47	e73
16	e340	e74	e131	e560	e112	e217	e150	e40	e58
17	e580	e116	e225	e580	e115	e225	e145	e39	e56
18	e370	e79	e143	e510	e103	e197	e152	e41	e59
19	e250	e58	e97	e500	e101	e194	e260	e59	e100
20	e170	e44	e65	e580	e115	e225	e190	e47	e73
21	e135	e38	e52	e350	e75	e135	e160	e42	e62
22	e129	e37	e50	e250	e58	e97	e210	e51	e81
23	e96	e31	e37	e440	e91	e170	e190	e47	e73
24	e430	e89	e166	e450	e93	e174	e165	e43	e64
25	e148	e40	e57	e425	e88	e164	e190	e47	e73
26	e125	e36	e48	e260	e59	e100	e148	e40	e57
27	e103	e32	e39	e310	e68	e120	e370	e79	e143
28	e1500	e275	e582	e660	e129	e256	e270	e61	e104
29	e780	e150	e302	e560	e112	e217	e240	e56	e93
30	e330	e72	e128	e410	e86	e159	e210	e51	e81
31	e210	e51	e81	---	---	---	e170	e44	e65
TOTAL	18421	---	7136	12593	---	4876	11320	---	4376

RIO GRANDE DE ARECIBO BASIN

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	e220	e52	e85	e310	e68	e120	344	64	93
2	e180	e45	e69	e240	e56	e93	248	57	73
3	e160	e42	e62	e260	e59	e100	84	21	6.5
4	e310	e68	e120	e230	e54	e89	197	48	48
5	e380	e80	e147	e160	e42	e62	317	62	114
6	e310	e68	e120	e115	e34	e44	416	89	144
7	e260	e59	e100	e91	e30	e35	210	49	56
8	e160	e42	e62	e110	e33	e42	67	16	4.8
9	e270	e61	e104	e86	e29	e33	203	48	48
10	e210	e51	e81	e123	e36	e47	212	49	44
11	e280	e63	e108	e103	e32	e39	68	18	3.4
12	e350	e75	e135	e170	e44	e65	198	18	13
13	e90	e30	e34	e390	e82	e151	339	49	69
14	e120	e35	e46	e230	e54	e89	223	52	51
15	e490	e99	e190	e145	e39	e56	105	25	13
16	e150	e40	e58	e160	e42	e62	178	44	38
17	e300	e66	e116	e190	e47	e73	70	17	3.6
18	e440	e91	e170	e160	e42	e62	149	33	24
19	e280	e63	e108	e56	e24	e21	60	16	2.8
20	e58	e24	e22	e53	e23	e20	494	101	218
21	e120	e35	e46	e72	e27	e27	340	81	111
22	e215	e52	e83	e52	e23	e20	485	104	180
23	e130	e37	e50	e45	e22	e17	625	137	322
24	e115	e34	e44	e45	e22	e17	239	57	70
25	e220	e52	e85	e220	e52	e85	87	22	5.8
26	e370	e79	e143	441	94	155	352	78	132
27	e220	e52	e85	716	163	333	210	49	52
28	e140	e39	e54	268	62	82	511	107	246
29	e110	e33	e42	---	---	---	578	126	283
30	e96	e31	e37	---	---	---	540	122	238
31	e92	e30	e35	---	---	---	174	41	23
TOTAL	6846	---	2641	5241	---	2039	8323	---	2729.9

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	69	19	3.9	176	40	28	975	226	598
2	80	20	9.1	234	55	70	785	168	394
3	547	116	229	211	52	59	726	126	264
4	579	131	260	279	66	73	843	166	395
5	567	120	246	68	19	3.7	1020	216	599
6	541	117	238	126	29	27	208	51	38
7	459	97	154	565	122	266	442	85	107
8	324	71	94	386	90	120	168	41	22
9	315	70	84	749	140	368	1010	206	695
10	248	55	69	397	90	155	1270	266	946
11	137	30	15	594	128	275	993	216	578
12	159	37	32	120	32	13	807	171	398
13	494	99	225	288	63	81	560	127	206
14	272	59	89	314	71	81	499	109	189
15	306	66	83	157	36	21	611	125	285
16	84	21	5.3	273	34	36	946	205	546
17	57	12	1.8	204	46	41	1160	232	727
18	54	11	1.7	124	27	11	754	162	377
19	48	12	1.6	198	45	31	738	160	352
20	135	33	17	122	29	13	441	103	168
21	122	30	14	98	24	10	575	126	226
22	130	33	18	191	42	36	327	74	75
23	191	45	45	70	18	3.3	510	106	162
24	115	27	15	274	21	21	425	91	115
25	153	35	20	331	19	25	410	87	110
26	536	116	229	149	25	13	186	46	33
27	322	72	115	e70	e14	e1.8	134	27	26
28	148	36	20	e82	e24	e7.6	293	69	71
29	446	97	178	201	49	33	367	83	94
30	316	75	93	194	42	24	308	72	77
31	---	---	---	367	83	98	---	---	---
TOTAL	7954	---	2605.4	7612	---	2045.4	18491	---	8873

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	411	90	112	328	77	101	420	38	54
2	226	53	44	319	76	73	355	48	48
3	445	95	149	396	89	120	500	65	118
4	394	90	114	273	65	68	530	93	141
5	200	51	34	187	41	29	614	94	167
6	194	43	45	322	73	79	498	94	199
7	359	85	107	348	75	115	843	258	597
8	328	77	79	441	81	109	722	195	399
9	153	38	20	258	63	56	894	195	482
10	334	76	78	297	71	68	728	174	360
11	286	68	64	204	46	34	640	111	207
12	258	61	64	155	38	20	632	82	148
13	296	67	84	137	32	15	574	83	138
14	241	58	67	e110	e28	e11	731	123	266
15	131	35	18	350	81	88	875	144	341
16	292	66	62	474	64	80	870	117	275
17	e190	e27	e16	501	45	62	446	79	102
18	e370	e71	e108	399	42	52	562	117	195
19	e350	e59	e83	784	168	357	555	125	215
20	319	74	80	324	32	46	396	60	88
21	371	84	120	e150	e11	e2.1	481	59	81
22	450	98	147	184	45	43	512	78	113
23	291	69	71	559	133	226	534	81	128
24	e200	e32	e13	434	89	122	382	83	103
25	85	22	7.7	e480	72	104	276	68	72
26	118	28	12	e542	72	111	397	91	118
27	e120	e35	e21	457	58	83	547	96	154
28	e90	24	7.7	317	63	76	549	71	122
29	183	45	33	176	44	27	399	75	96
30	291	65	70	356	57	58	460	78	121
31	466	104	165	491	50	79	---	---	---
TOTAL	8442	---	2095.4	10753	---	2514.1	16922	---	5648
YEAR	132918		47579.2						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
MAY					
16...	0315	904	72	176	96
25...	2235	712	59	113	87
AUG					
07...	2337	784	55	116	86
16...	2354	730	38	75	72
25...	1814	810	76	166	92
SEP					
01...	0002	801	53	115	97
03...	1932	905	132	323	95
07...	1445	809	287	627	93
08...	1226	464	186	233	89
08...	1440	713	184	354	95
27...	1937	824	92	205	92
29...	0040	732	68	134	85

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 mi^2 (47.7 km^2).

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 increased by 3.00 ft (0.914 m) on Oct. 1978.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	e151	104	51	37	34	e40	39	94	68	76	63
2	101	e113	214	50	37	36	e63	39	87	71	52	86
3	94	e179	179	50	33	37	e70	38	68	65	58	143
4	89	e115	94	49	33	34	e45	39	64	64	52	97
5	85	e94	83	48	32	e35	e38	38	65	62	109	71
6	82	e93	77	48	33	e33	e35	e73	69	57	55	218
7	109	e91	75	46	31	e30	e32	e69	78	56	80	143
8	336	e90	72	46	30	e29	e70	e80	117	85	61	94
9	141	e88	70	46	30	e33	100	e50	153	57	46	145
10	116	e116	69	47	30	e36	122	e38	119	49	42	93
11	89	e95	68	46	29	e33	89	e34	138	46	173	117
12	92	97	67	44	30	e31	72	e33	113	43	127	81
13	88	96	66	44	29	e29	e63	e32	112	43	89	104
14	86	87	65	44	29	e28	e63	29	165	44	85	75
15	85	88	67	49	29	e27	65	28	344	47	71	68
16	225	103	65	47	30	e26	62	28	204	54	129	67
17	148	83	61	42	27	e25	58	28	157	62	82	62
18	e110	78	61	40	28	e25	55	28	120	44	71	59
19	e94	77	60	40	28	e40	52	27	179	40	85	107
20	e90	75	64	39	28	e75	48	27	138	59	69	71
21	85	73	60	47	28	e62	46	27	110	118	71	60
22	92	72	58	44	29	e61	43	28	167	92	110	57
23	81	75	59	38	29	e66	50	30	110	100	122	55
24	80	89	58	38	29	e70	55	26	93	62	77	119
25	140	76	56	37	42	e74	50	25	86	51	69	88
26	157	76	55	38	37	e50	47	26	79	47	64	74
27	300	226	54	41	31	e37	46	29	76	44	61	63
28	e165	105	54	41	34	e50	52	64	73	43	63	59
29	e208	83	53	36	---	e70	46	38	72	44	61	56
30	e150	79	52	35	---	e56	41	83	72	45	70	57
31	e138	---	50	34	---	e45	---	107	---	40	73	---
TOTAL	3965	2963	2290	1345	872	1317	1718	1280	3522	1802	2453	2652
MEAN	128	98.8	73.9	43.4	31.1	42.5	57.3	41.3	117	58.1	79.1	88.4
MAX	336	226	214	51	42	75	122	107	344	118	173	218
MIN	80	72	50	34	27	25	32	25	64	40	42	55
AC-FT	7860	5880	4540	2670	1730	2610	3410	2540	6990	3570	4870	5260
CFSM	6.95	5.37	4.01	2.36	1.69	2.31	3.11	2.24	6.38	3.16	4.30	4.80
IN.	8.02	5.99	4.63	2.72	1.76	2.66	3.47	2.59	7.12	3.64	4.96	5.36

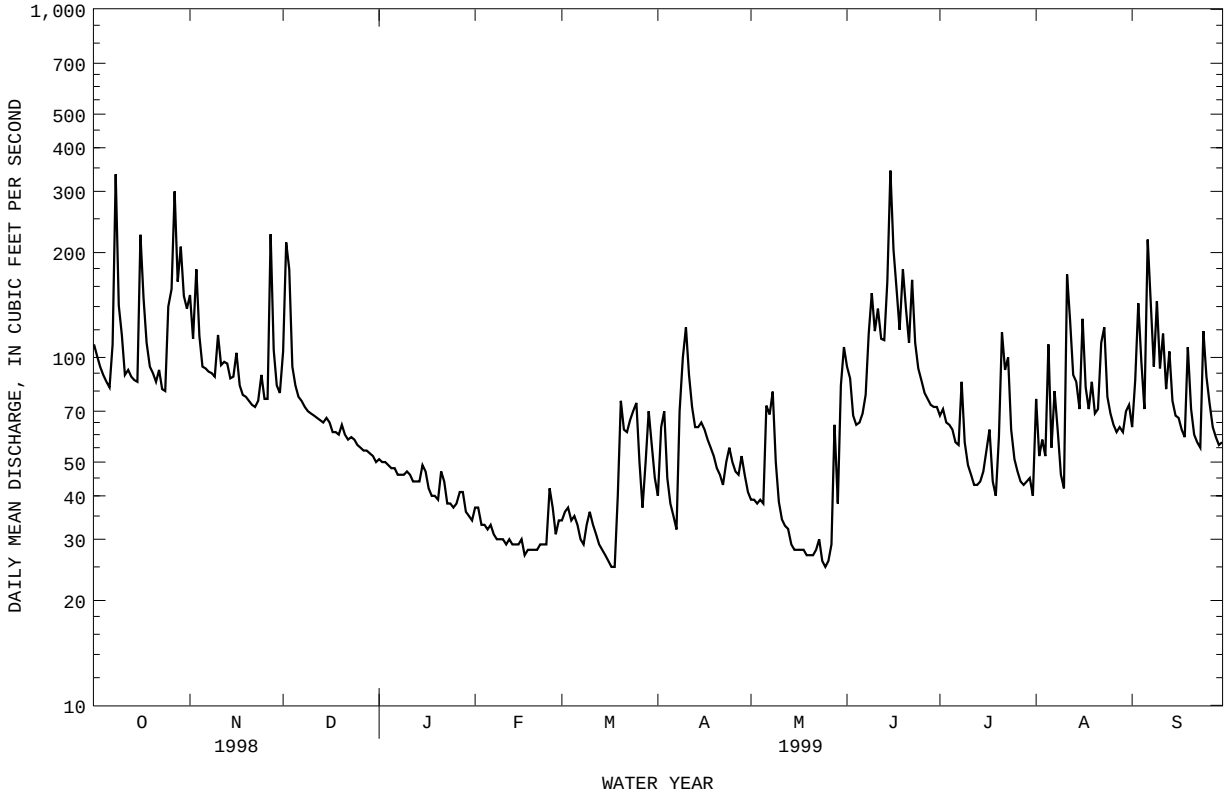
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1999, BY WATER YEAR (WY)

MEAN	81.0	68.0	42.7	30.0	26.1	25.2	36.1	56.4	44.5	36.3	47.0	78.0
MAX	195	159	121	71.0	50.8	71.2	142	193	117	65.7	110	208
(WY)	1990	1969	1966	1997	1996	1972	1969	1963	1999	1981	1979	1998
MIN	25.4	25.1	18.1	14.7	13.2	11.0	9.70	12.4	15.6	9.18	15.9	25.0
(WY)	1963	1995	1998	1998	1965	1984	1984	1977	1994	1994	1994	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1960 - 1999	
ANNUAL TOTAL	24876		26179			
ANNUAL MEAN	68.2		71.7		47.7	
HIGHEST ANNUAL MEAN					71.7	1999
LOWEST ANNUAL MEAN					20.7	1994
HIGHEST DAILY MEAN	3260	Sep 22	344	Jun 15	3260	Sep 22 1998
LOWEST DAILY MEAN	10	Jan 30	25	Mar 17	5.4	Aug 4 1994
ANNUAL SEVEN-DAY MINIMUM	11	Jan 26	27	May 20	6.4	Jul 29 1994
INSTANTANEOUS PEAK FLOW			3120	Oct 27	23500	Sep 22 1998
INSTANTANEOUS PEAK STAGE			12.07	Oct 27	21.24	Sep 22 1998
INSTANTANEOUS LOW FLOW			24	May 25	5.4	Aug 4 1994
ANNUAL RUNOFF (AC-FT)	49340		51930		34530	
ANNUAL RUNOFF (CFSM)	3.70		3.90		2.59	
ANNUAL RUNOFF (INCHES)	50.29		52.93		35.20	
10 PERCENT EXCEEDS	116		119		85	
50 PERCENT EXCEEDS	45		62		33	
90 PERCENT EXCEEDS	14		30		16	

e Estimated

50028000 RIO TANAMA NEAR UTUADO, PR--Continued



50028000 RIO TANAMA NEAR UTUADO, PR.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean,20,400 mg/L November 27,1968; minimum daily mean,4 mg/L May 20,p 1999.
SEDIMENT LOADS: Maximum daily, 240,000 tons (218,000 tonnes) September 22, 1998, minimum daily, <0.01ton (<0.01 tonne) several days during many years.

EXTREMES FOR CURRENT YEAR 1998.--
SEDIMENT CONCENTRATIONS: Maximum daily mean,2,740 mg/L October 8,1998; minimum daily mean,4 mg/L May.20,1999.
SEDIMENT LOADS: Maximum daily, 9,330 tons (8,460 tonnes) October 8,1998 minimum daily,0.30 ton (0.27 tonne) May 20,1999.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)
NOV										
13...	1330	91	144	7.6	23.5	16	8.0	97	<10	3900
MAR										
01...	1015	35	168	7.5	21.5	27	8.3	98	<10	K1000
MAY										
25...	1155	26	156	7.9	27.5	2.1	8.5	112	<10	K16
AUG										
11...	1205	40	162	8.1	27.6	4.0	7.2	95	<10	K80

DATE	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
NOV										
13...	2000	50	12	4.8	7.2	.4	2.2	43	<1.0	9.1
MAR										
01...	3000	--	--	--	--	--	--	51	--	--
MAY										
25...	88	59	14	5.7	8.1	.5	2.0	51	<1.0	12
AUG										
11...	K73	62	15	5.9	7.5	.4	2.0	52	--	10

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
13...	8.7	<.10	23	92	22.8	12	<.010	1.10	.030	--
MAR										
01...	--	--	--	--	--	21	<.010	1.10	.020	--
MAY										
25...	8.1	<.10	22	103	7.26	2	<.010	.520	.030	--
AUG										
11...	8.2	<.10	26	107	11.6	9	<.010	.840	.020	.18

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
13...	<.20	--	--	<.020	<1	<100	<10	<1	1	12
MAR										
01...	<.20	--	--	.670	--	--	--	--	--	--
MAY										
25...	<.20	--	--	<.020	<1	30	E20	<1	<1	<12
AUG										
11...	.20	1.0	4.6	<.020	--	--	--	--	--	--

50028000 RIO TANAMA NEAR UTUADO, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
13...	590	<1	--	<.10	<1	<1	--	<.010	5	.03
MAR										
01...	--	--	--	--	--	--	--	--	--	--
MAY										
25...	120	<1	18	.18	<1	<1	<40	<.010	<4	.02
AUG										
11...	--	--	--	--	--	--	--	--	--	--

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	109	67	20	e151	e763	e512	104	220	73
2	101	53	14	e113	e371	e133	214	1460	1120
3	94	41	10	e179	e1520	e1760	179	1370	956
4	89	34	8.2	e115	e371	e513	94	132	34
5	85	33	7.6	e94	e92	e23	83	66	15
6	82	33	7.2	e93	e93	e23	77	43	9.0
7	109	403	239	e91	e95	e23	75	28	5.7
8	336	2740	9330	e90	e97	e24	72	19	3.8
9	141	692	361	e88	e99	e23	70	13	2.6
10	116	413	212	e116	e112	e45	69	10	1.9
11	89	311	75	e95	e29	e7.6	68	9	1.7
12	92	309	80	97	114	36	67	9	1.5
13	88	120	28	96	108	30	66	8	1.4
14	86	62	14	87	28	6.5	65	8	1.4
15	85	38	8.8	88	91	24	67	40	9.5
16	225	1780	3790	103	267	111	65	150	26
17	148	591	237	83	34	7.6	61	66	11
18	e110	e227	e85	78	24	5.1	61	29	4.8
19	e94	e87	e32	77	17	3.6	60	14	2.3
20	e90	e35	e11	75	16	3.2	64	16	2.8
21	85	25	5.6	73	16	3.2	60	22	3.6
22	92	105	28	72	17	3.3	58	28	4.4
23	81	120	26	75	24	4.7	59	20	3.1
24	80	50	11	89	34	8.2	58	12	1.8
25	140	766	674	76	48	9.9	56	7	1.1
26	157	1160	1400	76	51	10	55	7	1.0
27	300	2290	8150	226	1470	2860	54	7	1.0
28	e165	e844	e463	105	246	83	54	7	1.1
29	e208	e1930	e2440	83	41	9.2	53	9	1.3
30	e150	e668	e335	79	32	6.8	52	12	1.6
31	e138	e432	e200	---	---	---	50	15	2.1
TOTAL	3965	---	28302.4	2963	---	6311.9	2290	---	2305.5

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR.--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	51	24	3.3	37	24	2.4	34	74	7.1
2	50	40	5.4	37	23	2.3	36	59	6.4
3	50	55	7.3	33	17	1.5	37	56	5.7
4	49	34	4.4	33	11	1.0	34	27	2.5
5	48	18	2.4	32	8	.73	e35	e27	e2.5
6	48	11	1.4	33	9	.81	e33	e28	e2.6
7	46	13	1.6	31	10	.88	e30	e30	e2.8
8	46	17	2.0	30	12	.97	e29	e31	e3.0
9	46	20	2.4	30	13	1.0	e33	e33	e3.3
10	47	17	2.1	30	14	1.1	e36	e35	e3.5
11	46	13	1.6	29	15	1.2	e33	e37	e3.8
12	44	11	1.3	30	18	1.4	e31	e39	e4.1
13	44	10	1.2	29	21	1.7	e29	e41	e4.4
14	44	10	1.2	29	23	1.8	e28	e43	e4.7
15	49	44	7.6	29	16	1.3	e27	e45	e5.1
16	47	83	11	30	11	.90	e26	e31	e3.5
17	42	31	3.5	27	8	.61	e25	e50	e5.8
18	40	12	1.3	28	8	.62	e25	e10	e1.3
19	40	10	1.1	28	9	.65	e40	e11	e1.3
20	39	10	1.1	28	9	.68	e75	e20	e2.4
21	47	65	14	28	9	.72	e62	e17	e2.4
22	44	96	12	29	10	.75	e61	e17	e2.1
23	38	51	5.3	29	10	.77	e66	e18	e2.4
24	38	36	3.6	29	10	.79	e70	e34	e4.4
25	37	36	3.6	42	88	21	e74	e40	e5.4
26	38	38	3.9	37	60	6.1	e50	e40	e5.4
27	41	39	4.3	31	45	3.8	e37	e97	e14
28	41	34	3.7	34	62	6.1	e50	e97	e14
29	36	28	2.7	---	---	---	e70	e101	e15
30	35	24	2.2	---	---	---	e56	e101	e15
31	34	23	2.1	---	---	---	e45	e106	e16
TOTAL	1345	---	120.6	872	---	63.58	1317	---	171.9

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	e40	e106	e16	39	21	2.3	94	308	121
2	e63	e106	e16	39	21	2.2	87	326	114
3	e70	e111	e18	38	20	2.1	68	178	33
4	e45	e111	e18	39	20	2.1	64	126	22
5	e38	e111	e18	38	20	2.1	65	104	18
6	e35	e115	e20	e73	e813	e959	69	86	16
7	e32	e115	e20	e69	e206	e76	78	148	34
8	e70	e92	e17	e80	e550	e464	117	731	405
9	100	451	204	e50	e140	e66	153	779	600
10	122	645	333	e38	e20	e9.6	119	375	136
11	89	247	63	e34	e21	e9.9	138	927	770
12	72	85	16	e33	e22	e10	113	232	71
13	e63	e92	e17	e32	e22	e7.2	112	78	24
14	e63	e105	e19	29	18	1.4	165	1130	1190
15	65	115	20	28	14	1.1	344	2590	8020
16	62	111	18	28	11	.82	204	1470	1450
17	58	106	16	28	9	.64	157	509	286
18	55	101	15	28	7	.49	120	254	85
19	52	97	14	27	5	.38	179	1130	1470
20	48	95	12	27	4	.30	138	341	151
21	46	93	11	27	5	.33	110	34	10
22	43	89	10	28	5	.40	167	1350	1450
23	50	133	26	30	6	.49	110	406	122
24	55	133	22	26	7	.49	93	226	57
25	50	122	19	25	9	.63	86	130	30
26	47	71	12	26	13	.89	79	75	16
27	46	76	10	29	17	1.4	76	43	8.8
28	52	92	16	64	346	193	73	25	5.1
29	46	97	12	38	76	8.6	72	19	3.7
30	41	36	3.9	83	377	199	72	15	3.0
31	---	---	---	107	591	415	---	---	---
TOTAL	1718	---	1031.9	1280	---	2437.86	3522	---	16721.6

50028000 RIO TANAMA NEAR UTUADO, PR.--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	68	12	2.3	76	392	292	63	155	27
2	71	10	1.9	52	291	44	86	245	82
3	65	9	1.6	58	212	40	143	1140	876
4	64	9	1.5	52	128	21	97	371	118
5	62	8	1.3	109	928	720	71	188	36
6	57	7	1.1	55	147	23	218	2210	4620
7	56	7	1.0	80	456	266	143	697	450
8	85	208	93	61	150	27	94	227	60
9	57	90	15	46	56	7.0	145	1390	1480
10	49	18	2.4	42	28	3.2	93	275	71
11	46	15	1.9	173	1600	2710	117	611	284
12	43	12	1.4	127	507	243	81	189	42
13	43	8	.95	89	325	79	104	414	152
14	44	9	1.1	85	287	70	75	166	35
15	47	35	5.0	71	211	40	68	22	4.1
16	54	79	17	129	1290	1260	67	18	3.3
17	62	162	50	82	171	39	62	28	4.7
18	44	74	8.8	71	138	27	59	30	4.8
19	40	41	4.5	85	245	68	107	639	518
20	59	178	55	69	70	13	71	148	30
21	118	920	1030	71	89	22	60	60	9.9
22	92	600	326	110	758	469	57	46	7.0
23	100	471	222	122	529	221	55	45	6.7
24	62	155	28	77	151	32	119	1120	1210
25	51	49	6.8	69	74	14	88	261	105
26	47	20	2.6	64	39	6.8	74	216	47
27	44	17	2.1	61	24	3.9	63	96	17
28	43	15	1.8	63	25	4.4	59	34	5.4
29	44	32	5.4	61	52	9.5	56	31	4.7
30	45	68	8.9	70	193	39	57	51	8.7
31	40	18	2.0	73	218	46	---	---	---
TOTAL	1802	---	1902.35	2453	---	6859.8	2652	---	10319.3
YEAR	26179		76548.69						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
22...	1530	103	255	71	96
DEC					
16...	1550	63	127	22	98
FEB					
26...	0740	35	785	74	96
JUL					
22...	0735	57	120	18	97
SEP					
03...	1030	68	216	40	95

50028000 RIO TANAMA NEAR UTUADO, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
JUN							
10...	1020	101	1130	309	42	61	82

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
JUN							
10...	95	99	99	100	100	100	100

50028400 RIO TANAMA AT CHARCO HONDO, PR

LOCATION.--Lat 18°24'52", long 66°42'52", Hydrologic Unit 21010002 on right bank near to an 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 km^2).

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. Gage-height and precipitation satellite telmetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e183	e260	e240	e103	68	e60	e80	55	220	111	93	119
2	e170	e200	e450	e102	89	e62	e110	47	226	110	109	118
3	e160	e300	e380	e102	70	e64	e120	43	174	105	100	e299
4	e150	e200	e220	e100	67	e60	e80	48	218	98	102	e179
5	e145	e160	e180	e100	66	e62	e64	55	197	102	143	e140
6	e140	e159	e170	e96	64	e58	e56	186	130	94	113	e355
7	e200	e155	e165	e94	67	e52	56	134	114	91	88	e238
8	e560	e152	e160	e94	63	e52	57	157	201	105	122	e188
9	e240	e150	e151	e95	63	e60	71	158	404	126	78	e230
10	e200	e197	e150	e98	61	e80	190	90	407	93	71	e186
11	e152	e160	e147	e94	60	e60	141	70	351	89	235	e204
12	e154	e163	e139	e89	62	e56	76	63	318	113	179	e167
13	e150	e160	e137	e88	61	e54	65	66	216	110	129	e188
14	e148	e149	e132	e92	64	e52	63	65	294	84	105	e162
15	e141	e150	e133	e100	62	e50	59	e57	e596	86	115	e145
16	e380	e170	e132	e92	67	e47	58	e55	e362	84	176	e141
17	e240	e140	e122	e84	60	e47	55	e154	e304	106	127	e139
18	e180	e134	e122	e82	59	e56	55	e120	e262	91	105	e132
19	e160	e130	e123	e82	59	e90	54	e55	e320	77	122	e170
20	e150	e128	e125	e80	59	e130	50	e46	e232	85	145	e156
21	e149	e125	e111	e96	58	e107	48	e45	e189	221	105	e141
22	e160	e126	e112	e90	57	e107	47	e67	240	221	151	e133
23	e140	e130	e111	e78	e54	e115	45	e75	197	155	236	e130
24	e138	e150	e120	e78	e60	e120	89	e50	156	129	207	e183
25	e170	e130	e115	e76	e72	e123	67	e44	139	94	179	e171
26	e350	e180	e111	e80	e62	e90	55	e41	130	94	244	e160
27	e500	e380	e110	e90	e54	e66	70	e43	124	118	148	e148
28	e290	e170	e109	91	e60	e90	67	152	119	87	116	e137
29	e350	e139	e110	74	---	e120	105	235	115	79	125	e128
30	e250	e133	e105	66	---	e100	78	212	112	83	125	e126
31	e230	---	e101	65	---	e70	---	267	---	75	117	---
TOTAL	6730	5080	4793	2751	1768	2360	2231	2955	7067	3316	4210	5113
MEAN	217	169	155	88.7	63.1	76.1	74.4	95.3	236	107	136	170
MAX	560	380	450	103	89	130	190	267	596	221	244	355
MIN	138	125	101	65	54	47	45	41	112	75	71	118
AC-FT	13350	10080	9510	5460	3510	4680	4430	5860	14020	6580	8350	10140
CFSM	9.78	7.63	6.96	4.00	2.84	3.43	3.35	4.29	10.6	4.82	6.12	7.68
IN.	11.28	8.51	8.03	4.61	2.96	3.95	3.74	4.95	11.84	5.56	7.05	8.57

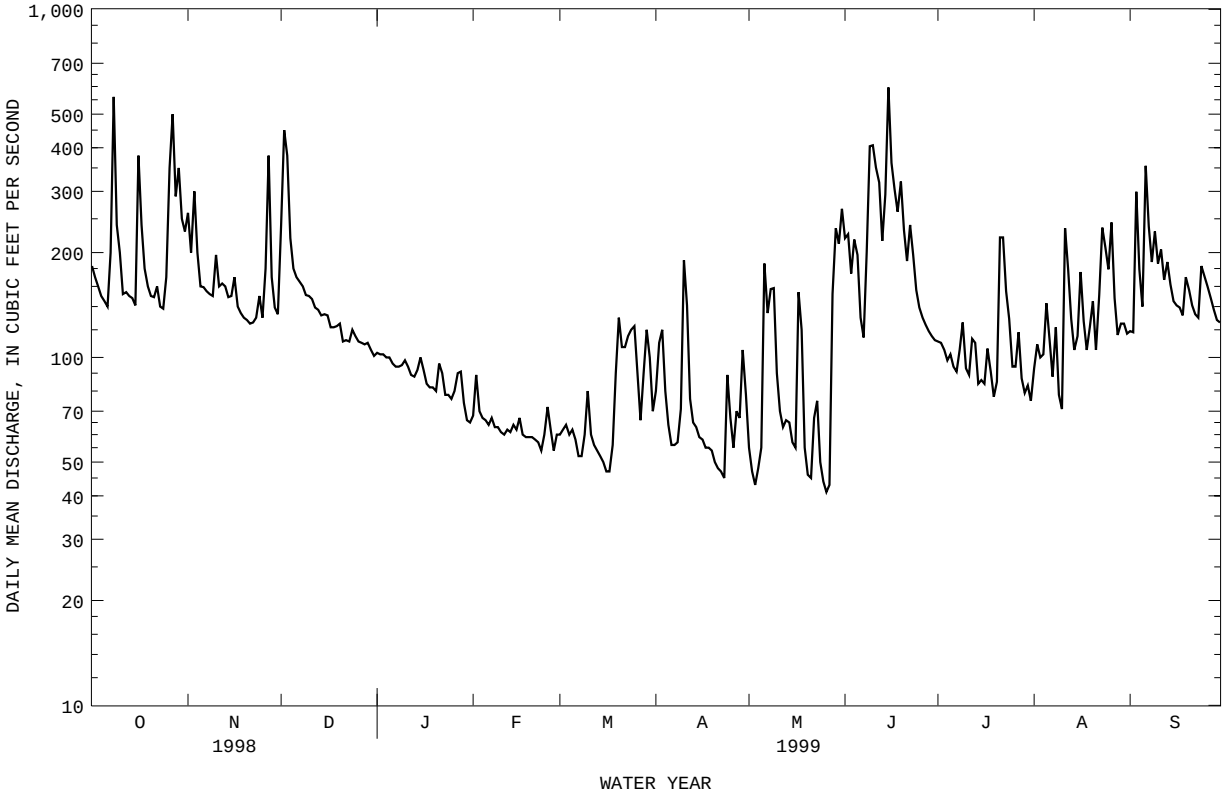
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1999, BY WATER YEAR (WY)

MEAN	165	133	82.2	60.9	50.8	44.3	66.0	125	95.6	67.4	83.7	142
MAX	335	260	219	167	106	76.1	141	371	236	120	168	448
(WY)	1990	1982	1982	1997	1996	1999	1986	1986	1999	1969	1998	1998
MIN	72.1	50.4	36.4	22.3	16.8	16.6	25.9	15.8	23.3	22.0	35.1	44.9
(WY)	1983	1995	1989	1989	1989	1988	1989	1989	1989	1989	1994	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1969 - 1999	
ANNUAL TOTAL	48530		48374			
ANNUAL MEAN	133		133		91.3	
HIGHEST ANNUAL MEAN					133	1999
LOWEST ANNUAL MEAN					46.9	1994
HIGHEST DAILY MEAN	6400	Sep 22	596	Jun 15	6400	Sep 22 1998
LOWEST DAILY MEAN	23	Mar 23	41	May 26	4.2	May 28 1989
ANNUAL SEVEN-DAY MINIMUM	24	Mar 22	51	Apr 17	5.4	May 22 1989
INSTANTANEOUS PEAK FLOW			6440	Jun 15	15000	May 18 1985
INSTANTANEOUS PEAK STAGE			14.47	Jun 15	24.56	Sep 22 1998
ANNUAL RUNOFF (AC-FT)	96260		95950		66170	
ANNUAL RUNOFF (CFSM)	5.99		5.97		4.11	
ANNUAL RUNOFF (INCHES)	81.32		81.06		55.90	
10 PERCENT EXCEEDS	228		230		180	
50 PERCENT EXCEEDS	88		115		66	
90 PERCENT EXCEEDS	31		57		29	

e Estimated

50028400 RIO TANAMA AT CHARCO HONDO, PR--Continued



50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR

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, 13.9 mi (22.4 km) downstream from Dos Bocas Reservoir, 1.9 mi (3.1 km) downstream from Río Tanamá, and 1.6 mi (2.6 km) southeast of Arecibo.

WATER-DISCHARGE RECORDS

DRAINAGE AREA.--200 mi^2 (520 km^2).

PERIOD OF RECORD.--January 1963 to January 1965 (monthly measurements only), February 1965 to April 1969 (occasional measurements only), May 1969 to Sepetember 1983, October 1996 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3.73 ft (1.14 m) above mean sea level.

REMARKS.--Records poor. Flow regulated by Lago Dos Bocas dam, 13.9 mi (22.4 km) upstream. Gage-height satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2190	e271	e712	e360	464	400	170	252	1140	594	516	648
2	e1700	e245	e770	e300	372	341	155	288	905	373	459	571
3	e1780	e235	e2090	e260	403	177	574	271	822	591	557	762
4	e1370	e258	e1980	e500	350	288	584	331	941	591	438	788
5	e1600	e273	e1260	e620	254	351	600	153	1150	322	351	904
6	e1600	e299	e1100	e500	196	460	549	216	333	302	507	877
7	e1590	e142	e979	e420	148	327	477	583	528	486	534	1380
8	e1670	e435	e847	e260	183	151	392	443	294	435	659	1220
9	e4000	e1170	e536	e440	142	279	372	742	1370	273	439	1520
10	e1790	e1110	e841	e350	206	304	354	467	1970	420	464	1150
11	e1260	e898	e707	e460	173	164	275	607	1390	402	398	1020
12	e1080	e813	e285	e580	270	262	248	220	1170	391	370	976
13	e864	e1260	e238	e150	580	375	480	328	855	440	333	875
14	e524	e1210	e487	e190	372	317	362	372	738	417	274	1100
15	e454	e759	e307	e800	239	205	349	240	973	257	530	1340
16	e574	e914	e243	e240	255	278	167	319	1220	421	665	1300
17	e957	e924	e236	e500	306	164	124	255	1410	282	708	663
18	e610	e828	e253	e720	261	235	119	204	971	524	583	805
19	e409	e817	e427	e430	130	167	121	246	990	494	1110	842
20	e281	e948	e305	e96	123	532	193	193	664	484	572	648
21	e220	e563	e260	e230	169	440	210	155	818	591	258	734
22	e211	e416	e338	e349	120	541	178	246	488	720	334	763
23	e158	e720	e312	e209	108	630	264	135	763	504	880	791
24	e706	e729	e271	e186	105	355	196	297	624	338	829	607
25	e243	e692	e311	e363	342	196	226	344	603	283	739	503
26	e210	e419	e239	554	560	402	543	218	339	285	757	584
27	e172	e512	e580	335	712	262	365	111	261	284	673	802
28	e2410	e1080	e430	236	345	495	243	130	459	218	572	806
29	e1030	e944	e370	175	---	602	473	305	527	287	376	600
30	e542	e675	e340	156	---	570	402	305	433	417	546	679
31	e338	---	e270	149	---	283	---	460	---	618	723	---
TOTAL	32543	20559	18324	11118	7888	10553	9765	9436	25149	13044	17154	26258
MEAN	1050	685	591	359	282	340	326	304	838	421	553	875
MAX	4000	1260	2090	800	712	630	600	742	1970	720	1110	1520
MIN	158	142	236	96	105	151	119	111	261	218	258	503
AC-FT	64550	40780	36350	22050	15650	20930	19370	18720	49880	25870	34020	52080
CFSM	5.25	3.43	2.96	1.79	1.41	1.70	1.63	1.52	4.19	2.10	2.77	4.38
IN.	6.05	3.82	3.41	2.07	1.47	1.96	1.82	1.76	4.68	2.43	3.19	4.88

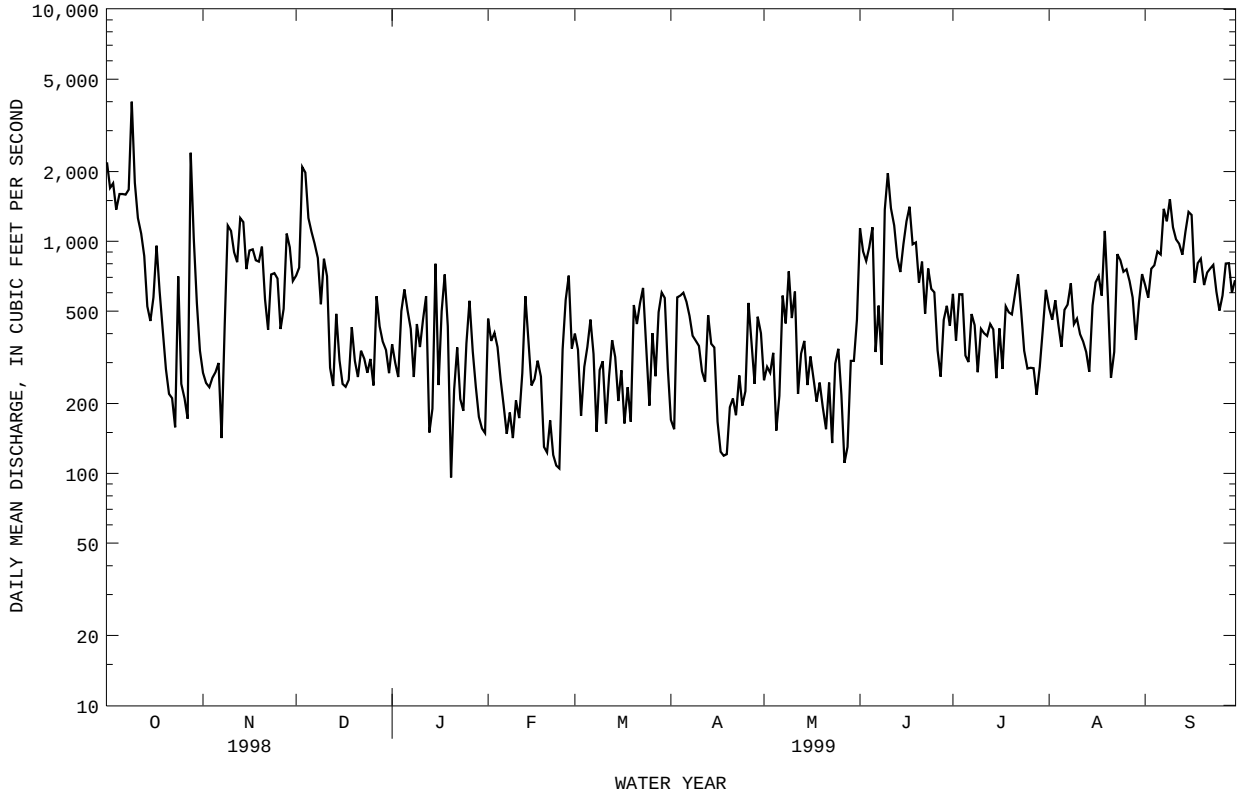
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1999, BY WATER YEAR (WY)

MEAN	807	718	520	353	296	317	374	541	475	383	448	714
MAX	1577	1388	1327	651	425	627	641	1192	1220	854	1269	1866
(WY)	1971	1978	1982	1997	1997	1972	1983	1980	1979	1979	1979	1979
MIN	404	201	150	155	152	122	196	188	139	189	218	271
(WY)	1983	1998	1998	1973	1974	1998	1975	1977	1977	1997	1974	1997

SUMMARY STATISTICS	FOR 1999 WATER YEAR		WATER YEARS 1969 - 1999	
ANNUAL TOTAL	201791			
ANNUAL MEAN	553		504	
HIGHEST ANNUAL MEAN			691	1979
LOWEST ANNUAL MEAN			290	1974
HIGHEST DAILY MEAN	4000	Oct 9	15900	Aug 31 1979
LOWEST DAILY MEAN	96	Jan 20	56	Mar 28 1998
ANNUAL SEVEN-DAY MINIMUM	145	Feb 18	67	Mar 18 1998
INSTANTANEOUS PEAK FLOW	Not determined	Oct 28	Not determined	Sep 22 1998
INSTANTANEOUS PEAK STAGE	Not determined	Oct 28	19.28	Sep 22 1998
INSTANTANEOUS LOW FLOW			50	Feb 26 1974
ANNUAL RUNOFF (AC-FT)	400300		365400	
ANNUAL RUNOFF (CFSM)	2.76		2.52	
ANNUAL RUNOFF (INCHES)	37.53		34.27	
10 PERCENT EXCEEDS	1090		969	
50 PERCENT EXCEEDS	435		356	
90 PERCENT EXCEEDS	188		136	

e Estimated

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR--Continued



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 Tanamá , and 1.6 mi (2.6 km) southeast of Arecibo.

DRAINAGE AREA.--200 mi^2 (520 km^2), approximately.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
05...	1030	E950	209	7.6	24.5	110	6.9	82	<10	2600	3200
MAR											
03...	1045	211	300	7.7	23.5	7.0	8.1	95	22	250	200
MAY											
06...	1215	141	330	8.0	27.5	10	9.7	123	<10	330	110
AUG											
09...	0940	386	238	7.5	27.0	15	7.3	92	<10	2200	2000

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
05...	85	26	4.9	7.4	.3	2.6	72	<1.0	10	10
MAR										
03...	--	--	--	--	--	--	140	--	--	--
MAY										
06...	150	49	6.5	9.7	.3	1.7	140	<1.0	12	12
AUG										
09...	100	31	6.2	8.7	.4	2.1	75	--	11	9.7

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
05...	.10	18	122	--	90	--	<.010	1.50	.040	.54
MAR										
03...	--	--	--	--	11	--	<.010	.980	.030	--
MAY										
06...	<.10	14	188	71.5	5	.590	.010	.600	.030	--
AUG										
09...	<.10	20	133	138	39	.460	.010	.470	.040	.31

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
05...	.58	2.1	9.2	.160	<1	<100	20	<1	4	22
MAR										
03...	<.20	--	--	<.020	--	--	--	--	--	--
MAY										
06...	<.20	--	--	E.020	<1	60	40	<1	<1	<12
AUG										
09...	.35	.82	3.6	.050	--	--	--	--	--	--

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
05...	4300	3	180	<.10	<1	<1	20	<.010	<4	<.02
MAR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
06...	350	<1	32	<.10	<1	<1	<40	<.010	<4	<.04
AUG										
09...	--	--	--	--	--	--	--	--	--	--

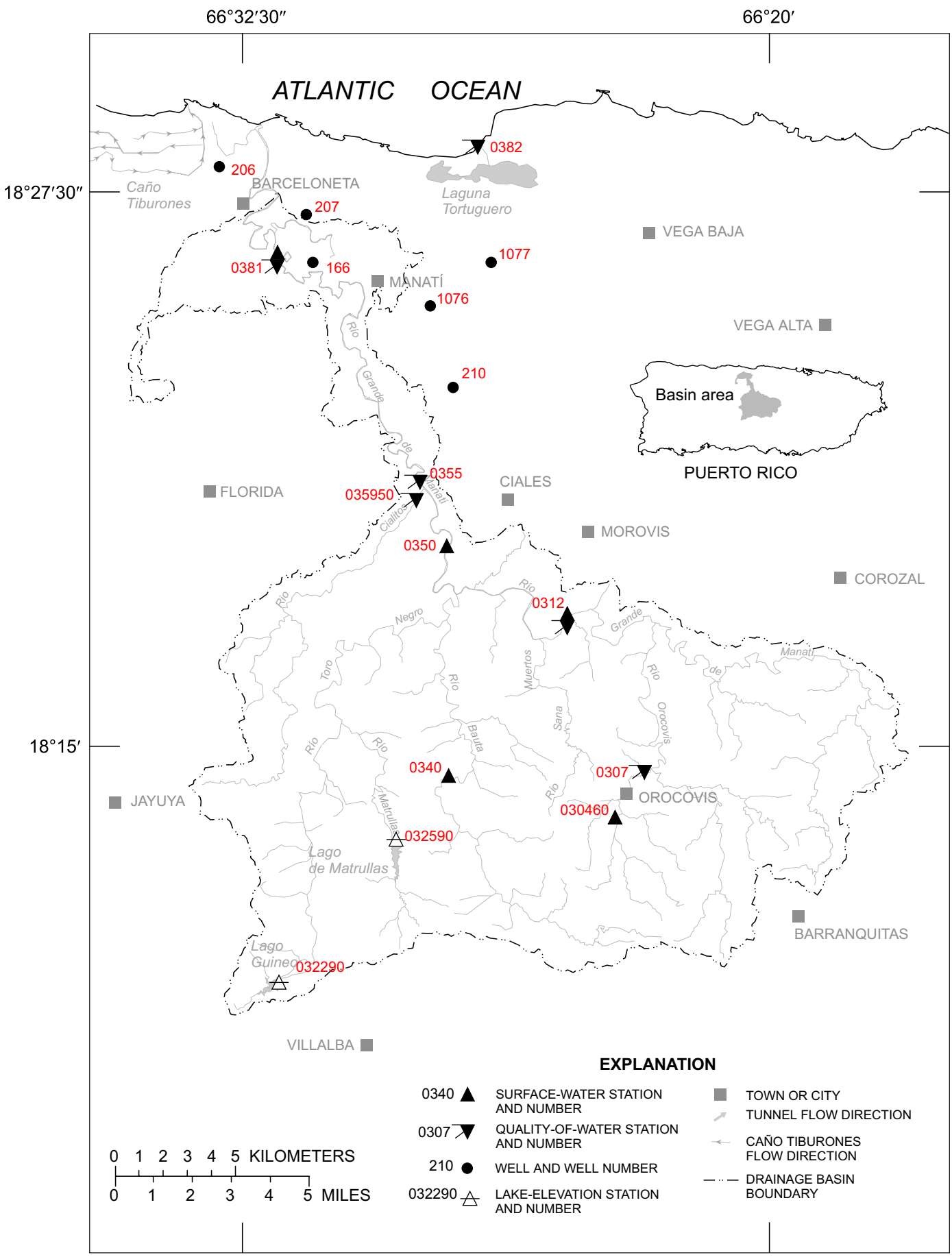


Figure 14. Río Grande de Manatí basin.

50030460 RIO OROCOVIS AT OROCOVIS, PR

LOCATION.--Lat 18°13'25", long 66°23'34", Hydrologic Unit 21010001, on right bank, 0.4 mi (0.6 km) south of junction of Highways 155 and 156 in Orocovis, 2.1 mi (3.38 km) upstream from Río Botijas, and 250 ft (76 m) upstream from bridge on Highway 599.

DRAINAGE AREA.--5.03 mi^2 (13.03 km^2).

PERIOD OF RECORD.--April 1981 to September 1982, October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 500 ft (152 m), from topographic map.

REMARKS.--Records poor. Low flow affected by diversions for water supply. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	37	e100	4.0	7.1	11	1.2	e1.5	e36	2.5	1.0	e25
2	16	e81	e124	3.9	6.1	7.0	13	e1.3	e100	11	1.0	e37
3	15	56	e93	3.8	4.2	4.4	66	e1.4	e28	3.9	8.1	e41
4	13	29	e46	3.6	4.0	3.3	14	e1.3	e7.0	2.6	2.3	e27
5	12	17	e23	3.4	3.7	2.9	3.6	e1.6	e6.3	2.6	1.9	e19
6	11	12	e15	3.4	3.4	3.0	2.3	e1.4	e4.9	2.6	1.8	e159
7	11	9.8	e10	3.2	3.5	3.1	2.1	e2.0	e3.9	2.0	1.7	e35
8	10	8.5	e7.9	3.2	3.3	2.9	2.1	e41	e26	3.9	1.6	e21
9	9.6	9.9	e6.6	3.3	3.4	2.8	1.9	e7.8	e47	4.4	1.7	e34
10	9.2	10	e5.8	3.4	3.3	2.5	1.4	e3.4	e104	2.5	1.4	e20
11	8.9	8.9	e5.6	3.3	3.3	2.3	1.5	e2.4	e45	2.4	1.5	e17
12	9.4	e77	5.3	3.1	4.4	2.1	1.5	e2.0	e18	1.7	1.4	e14
13	8.8	62	5.2	16	3.8	2.0	1.5	e1.7	e9.7	2.2	1.4	e114
14	8.6	108	4.8	6.2	3.6	1.8	1.4	e1.5	e6.8	2.7	1.8	e59
15	8.8	e54	4.8	15	3.9	e1.6	1.1	e1.4	e6.1	2.3	1.5	e31
16	7.8	e23	4.5	6.3	4.9	e1.5	1.1	e1.4	e6.4	1.7	1.4	e24
17	7.6	e15	4.5	5.4	3.7	e1.6	1.1	e1.4	e8.8	1.3	2.1	e20
18	7.5	e11	4.3	3.9	3.5	e1.5	1.1	e1.3	e6.3	1.2	2.6	e20
19	7.4	e10	4.2	3.6	3.4	e5.9	1.1	e1.3	e5.1	1.4	2.3	e74
20	17	e9.5	5.5	3.5	3.7	2.7	1.1	e1.3	e5.1	1.5	1.9	e51
21	13	e8.4	4.4	3.3	3.7	1.6	1.1	e1.3	e4.8	1.4	2.1	e23
22	43	e7.3	4.1	3.3	3.9	1.4	1.1	e1.3	e4.4	1.0	e12	e24
23	17	e8.7	4.3	3.2	3.9	2.2	1.1	e1.3	e4.1	1.1	e4.6	e23
24	11	e8.0	4.1	3.2	3.6	1.8	1.1	e1.2	3.2	1.1	e2.4	e20
25	11	e6.8	3.9	3.4	3.7	3.8	5.3	e1.2	3.2	1.3	e2.1	e18
26	43	e6.2	3.8	3.4	3.4	2.8	2.2	e1.2	3.2	1.0	e11	e27
27	e180	e9.2	3.7	3.4	2.5	1.7	e1.3	e1.2	2.7	.99	e9.4	e43
28	152	e42	3.8	19	3.8	1.6	e1.2	e1.2	2.7	.98	e5.0	e32
29	66	e17	20	4.8	---	1.4	e2.2	e1.2	2.5	1.1	e75	e33
30	75	e13	5.3	3.9	---	1.3	e2.1	e1.9	2.4	1.2	e80	e39
31	111	---	4.5	3.8	---	1.2	---	e1.4	---	1.1	e45	---
TOTAL	943.6	775.2	541.9	156.2	108.7	86.7	138.8	92.8	513.6	68.67	289.0	1124
MEAN	30.4	25.8	17.5	5.04	3.88	2.80	4.63	2.99	17.1	2.22	9.32	37.5
MAX	180	108	124	19	7.1	11	66	41	104	11	80	159
MIN	7.4	6.2	3.7	3.1	2.5	1.2	1.1	1.2	2.4	.98	1.0	14
AC-FT	1870	1540	1070	310	216	172	275	184	1020	136	573	2230
CFSM	6.05	5.14	3.48	1.00	.77	.56	.92	.60	3.40	.44	1.85	7.45
IN.	6.98	5.73	4.01	1.16	.80	.64	1.03	.69	3.80	.51	2.14	8.31

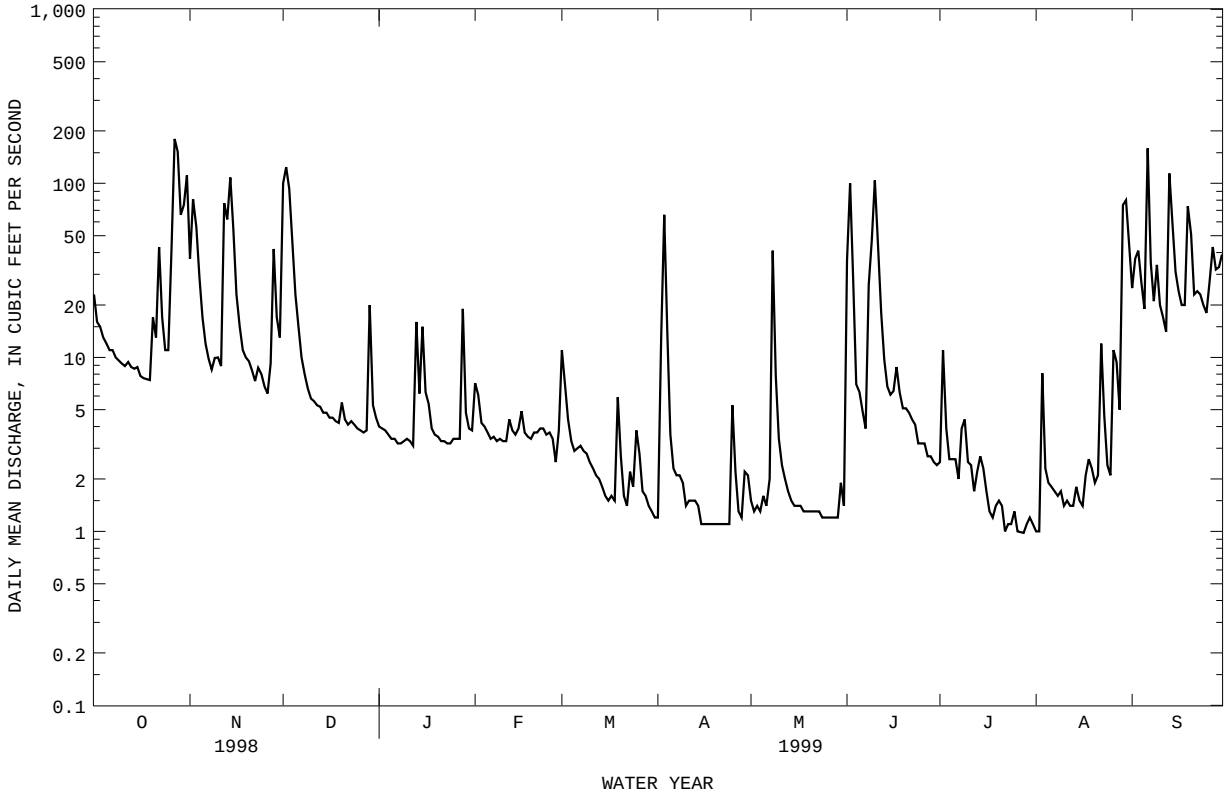
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1999, BY WATER YEAR (WY)

MEAN	17.0	7.99	5.80	5.99	4.13	1.82	5.32	14.0	5.19	3.31	4.49	25.8
MAX	58.0	25.8	17.5	34.3	15.7	3.07	21.0	45.9	17.1	9.07	12.3	83.0
(WY)	1990	1999	1999	1992	1996	1996	1993	1995	1999	1996	1989	1998
MIN	1.95	.93	.53	.77	.96	.90	.93	.86	.88	.88	1.03	.88
(WY)	1994	1998	1998	1995	1995	1994	1995	1997	1994	1994	1982	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1981 - 1999	
ANNUAL TOTAL	6486.30		4839.17			
ANNUAL MEAN	17.8		13.3		8.33	
HIGHEST ANNUAL MEAN					13.3	1999
LOWEST ANNUAL MEAN					1.49	1994
HIGHEST DAILY MEAN	1130	Sep 22	180	Oct 27	1570	Sep 10 1996
LOWEST DAILY MEAN	.33	Jan 31	.98	Jul 28	.20	Oct 4 1992
ANNUAL SEVEN-DAY MINIMUM	.40	Jan 28	1.1	Jul 26	.33	Oct 11 1992
INSTANTANEOUS PEAK FLOW			2330	Sep 6	8890	Sep 10 1996
INSTANTANEOUS PEAK STAGE			11.54	Sep 6	17.38	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	12870		9600		6040	
ANNUAL RUNOFF (CFSM)	3.53		2.64		1.66	
ANNUAL RUNOFF (INCHES)	47.97		35.79		22.51	
10 PERCENT EXCEEDS	41		37		13	
50 PERCENT EXCEEDS	2.5		3.9		2.0	
90 PERCENT EXCEEDS	.60		1.3		.81	

e Estimated

50030460 RIO OROCOVIS AT OROCOVIS, PR--Continued



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 mi^2 (26.2 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
OCT											
27...	1010	38	216	7.9	23.0	27	7.7	94	<10	30000	8200
FEB											
17...	1550	10	303	8.3	22.5	6.3	8.5	104	<10	360	K120
JUN											
02...	1115	10	270	7.8	24.0	110	7.6	95	<10	K6300	5900
AUG											
25...	1350	9.1	301	8.4	27.9	47	7.3	100	<10	4700	560

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT										
27...	84	19	8.9	11	.5	2.0	77	<1.0	8.4	14
FEB										
17...	--	--	--	--	--	--	120	--	--	--
JUN										
02...	110	27	10	12	.5	2.0	100	<1.0	9.0	14
AUG										
25...	120	30	11	12	.5	1.9	120	--	9.1	16

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT										
27...	.10	27	137	14.0	15	--	<.010	1.90	.150	1.1
FEB										
17...	--	--	--	--	8	.887	.013	.900	.050	.25
JUN										
02...	.12	27	161	4.48	68	--	<.010	1.50	.030	--
AUG										
25...	.13	33	185	4.52	74	1.59	.010	1.60	.040	.24

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (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										
27...	1.3	3.2	14	.370	<1	<100	30	<1	2	<10
FEB										
17...	.30	1.2	5.3	.120	--	--	--	--	--	--
JUN										
02...	E.34	--	--	E.160	<1	60	40	<1	4	E10
AUG										
25...	.28	1.9	8.3	.210	--	--	--	--	--	--

50030700 RIO OROCOVIS NEAR OROCOVIS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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										
27...	780	<1	36	<.10	<1	2	10	<.010	<4	<.02
FEB										
17...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	2000	<1	63	<.10	<1	<1	<40	<.010	5	<.08
AUG										
25...	--	--	--	--	--	--	--	--	--	--

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 km^2).

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 poor. Public water-supply pumpage, about 1000 ft (305 m) above the station, influences low-flow discharges. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	209	e205	e282	112	e96	102	36	e48	e229	e54	59	e66
2	169	e191	e800	107	e122	175	63	e46	e240	e149	61	e126
3	152	e208	e450	107	e95	99	135	e40	e152	e110	68	e204
4	137	e185	e300	101	e74	e60	140	e43	e110	e69	58	e150
5	134	e156	e220	98	e84	e52	57	e77	e98	e257	56	e105
6	125	e145	e190	98	e74	e48	43	e259	e91	e167	53	e209
7	142	e145	e175	92	e78	e47	39	e214	e106	e74	52	e500
8	132	e139	e165	89	e70	e46	43	e272	e320	e127	54	e250
9	117	e140	e160	88	e81	e45	44	e198	e737	e144	53	e350
10	109	e151	e155	92	e76	e58	36	e126	e449	e115	53	e250
11	104	e142	e148	100	e69	e56	38	e101	e192	e103	54	e180
12	111	e142	e144	87	e67	e70	36	e88	e140	e93	52	e150
13	102	e320	e144	82	e69	e75	34	e72	e110	e76	50	e200
14	105	e220	e142	98	e61	e52	33	e59	e85	e75	51	e450
15	99	e190	e140	99	e64	e47	32	e50	e75	e95	53	e270
16	93	e180	e139	117	e68	e45	32	e45	e70	e85	53	e200
17	92	e153	e137	86	e56	e44	30	e42	e170	e84	e83	e151
18	90	e148	e136	79	57	43	29	e43	e100	e81	e75	e163
19	87	e144	e136	75	57	48	29	e41	e75	e62	e58	e577
20	95	e140	e144	73	55	52	28	e35	e66	e62	e70	e682
21	93	e142	e141	72	55	42	27	e31	e62	e60	e60	e187
22	139	e138	e137	70	55	41	26	e31	e60	58	e85	e151
23	154	e143	e133	75	54	50	27	e38	e57	57	e146	e135
24	106	e148	139	74	53	45	26	e44	e56	57	e115	e130
25	119	e140	130	70	53	42	66	e44	e57	57	e67	e125
26	223	e141	123	75	57	43	e95	e38	e58	55	e116	e120
27	e443	e154	117	79	51	39	e68	e74	e57	53	e126	e140
28	435	e177	111	e182	53	38	e67	e89	e58	53	e69	e176
29	e302	e166	211	e123	---	37	e56	e67	e56	53	e105	e130
30	e197	e161	142	e89	---	38	e54	e97	e56	72	e129	e148
31	e232	---	121	e82	---	39	---	e154	---	73	e84	---
TOTAL	4847	4954	5812	2871	1904	1718	1469	2606	4192	2730	2268	6675
MEAN	156	165	187	92.6	68.0	55.4	49.0	84.1	140	88.1	73.2	222
MAX	443	320	800	182	122	175	140	272	737	257	146	682
MIN	87	138	111	70	51	37	26	31	56	53	50	66
AC-FT	9610	9830	11530	5690	3780	3410	2910	5170	8310	5410	4500	13240
CFSM	2.83	2.99	3.40	1.68	1.23	1.00	.89	1.52	2.53	1.60	1.33	4.03
IN.	3.27	3.34	3.92	1.93	1.28	1.16	.99	1.76	2.83	1.84	1.53	4.50

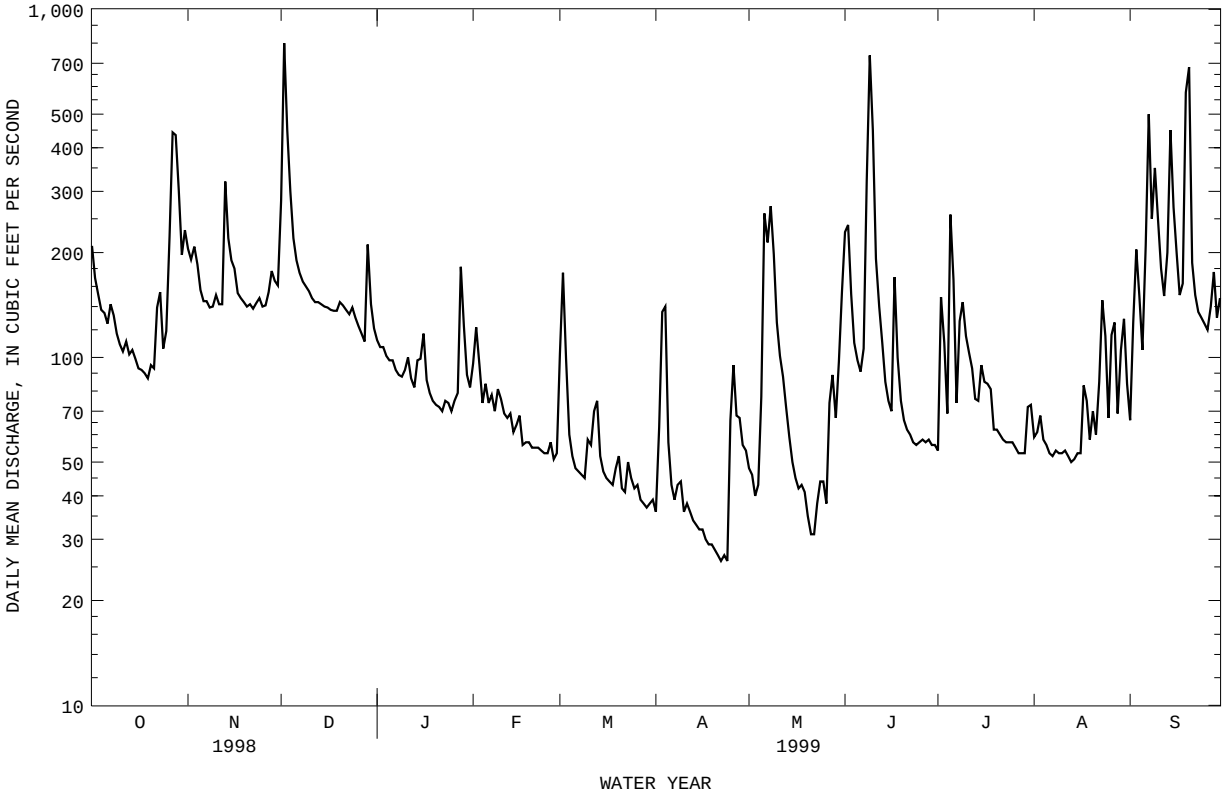
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1999, BY WATER YEAR (WY)

MEAN	150	140	108	80.5	63.6	62.9	103	155	61.8	46.0	53.5	113
MAX	1037	491	522	228	179	226	412	915	173	157	435	432
(WY)	1971	1971	1966	1997	1969	1972	1969	1985	1987	1979	1979	1996
MIN	24.0	11.4	8.65	10.4	15.3	12.7	8.80	15.7	6.75	5.54	9.70	6.87
(WY)	1978	1995	1995	1995	1994	1984	1995	1994	1994	1994	1984	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1965 - 1999	
ANNUAL TOTAL	38131.3		42046			
ANNUAL MEAN	104		115		94.4	
HIGHEST ANNUAL MEAN					248	1971
LOWEST ANNUAL MEAN					24.2	1994
HIGHEST DAILY MEAN	7010	Sep 22	800	Dec 2	17100	May 18 1985
LOWEST DAILY MEAN	6.1	Feb 1	26	Apr 22	3.5	May 1 1995
ANNUAL SEVEN-DAY MINIMUM	6.5	Jan 27	27	Apr 18	4.0	Jul 22 1994
INSTANTANEOUS PEAK FLOW			3630	Jun 9	48000	May 18 1985
INSTANTANEOUS PEAK STAGE			6.16	Jun 9	17.89	May 18 1985
ANNUAL RUNOFF (AC-FT)	75630		83400		68410	
ANNUAL RUNOFF (CFSM)	1.89		2.09		1.71	
ANNUAL RUNOFF (INCHES)	25.70		28.34		23.24	
10 PERCENT EXCEEDS	183		200		170	
50 PERCENT EXCEEDS	34		89		48	
90 PERCENT EXCEEDS	11		43		20	

e Estimated

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



RIO GRANDE DE MANATI BASIN

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR.

WATER-QUALITY RECORDS

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
OCT											
27...	1215	179	200	7.8	25.0	250	7.7	95	19	22000	28000
FEB											
17...	1230	58	277	8.4	23.0	8.5	10.2	120	12	360	K30
MAY											
28...	1200	69	192	7.1	27.5	640	6.8	88	27	50000	40000
AUG											
25...	1115	39	250	7.8	28.2	61	7.7	101	<10	2300	350

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT										
27...	73	17	7.6	9.1	.5	3.2	64	<1.0	8.8	13
FEB										
17...	--	--	--	--	--	--	110	--	--	--
MAY										
28...	65	15	6.6	8.7	.5	2.7	59	E1.0	9.2	12
AUG										
25...	94	22	9.4	10	.5	2.2	89	--	9.5	13

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT										
27...	.18	20	116	56.1	260	1.66	.042	1.70	.080	1.0
FEB										
17...	--	--	--	--	9	--	<.010	.790	.030	.27
MAY										
28...	.13	14	105	19.4	1310	1.16	.040	1.20	.090	--
AUG										
25...	.12	26	146	15.5	58	1.08	.020	1.10	.070	.44

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (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										
27...	1.1	2.8	12	.320	<1	<100	30	<1	12	31
FEB										
17...	.30	1.1	4.8	.080	--	--	--	--	--	--
MAY										
28...	E2.6	--	--	E.670	2	200	40	<1	57	90
AUG										
25...	.51	1.6	7.1	.110	--	--	--	--	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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										
27...	9000	2	310	<.10	<1	<1	20	<.010	<4	<.02
FEB										
17...	--	--	--	--	--	--	--	--	--	--
MAY										
28...	27000	8	1000	.16	<1	<1	50	<.010	<4	<.16
AUG										
25...	--	--	--	--	--	--	--	--	--	--

50032290 LAGO EL GUINEO AT DAMSITE NEAR VILLALBA, PR

LOCATION.--Lat 18°09'41", long 66°31'36", 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) northeast of Cerro Maravillas. The reservoir itself fixes the territorial limits between the Municipality of Ciales and Orocovis.

DRAINAGE AREA.--1.64 mi^2 (4.25 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--May 1988 to current year. Prior to October 1994, published as Lago El Guineo at Damsite.

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

REMARKS.--Lago El Guineo was completed in 1931. It provides a maximum storage of approximately 2,180 ac-ft (2.688 hm^3) 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 2,960 ft (902 m) above mean sea level and a design capacity of 7,000 ft^3/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 2,964.40 ft (903.55 m), Sept, 22 1998; minimun elevation, 2,919.79 ft (899.95 m), May 27, 1988.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,961.79 ft (902.71 m), Apr.29; minimun elevation, 2,939.99 ft (896.06m), Aug.13.

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	2,950	1,308
2,919	361	2,961	1,852
2,925	491	2,966	2,180
2,943	1,029		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	A	2960.77	2960.64	2960.65	2960.68	2960.52	2959.57	2960.70	2955.11	2955.95	2946.58	2951.39
2	A	2960.76	2960.72	2960.67	2960.66	2960.55	2959.62	2960.70	2954.91	2956.12	2946.02	2952.03
3	A	2960.76	2960.71	2960.67	2960.59	2960.44	2960.10	2960.37	2954.71	2956.20	2945.33	2952.56
4	A	2960.76	2960.71	2960.57	2960.63	2960.32	2960.17	2960.03	2954.68	2955.41	2944.73	2953.35
5	A	2960.77	2960.70	2960.32	2960.56	2960.20	2959.94	2959.69	2957.48	2955.32	2944.85	2953.69
6	A	2960.76	2960.70	2960.40	2960.59	2960.20	2959.63	2959.34	2957.68	2954.74	2944.21	2955.59
7	A	2960.81	2960.69	2960.23	2960.62	2960.26	2959.33	2959.02	A	2954.49	2944.23	2956.43
8	A	2960.74	2960.70	2960.21	2960.53	2960.16	2959.49	2959.21	A	2954.05	2944.25	2957.05
9	A	2960.51	2960.65	2960.29	2960.44	2960.15	2960.84	2959.29	A	2953.44	2943.58	2959.01
10	A	2960.61	2960.64	2960.42	2960.47	2960.04	2960.79	2958.95	2956.01	2953.50	2942.91	2959.46
11	A	2960.73	2960.61	2960.50	2960.53	2959.93	2960.78	2958.77	2956.33	2953.55	2942.34	2959.86
12	A	2960.82	2960.68	2960.40	2960.57	2959.83	2960.45	2958.45	2956.37	2953.28	2941.58	2960.44
13	A	2960.70	2960.69	2960.46	2960.63	2959.84	2960.22	2958.60	2956.58	2952.93	2941.17	2960.99
14	2944.30	2960.78	2960.62	2960.28	2960.73	2959.85	2959.81	2958.39	2956.09	2952.54	2942.45	2960.82
15	2944.88	2960.78	2960.61	2960.29	2960.67	2959.72	2959.38	2958.48	2955.98	2952.22	2942.59	2960.79
16	2945.36	2960.71	2960.57	2960.45	2960.66	2959.59	2959.03	2958.56	2955.71	2951.83	2943.25	2960.77
17	2945.81	2960.62	2960.55	2960.30	2960.60	2959.46	2958.72	2958.20	2955.50	2951.86	2943.52	2960.74
18	2946.21	2960.74	2960.52	2960.38	2960.48	2959.45	2958.76	2957.90	2955.45	2951.88	2943.71	2960.74
19	2946.57	2960.74	2960.66	2960.38	2960.38	2960.49	2958.81	2957.51	2955.68	2951.53	2944.24	2960.80
20	2946.95	2960.73	2960.68	2960.37	2960.41	2960.55	2958.33	2957.03	2955.85	2951.25	2944.46	2960.81
21	2947.33	2960.72	2960.60	2960.43	2960.43	2960.83	2957.84	2956.80	A	2950.56	2944.63	2960.72
22	2950.20	2960.72	2960.55	2960.41	2960.32	2960.70	2957.58	2956.45	A	2949.86	2945.28	2960.71
23	2950.83	2960.63	2960.54	2960.46	2960.30	2960.60	2959.14	2956.50	A	2949.50	2945.47	2960.72
24	2951.31	2960.59	2960.54	2960.51	2960.28	2960.52	2959.35	2956.04	A	2949.52	2945.56	2960.71
25	2951.74	2960.56	2960.62	2960.48	2960.30	2960.50	2959.80	2955.70	A	2949.02	2945.62	2960.70
26	2952.99	2960.70	2960.66	2960.54	2960.38	2960.37	2959.92	2955.16	A	2948.72	2945.91	2960.70
27	2957.00	2960.72	2960.67	2960.59	2960.45	2960.40	2960.02	2954.77	A	2947.95	2946.00	2960.69
28	2958.43	2960.75	2960.64	2960.66	2960.49	2960.44	2959.99	2954.58	A	2947.70	2946.49	2960.73
29	2959.20	2960.70	2960.67	2960.64	A	2960.11	2960.80	2954.62	A	2947.00	2950.60	2960.70
30	2959.93	2960.61	2960.67	2960.65	A	2959.81	2960.71	2954.72	2955.84	2946.29	2950.99	2960.70
31	2960.62	---	2960.57	2960.65	---	2959.57	---	2955.30	---	2946.31	2951.22	---
MAX	---	2960.82	2960.72	2960.67	2960.73	2960.83	2960.84	2960.70	---	2956.20	2951.22	2960.99
MIN	---	2960.51	2960.52	2960.21	2960.28	2959.45	2957.58	2954.58	---	2946.29	2941.17	2951.39

A No gage-height record

50032590 LAGO DE MATRULLAS AT DAMSITE NEAR OROCOVIS, PR

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

DRAINAGE AREA.--4.46 mi^2 (11.55 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--May 1988 to current year. Prior to October 1994, published as Lago de Matrullas at Damsite.

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 hm^3) 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.E.P.A. for the primary purpose of generating electric power. Discharges from the Power Plants are collected by the Jacaguas 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 2,419.90 ft (737.58 m), Sept.10,1996; minimum elevation, 2,375.55 ft (724.06 m), Sept. 24, 25, 1994.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,417.37 ft (736.81 m),Sept. 6; minimum elevation, 2,413.23 ft (735.55 m) May 28.

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	2,420	3,331

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2415.43	A	A	A	2415.36	2415.22	2413.85	2415.01	2414.69	2414.83	2414.58	2415.26
2	2415.37	A	A	A	2415.22	2415.32	2413.98	2415.14	2415.42	2414.86	2414.44	2415.27
3	2415.41	2415.42	A	A	2415.14	2415.14	2415.39	2415.00	2415.21	2415.06	2414.33	2415.45
4	2415.24	2415.40	A	A	2415.10	2415.01	2415.35	2414.85	2415.10	2414.89	2414.51	2415.23
5	2415.05	2415.40	A	A	2415.04	2414.89	A	2414.74	2415.32	2415.10	2414.48	2415.40
6	2415.04	2415.39	A	A	2414.89	2414.89	A	2414.67	2415.30	2414.96	2414.38	2415.82
7	2415.37	2415.38	A	A	2415.08	2415.03	A	2414.53	2415.13	2414.86	2414.51	2415.43
8	2415.52	2415.38	A	A	2414.98	2414.89	A	2415.24	2415.50	2414.87	2414.62	2415.54
9	2415.38	2415.40	A	A	2414.90	2414.84	A	2415.28	2415.38	2414.74	2414.47	2415.75
10	2415.38	2415.38	A	A	2414.82	2414.73	A	2415.13	2415.54	2414.93	2414.30	2415.49
11	2415.37	2415.40	A	A	2414.81	2414.60	A	2415.00	2415.55	2415.11	2414.12	2415.51
12	A	2415.68	A	A	2414.71	2414.55	A	2414.87	2415.41	2415.01	2413.88	2415.41
13	A	2415.44	A	A	2414.89	2414.70	A	2414.73	2415.40	2414.96	2413.85	2415.90
14	A	2415.62	2415.40	A	2415.13	2414.83	A	2414.75	2415.21	2414.89	2415.49	2415.64
15	A	2415.48	2415.40	A	2415.31	2414.68	A	2414.86	2415.28	2414.84	2415.36	2415.64
16	A	2415.43	2415.39	A	2415.16	2414.55	2414.10	2414.98	2415.43	2414.75	2415.22	2415.51
17	A	2415.42	2415.38	A	2415.05	2414.40	2414.22	2414.81	2415.64	2414.92	2415.10	2415.47
18	A	2415.38	2415.43	A	2414.95	2414.24	2414.32	2414.64	2415.33	2415.07	2414.95	2415.33
19	A	2415.41	2415.45	A	2414.83	2414.24	2414.43	2414.48	2415.40	2415.23	2414.50	2415.87
20	A	2415.37	2415.46	A	2414.99	2414.39	2414.19	2414.31	2415.43	2415.07	2414.08	2415.81
21	A	2415.39	2415.39	2414.93	2415.14	2414.54	2413.96	2414.14	2415.30	2414.91	2414.10	2415.61
22	A	2415.40	2415.37	2414.87	2415.09	2414.73	2413.76	2414.02	2415.26	2414.77	2414.80	2415.52
23	A	2415.38	2415.37	2415.08	2415.01	2414.60	2413.53	2414.15	2415.15	2414.61	2414.83	2415.56
24	A	2415.34	2415.42	2415.27	2414.91	2414.47	2413.69	2413.99	2415.12	2414.75	2414.75	2415.51
25	A	2415.33	2415.44	2415.16	2414.88	2414.39	2413.97	2413.81	2415.08	2414.66	2414.62	2415.48
26	A	2415.38	2415.44	2415.29	2414.80	2414.25	2413.84	2413.64	2415.29	2414.79	2415.63	2415.55
27	A	A	2415.44	2415.17	2414.97	2414.37	2413.66	2413.46	2415.34	2414.76	2415.29	2415.50
28	A	A	A	2415.25	2415.13	2414.49	2413.48	2413.28	2415.16	2414.64	2415.37	2415.50
29	A	A	A	2415.15	---	2414.33	2414.88	2413.38	2415.04	2414.48	2415.94	2415.49
30	A	A	A	2415.31	---	2414.17	2414.86	2413.49	2414.97	2414.32	2415.38	2415.56
31	A	---	A	2415.33	---	2414.02	---	2413.62	---	2414.45	2415.30	---
MAX	---	---	---	---	2415.36	2415.32	---	2415.28	2415.64	2415.23	2415.94	2415.90
MIN	---	---	---	---	2414.71	2414.02	---	2413.28	2414.69	2414.32	2413.85	2415.23

A No gage-height record

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 km^2).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e114	116	153	30	27	29	15	15	108	15	12	38
2	e81	163	235	29	31	31	35	14	257	33	14	53
3	e68	151	179	28	24	20	175	14	125	21	21	97
4	e60	99	112	27	22	18	99	13	52	23	19	53
5	e55	66	81	27	21	17	33	15	45	25	17	65
6	e50	53	66	27	20	16	23	14	37	20	14	e192
7	e56	47	59	26	19	16	19	18	30	17	13	e78
8	e72	42	52	25	19	16	17	123	85	24	12	e62
9	e77	45	48	25	18	17	19	52	150	25	12	e72
10	e52	48	45	25	18	17	17	27	259	19	12	e62
11	e44	44	44	25	18	16	16	19	154	17	12	e57
12	e43	126	42	24	18	23	15	17	79	17	12	e53
13	e44	169	40	59	18	23	15	16	49	17	13	e137
14	e42	194	39	43	19	17	15	15	34	e19	30	e101
15	e40	152	37	66	20	16	14	14	27	e19	17	e76
16	e34	83	36	69	22	14	14	14	28	18	11	e67
17	e30	60	35	51	18	14	14	14	47	17	11	e63
18	e28	50	34	32	17	14	14	13	37	16	11	e61
19	e27	46	33	26	17	32	14	13	27	15	10	e105
20	26	44	38	24	17	23	14	13	27	15	11	e95
21	28	41	35	23	17	17	14	12	24	15	11	e79
22	84	37	34	22	16	16	14	12	21	15	100	e68
23	56	38	33	21	16	16	13	11	19	15	53	e66
24	39	40	33	20	16	24	16	11	19	14	26	e63
25	37	35	32	20	25	34	23	10	17	14	17	e60
26	76	33	31	20	22	28	27	9.7	17	14	120	e67
27	249	40	30	21	17	19	18	9.4	17	14	107	e82
28	311	92	30	48	17	17	16	9.1	17	13	35	e75
29	177	65	56	27	---	28	20	8.9	16	13	159	e75
30	116	50	36	22	---	20	21	13	16	13	149	e78
31	262	---	33	21	---	16	---	9.7	---	13	51	---
TOTAL	2478	2269	1791	953	549	624	779	568.8	1840	545	1112	2300
MEAN	79.9	75.6	57.8	30.7	19.6	20.1	26.0	18.3	61.3	17.6	35.9	76.7
MAX	311	194	235	69	31	34	175	123	259	33	159	192
MIN	26	33	30	20	16	14	13	8.9	16	13	10	38
AC-FT	4920	4500	3550	1890	1090	1240	1550	1130	3650	1080	2210	4560
CFSM	4.79	4.53	3.46	1.84	1.17	1.21	1.55	1.10	3.67	1.05	2.15	4.59
IN.	5.52	5.05	3.99	2.12	1.22	1.39	1.74	1.27	4.10	1.21	2.48	5.12

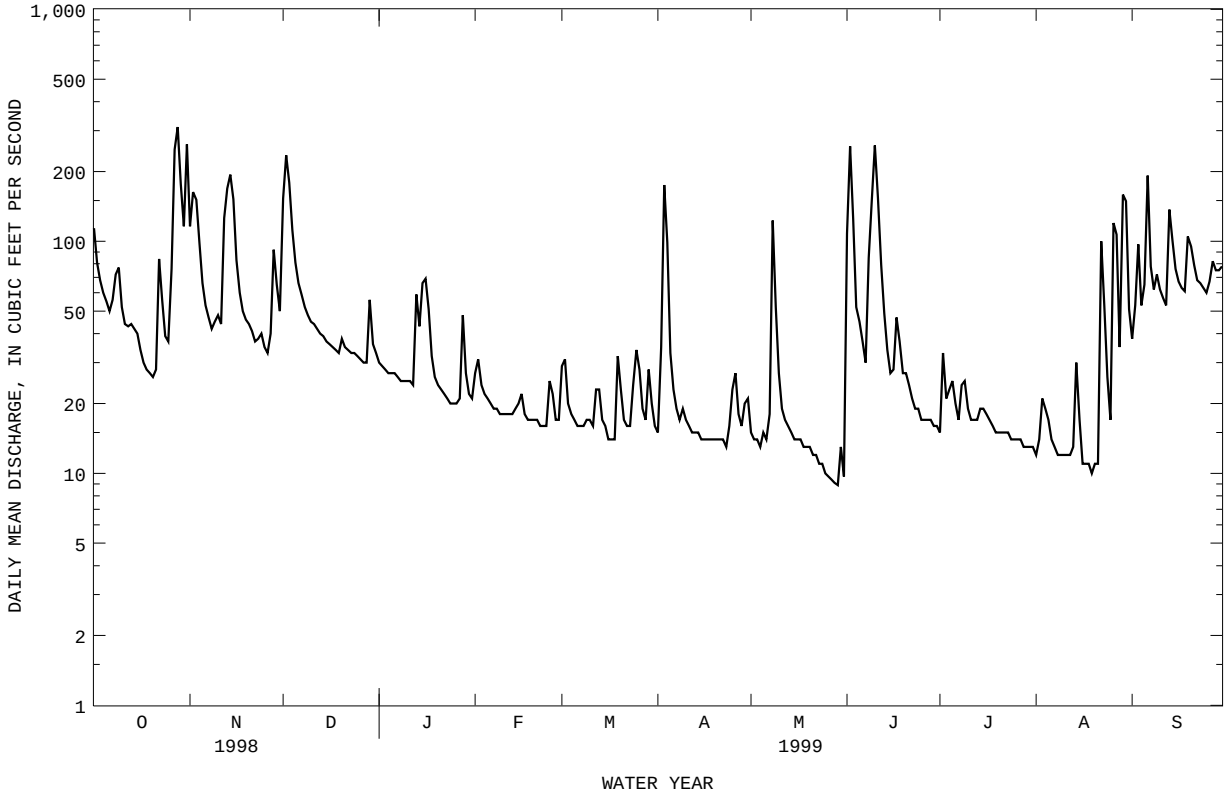
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1999, BY WATER YEAR (WY)

MEAN	83.6	51.7	28.3	21.1	16.5	15.0	27.1	49.2	20.6	15.9	21.6	118
MAX	392	205	108	83.4	43.5	59.9	80.2	179	78.6	104	152	1104
(WY)	1971	1971	1971	1992	1998	1972	1980	1981	1979	1979	1979	1996
MIN	14.6	7.12	4.29	3.66	5.70	4.18	4.92	4.24	3.59	3.22	3.97	3.55
(WY)	1994	1995	1995	1995	1994	1994	1995	1994	1994	1994	1994	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1969 - 1999	
ANNUAL TOTAL	31249.8		15808.8			
ANNUAL MEAN	85.6		43.3		39.1	
HIGHEST ANNUAL MEAN					117	1996
LOWEST ANNUAL MEAN					6.56	1994
HIGHEST DAILY MEAN	10000	Sep 22	311	Oct 28	19500	Sep 10 1996
LOWEST DAILY MEAN	5.5	Mar 19	8.9	May 29	2.8	Jul 23 1994
ANNUAL SEVEN-DAY MINIMUM	5.8	Mar 14	9.9	May 23	2.8	Jul 23 1994
INSTANTANEOUS PEAK FLOW			1580	Sep 6	28200	Sep 22 1998
INSTANTANEOUS PEAK STAGE			11.32	Sep 6	25.93	Sep 22 1998
INSTANTANEOUS LOW FLOW					2.6	Jul 26 1994
ANNUAL RUNOFF (AC-FT)	61980		31360		28330	
ANNUAL RUNOFF (CFSM)	5.13		2.59		2.34	
ANNUAL RUNOFF (INCHES)	69.61		35.21		31.82	
10 PERCENT EXCEEDS	150		98		66	
50 PERCENT EXCEEDS	27		26		13	
90 PERCENT EXCEEDS	6.5		14		5.5	

e Estimated

50034000 RIO BAUTA NEAR OROCOVIS, PR--Continued



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 Valés, and 1.2 mi (1.9 km) southeast of Ciales.

DRAINAGE AREA.--128 mi^2 (332 km^2), excludes 6.0 mi^2 (15.5 km^2), the runoff from which is diverted through El Guineo and Matrullas reservoirs.

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 Río Grande de Manatí at Highway 145 at Ciales at site 1.6 mi (2.6 km) downstream, drainage area 132 mi^2 (342 km^2).

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

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e470	808	1530	251	e187	e154	101	96	e1320	124	107	303
2	e392	e704	2810	244	e262	e280	338	87	e1230	209	109	422
3	e369	835	2280	243	e209	188	791	84	e730	177	128	597
4	e338	621	1070	235	e171	137	517	84	e371	133	127	535
5	e314	464	771	225	e166	127	177	122	e309	551	154	508
6	e296	414	580	229	e161	120	132	432	e299	259	124	1890
7	e313	386	503	222	e156	118	115	199	e407	152	107	880
8	299	391	437	214	e152	117	108	1220	e1770	221	102	1070
9	273	404	403	209	e149	127	136	424	e2330	238	100	1230
10	e254	475	371	216	e147	146	117	157	e1420	187	99	772
11	e247	458	378	225	e144	140	108	121	e805	152	99	526
12	e260	1280	352	210	e144	184	100	107	544	151	99	444
13	e245	1620	347	207	e143	197	96	99	363	135	117	1810
14	e246	878	333	247	e142	128	93	93	259	143	123	1040
15	e226	744	315	238	e140	116	91	86	224	165	147	657
16	240	594	309	314	e156	112	89	83	197	160	112	560
17	222	516	298	254	e148	110	86	82	558	173	140	432
18	220	470	290	209	e144	108	84	82	351	146	130	381
19	216	444	293	195	e143	193	83	79	210	128	104	2060
20	218	438	346	190	e139	184	83	76	195	123	113	1240
21	229	429	323	186	e138	149	80	74	183	121	121	735
22	371	407	301	182	e136	170	78	75	159	117	500	491
23	345	438	307	e183	e135	128	79	99	151	114	599	410
24	274	466	309	e182	e133	121	87	76	144	113	357	411
25	309	419	290	e174	e131	154	174	72	138	112	292	354
26	727	393	279	e177	e136	153	313	e72	135	110	428	567
27	e2200	502	266	e186	e127	118	164	e98	134	110	529	515
28	2140	681	259	e360	e128	109	129	e137	136	107	299	463
29	1490	604	401	218	---	127	255	e124	139	106	633	415
30	714	557	298	183	---	136	145	e173	143	116	669	423
31	1000	---	262	e172	---	109	---	e737	---	121	335	---
TOTAL	15457	17840	17311	6780	4267	4460	4949	5550	15354	4974	7103	22141
MEAN	499	595	558	219	152	144	165	179	512	160	229	738
MAX	2200	1620	2810	360	262	280	791	1220	2330	551	669	2060
MIN	216	386	259	172	127	108	78	72	134	106	99	303
AC-FT	30660	35390	34340	13450	8460	8850	9820	11010	30450	9870	14090	43920
CFSM	3.90	4.65	4.36	1.71	1.19	1.12	1.29	1.40	4.00	1.25	1.79	5.77
IN.	4.49	5.18	5.03	1.97	1.24	1.30	1.44	1.61	4.46	1.45	2.06	6.43

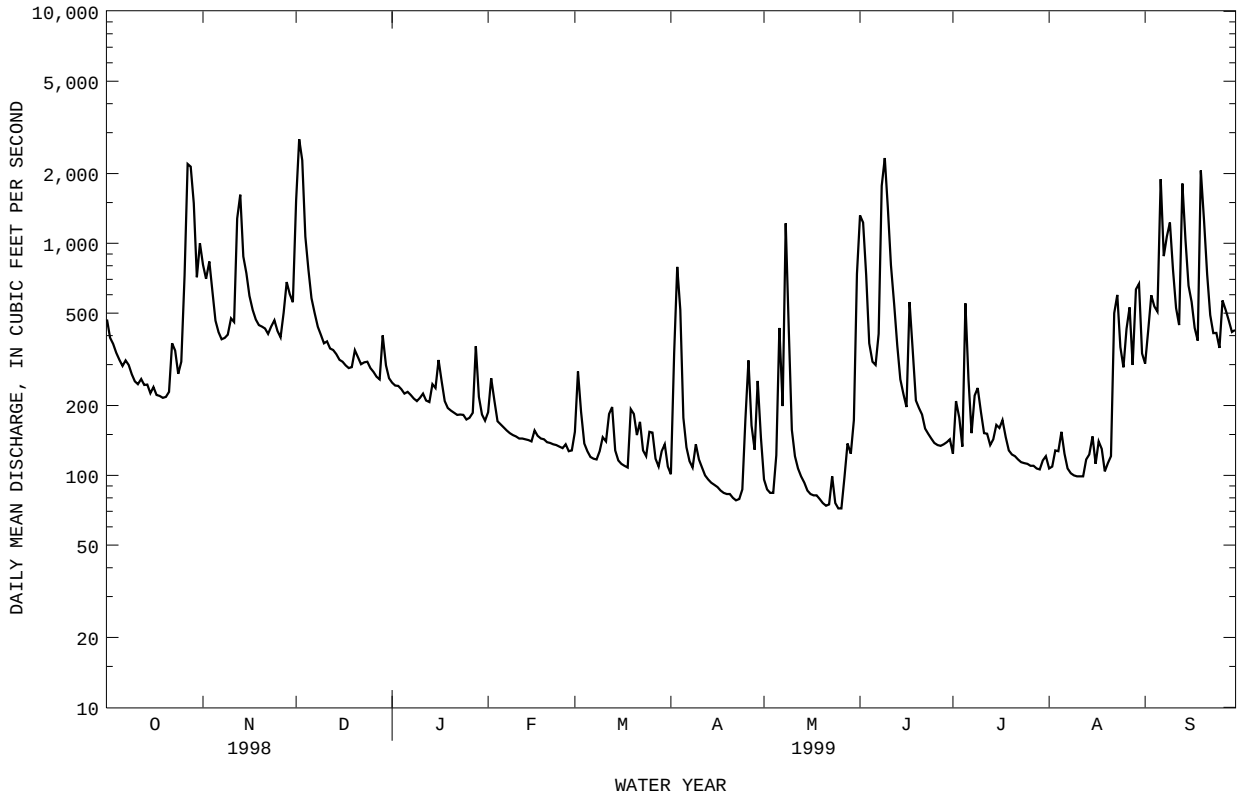
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1999, BY WATER YEAR (WY)

MEAN	422	341	258	193	167	135	252	406	159	105	151	318
MAX	2422	1006	1296	679	1393	477	1174	2293	512	438	1212	1295
(WY)	1971	1971	1966	1952	1950	1969	1969	1985	1999	1979	1979	1996
MIN	91.9	34.7	29.7	26.2	41.6	29.7	28.5	29.6	17.8	14.1	27.0	23.9
(WY)	1994	1995	1995	1995	1957	1994	1984	1994	1994	1994	1994	1994

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

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1946 - 1999	
ANNUAL TOTAL	106357		126186			
ANNUAL MEAN	291		346		243	
HIGHEST ANNUAL MEAN					520	1971
LOWEST ANNUAL MEAN					47.3	1994
HIGHEST DAILY MEAN	10100	Sep 22	2810	Dec 2	42700	May 18 1985
LOWEST DAILY MEAN	25	Jan 30	72	May 25	8.5	Jul 28 1994
ANNUAL SEVEN-DAY MINIMUM	26	Jan 28	78	May 20	9.5	Jul 24 1994
INSTANTANEOUS PEAK FLOW			12100	Sep 6	128000	Sep 10 1996
INSTANTANEOUS PEAK STAGE			10.83	Sep 6	25.20	Sep 10 1996
INSTANTANEOUS LOW FLOW			69	May 26	8.5	Jul 27 1994
ANNUAL RUNOFF (AC-FT)	211000		250300		176200	
ANNUAL RUNOFF (CFSM)	2.28		2.70		1.90	
ANNUAL RUNOFF (INCHES)	30.91		36.67		25.81	
10 PERCENT EXCEEDS	552		719		444	
50 PERCENT EXCEEDS	137		209		114	
90 PERCENT EXCEEDS	43		101		50	

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.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
05...	1345	E500	226	7.9	26.5	6.7	7.3	91	<10	2500	620
MAR											
11...	1400	144	260	7.8	25.0	9.0	8.9	107	<10	3100	600
MAY											
13...	1440	151	244	7.8	28.0	10	7.9	102	<10	600	K170
AUG											
24...	0940	296	192	7.7	24.9	100	7.3	89	11	K11000	20000

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
05...	87	24	6.5	10	.5	2.2	77	<1.0	8.3	14
MAR										
11...	--	--	--	--	--	--	100	--	--	--
MAY										
13...	98	25	8.6	11	.5	2.1	90	<1.0	9.1	13
AUG										
24...	74	18	6.9	9.6	.5	1.9	72	--	8.1	9.9

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
05...	.10	25	136	--	4	--	<.010	1.50	.050	--
MAR										
11...	--	--	--	--	9	--	<.010	.770	.050	--
MAY										
13...	.12	25	148	60.2	10	--	<.010	.780	.030	--
AUG										
24...	<.10	23	121	96.8	136	.860	.030	.890	.080	.59

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
05...	<.20	--	--	.060	<1	<100	20	<1	<1	<10
MAR										
11...	E.34	--	--	E.080	--	--	--	--	--	--
MAY										
13...	<.20	--	--	E.070	<1	50	50	<1	<1	18
AUG										
24...	.67	1.6	6.9	.200	--	--	--	--	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
05...	380	<1	26	<.10	<1	<1	10	<.010	<4	.02
MAR										
11...	--	--	--	--	--	--	--	--	--	--
MAY										
13...	280	<1	35	<.10	<1	<1	<40	<.010	<4	<.02
AUG										
24...	--	--	--	--	--	--	--	--	--	--

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 mi^2 (44.0 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
OCT											
28...	1245	121	265	8.1	25.5	29	7.2	88	<10	2300	3100
MAR											
09...	1005	17	243	8.0	22.0	3.2	9.1	103	<10	K140	300
MAY											
13...	1240	19	228	7.8	26.5	10	7.8	98	<10	K130	K180
AUG											
24...	1115	32	196	8.0	25.5	51	8.2	101	<10	3600	6800

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT										
28...	76	23	4.9	9.3	.5	2.4	84	<1.0	8.6	14
MAR										
09...	--	--	--	--	--	--	100	--	--	--
MAY										
13...	87	24	6.6	10	.5	1.9	85	<1.0	6.5	12
AUG										
24...	73	21	5.0	8.4	.4	2.1	74	--	7.8	10

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT										
28...	.14	22	135	44.0	35	2.19	.010	2.20	.030	.40
MAR										
09...	--	--	--	--	1	--	<.010	.760	.030	--
MAY										
13...	<.10	28	140	7.06	11	--	<.010	.770	.030	--
AUG										
24...	<.10	23	122	10.4	43	1.29	.010	1.30	.050	.33

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (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										
28...	.43	2.6	12	.090	<1	<100	20	<1	1	<10
MAR										
09...	E.22	--	--	E.030	--	--	--	--	--	--
MAY										
13...	<.20	--	--	E.070	<1	50	E30	<1	<1	<10
AUG										
24...	.38	1.7	7.4	.110	--	--	--	--	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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										
28...	750	<1	47	<.10	<1	<1	20	<.010	<4	<.02
MAR										
09...	--	--	--	--	--	--	--	--	--	--
MAY										
13...	130	<1	17	<.10	<1	<1	<40	<.010	<4	<.02
AUG										
24...	--	--	--	--	--	--	--	--	--	--

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 mi^2 (510 km^2), approximately, of which about 38 mi^2 (98 km^2) is partly or entirely noncontributing, excludes 6.0 mi^2 (15.5 km^2) 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. Possible water extraction about 500 ft (152.4 m) upstream of gage by unknown source affecting low flow.

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).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1200	1690	e1470	e544	227	168	134	230	1070	214	141	298
2	868	1500	e4510	e499	354	287	327	211	1640	250	135	309
3	738	1340	8320	e494	256	233	726	195	1380	313	148	682
4	662	1300	2900	e448	221	170	1570	189	597	225	181	617
5	613	968	1890	413	211	155	376	186	306	694	195	528
6	566	836	1510	406	202	149	269	606	252	730	168	1750
7	538	752	1290	378	196	145	239	338	320	257	147	3170
8	685	727	1100	356	192	142	224	1310	2020	255	139	1170
9	831	675	986	337	187	146	239	1420	3950	394	135	1930
10	602	857	901	326	184	174	218	292	3550	280	135	1760
11	531	863	872	334	183	152	206	215	1690	235	136	636
12	498	970	820	300	182	207	199	189	824	227	137	613
13	508	1770	790	295	181	234	191	176	515	208	134	2040
14	495	1460	752	330	179	164	183	165	417	213	178	2320
15	501	1340	714	270	188	144	173	155	375	219	191	881
16	471	1090	691	435	190	141	168	148	425	242	159	745
17	441	891	701	326	186	138	163	154	871	216	149	511
18	425	795	648	270	172	134	158	150	943	235	198	438
19	410	732	623	249	170	146	152	140	408	193	141	1990
20	414	702	691	239	167	319	148	135	354	183	135	4570
21	400	680	699	232	165	188	145	130	329	179	158	1490
22	520	643	657	228	161	231	140	130	291	172	501	796
23	756	675	644	229	159	165	136	159	273	167	1030	638
24	547	752	702	233	155	161	140	139	257	161	448	614
25	468	683	657	223	150	158	169	132	243	158	270	581
26	1020	620	634	228	170	230	e416	128	235	153	437	732
27	2140	616	630	240	170	161	e357	127	229	152	952	804
28	7270	839	612	438	154	145	e287	217	229	145	326	717
29	4720	989	786	329	---	140	e244	192	225	142	290	603
30	2660	795	e685	248	---	187	e530	177	237	147	1330	626
31	2160	---	e593	229	---	146	---	686	---	156	349	---
TOTAL	34658	28550	39478	10106	5312	5460	8627	8821	24455	7515	9173	34559
MEAN	1118	952	1273	326	190	176	288	285	815	242	296	1152
MAX	7270	1770	8320	544	354	319	1570	1420	3950	730	1330	4570
MIN	400	616	593	223	150	134	134	127	225	142	134	298
AC-FT	68740	56630	78300	20050	10540	10830	17110	17500	48510	14910	18190	68550
CFSM	5.68	4.83	6.46	1.65	.96	.89	1.46	1.44	4.14	1.23	1.50	5.85
IN.	6.54	5.39	7.45	1.91	1.00	1.03	1.63	1.67	4.62	1.42	1.73	6.53

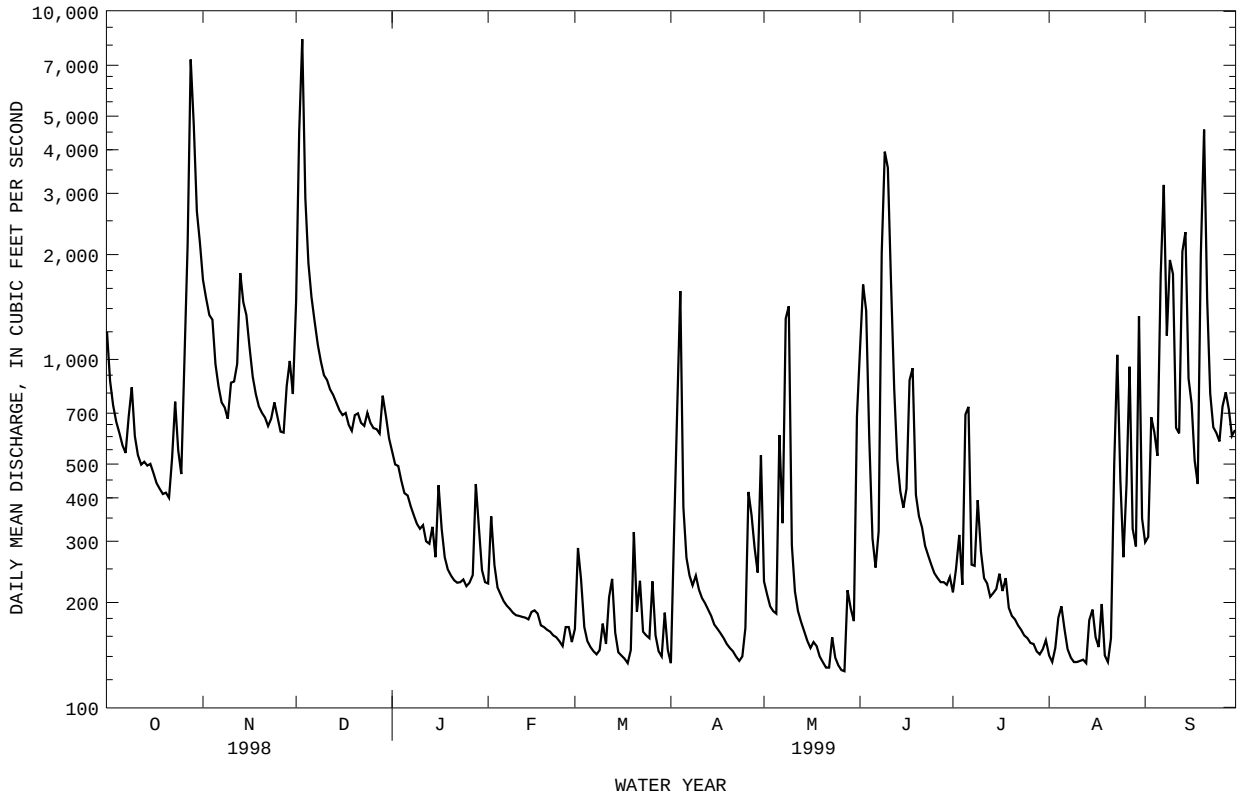
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1999, BY WATER YEAR (WY)

MEAN	722	536	383	265	207	181	347	649	248	156	215	638
MAX	2958	1803	1498	879	444	521	1037	3178	815	577	1644	3732
(WY)	1971	1971	1971	1997	1988	1972	1993	1985	1999	1979	1979	1998
MIN	154	71.0	55.1	59.1	72.0	56.2	49.9	93.7	63.8	53.0	67.9	67.4
(WY)	1995	1995	1998	1995	1994	1994	1995	1989	1994	1994	1984	1994

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

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1970 - 1999	
ANNUAL TOTAL	279980		216714			
ANNUAL MEAN	767		594		378	
HIGHEST ANNUAL MEAN					756	1971
LOWEST ANNUAL MEAN					96.5	1994
HIGHEST DAILY MEAN	80400	Sep 22	8320	Dec 3	80400	Sep 22 1998
LOWEST DAILY MEAN	47	Jan 31	127	May 27	31	Jan 24 1995
ANNUAL SEVEN-DAY MINIMUM	49	Jan 28	135	May 21	33	Jul 23 1994
INSTANTANEOUS PEAK FLOW			19800	Oct 28	Not determined	Sep 10 1996
INSTANTANEOUS PEAK STAGE			29.72	Oct 28	36.39	Sep 10 1996
INSTANTANEOUS LOW FLOW					28	Jan 23 1995
ANNUAL RUNOFF (AC-FT)	555300		429900		273700	
ANNUAL RUNOFF (CFSM)	3.89		3.01		1.92	
ANNUAL RUNOFF (INCHES)	52.87		40.92		26.06	
10 PERCENT EXCEEDS	1090		1300		662	
50 PERCENT EXCEEDS	196		306		167	
90 PERCENT EXCEEDS	64		147		82	

e Estimated



RIO GRANDE DE MANATI BASIN

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

WATER-QUALITY RECORDS

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
OCT											
29...	1120	3130	192	7.6	24.5	300	6.7	80	20	22000	39000
FEB											
24...	1400	153	315	8.0	26.0	18	10.2	125	<10	560	600
MAY											
24...	1205	136	310	7.5	29.0	2.4	7.7	100	<10	4200	6100
AUG											
26...	1250	306	243	7.7	29.1	17	6.9	90	<10	K7100	3600

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT										
29...	68	19	4.9	8.3	.4	2.4	62	<1.0	9.1	12
FEB										
24...	--	--	--	--	--	--	130	--	--	--
MAY										
24...	120	36	8.1	12	.5	2.3	120	<1.0	9.3	14
AUG										
26...	110	30	7.7	12	.5	2.0	100	--	8.6	12

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT										
29...	.10	20	113	951	452	1.88	.022	1.90	.090	1.8
FEB										
24...	--	--	--	--	23	--	<.010	.480	.020	.21
MAY										
24...	.14	21	175	64.0	9	--	<.010	.360	.150	--
AUG										
26...	<.10	23	155	128	44	.980	.020	1.00	.120	.48

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (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										
29...	1.9	3.8	17	.610	<1	<100	30	<1	14	51
FEB										
24...	.23	.71	3.1	.090	--	--	--	--	--	--
MAY										
24...	E.51	--	--	E.120	<1	50	40	<1	<1	E7
AUG										
26...	.60	1.6	7.1	.160	--	--	--	--	--	--

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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										
29...	14000	5	620	<.10	<1	<1	40	<.010	<4	<.02
FEB										
24...	--	--	--	--	--	--	--	--	--	--
MAY										
24...	330	<1	50	<.10	<1	<1	<40	<.010	5	.05
AUG										
26...	--	--	--	--	--	--	--	--	--	--

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 Manati, 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 1998 TO SEPTEMBER 1999

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)
OCT										
28...	0940	1310	8.0	29.0	6.6	85	10	120	K60	120
MAR										
10...	1200	1010	7.8	27.5	6.4	81	29	200	200	120
MAY										
14...	1100	1160	7.9	29.5	6.8	89	43	140	270	120
AUG										
20...	1315	1170	7.9	31.5	6.2	84	25	85	72	110

DATE	SULFIDE TOTAL (MG/L AS S) (00745)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)
OCT										
28...	<1.0	5	.319	.011	.330	.610	.99	1.6	1.9	8.5
MAR										
10...	--	1	.310	.010	.320	.190	--	E.93	--	--
MAY										
14...	<1.0	<1	.530	.010	.540	.310	--	E1.4	--	--
AUG										
20...	--	<1	--	<.010	.250	.270	.93	1.2	1.5	6.4

DATE	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	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									
28...	.030	70	<10	40	<10	<10	<.010	<4	.18
MAR									
10...	<.020	--	--	--	--	--	--	--	--
MAY									
14...	<.020	70	<12	30	<3	<40	<.010	<4	.03
AUG									
20...	<.020	--	--	--	--	--	--	--	--

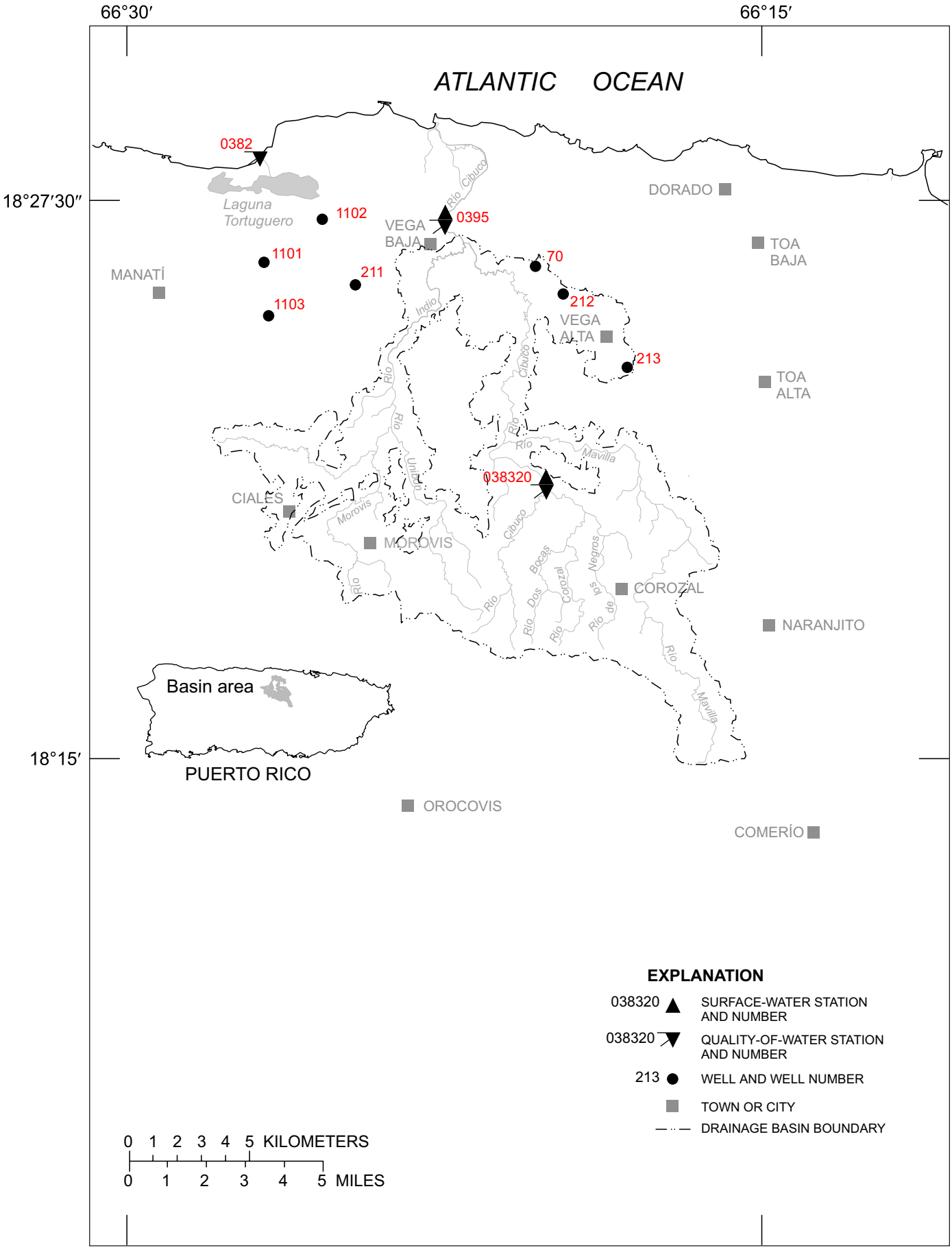


Figure 15. Río Cibuco basin.

50038320 RIO CIBUCO BELOW COROZAL, PR

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

DRAINAGE AREA.--15.1 mi^2 (39.1 km^2).

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. Daily discharge affected by sewage treatment plant about 0.6 mi (1.0 km) upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e27	e204	e400	e33	e46	e15	e12	9.2	e66	e16	18	e12
2	e22	e172	e580	e32	e35	e15	e13	8.7	e43	e75	16	131
3	e25	e54	e450	e31	e28	e14	e32	8.4	e27	e24	15	e29
4	e24	e30	e260	e30	e25	e13	e14	8.3	e30	e22	15	e34
5	e25	e20	e150	e39	e23	e13	e12	9.6	e22	e37	14	e15
6	e20	e15	e94	e31	e22	e13	e11	53	e21	e20	e13	e14
7	e132	e23	e80	e28	e20	e14	e15	e12	e78	e17	12	e18
8	e75	e15	e73	e27	e20	e18	e15	e260	e129	e79	11	e75
9	44	e73	e64	e27	e19	e27	13	e35	e175	e67	11	e27
10	22	e51	e66	e31	e19	e16	e11	e16	e87	e28	11	e19
11	20	e101	e60	e25	e18	e48	e10	e13	e34	e43	10	23
12	16	e571	e56	e23	e20	e25	e10	e11	e21	e27	9.8	e18
13	21	e200	e50	e22	e19	e18	e10	14	e21	e36	9.0	16
14	e17	e107	e45	e23	e22	e16	e9.9	e9.2	e20	e32	8.8	16
15	e14	e82	e43	e33	e25	e16	e8.6	e8.8	e24	e86	9.5	e15
16	16	e71	e40	e22	e19	e15	e8.0	e8.8	e19	e30	9.8	e15
17	19	e46	e37	e20	e17	e16	e8.0	e9.2	e32	e83	e10	15
18	18	e47	e35	e18	e17	e15	e8.0	e9.2	e19	e33	e9.0	21
19	e41	e34	e50	e18	e17	e16	e7.9	e8.8	e23	e24	7.7	e43
20	16	e43	e51	e17	e16	e14	e7.6	e8.8	e20	e21	12	e570
21	16	e32	e39	e17	e15	e13	e7.6	e8.4	e18	e20	e11	e41
22	e16	e58	e62	e18	e15	e19	e8.0	e8.6	e18	20	31	e26
23	e14	e64	e64	e20	e15	e44	e8.4	e8.8	e17	19	e16	21
24	12	e45	e50	e17	e15	e17	e7.9	e8.8	e18	19	e10	e34
25	13	e35	e54	e17	e14	e15	e7.9	e9.0	e17	18	e7.6	e23
26	e106	e32	e48	e20	e14	e13	12	e11	e19	17	11	132
27	e128	e24	e40	e50	e14	e13	41	e24	e20	16	16	e52
28	e453	e26	e45	e27	e14	e12	e11	e44	e17	16	12	e38
29	e433	e52	e58	e19	---	e12	e10	e22	e18	15	e16	e33
30	e210	e200	e38	e16	---	e13	e9.4	e103	e18	e117	e16	e31
31	e131	---	e35	e18	---	e12	---	e74	---	e26	15	---
TOTAL	2146	2527	3217	769	563	540	359.2	842.6	1091	1103	393.2	1557
MEAN	69.2	84.2	104	24.8	20.1	17.4	12.0	27.2	36.4	35.6	12.7	51.9
MAX	453	571	580	50	46	48	41	260	175	117	31	570
MIN	12	15	35	16	14	12	7.6	8.3	17	15	7.6	12
AC-FT	4260	5010	6380	1530	1120	1070	712	1670	2160	2190	780	3090
CFSM	4.58	5.58	6.87	1.64	1.33	1.15	.79	1.80	2.41	2.36	.84	3.44
IN.	5.29	6.23	7.93	1.89	1.39	1.33	.88	2.08	2.69	2.72	.97	3.84

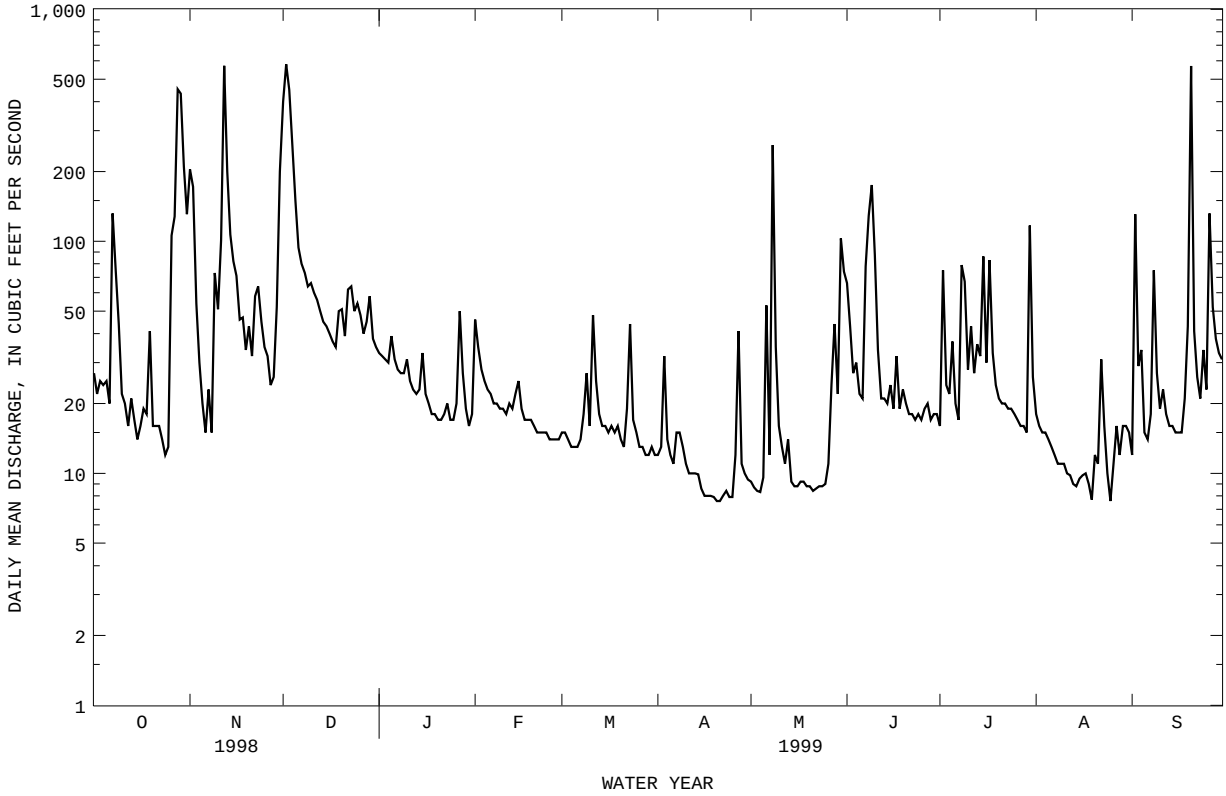
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1999, BY WATER YEAR (WY)

MEAN	41.1	47.6	36.6	24.9	21.5	20.9	31.6	43.3	15.3	12.6	16.4	34.2
MAX	135	155	169	69.6	51.3	65.1	111	157	44.4	35.6	50.8	191
(WY)	1991	1971	1971	1992	1988	1981	1973	1986	1987	1999	1979	1996
MIN	8.05	5.63	1.94	6.93	7.75	4.36	3.32	3.20	1.63	2.19	3.44	3.88
(WY)	1979	1998	1998	1995	1994	1984	1984	1977	1994	1994	1978	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1969 - 1999	
ANNUAL TOTAL	14418.7		15108.0			
ANNUAL MEAN	39.5		41.4		28.9	
HIGHEST ANNUAL MEAN					56.5	1971
LOWEST ANNUAL MEAN					7.47	1994
HIGHEST DAILY MEAN	1200	Sep 22	580	Dec 2	3070	Sep 10 1996
LOWEST DAILY MEAN	1.6	Mar 28	7.6	Apr 20	.91	Jul 17 1994
ANNUAL SEVEN-DAY MINIMUM	2.3	Mar 22	7.9	Apr 16	1.2	Jun 21 1994
INSTANTANEOUS PEAK FLOW			11700	Oct 27	20400	Nov 9 1995
INSTANTANEOUS PEAK STAGE			19.15	Oct 27	22.35	Nov 9 1995
ANNUAL RUNOFF (AC-FT)	28600		29970		20960	
ANNUAL RUNOFF (CFSM)	2.62		2.74		1.92	
ANNUAL RUNOFF (INCHES)	35.52		37.22		26.03	
10 PERCENT EXCEEDS	81		75		50	
50 PERCENT EXCEEDS	11		20		13	
90 PERCENT EXCEEDS	3.4		9.8		5.1	

e Estimated

50038320 RIO CIBUCO BELOW COROZAL, PR--Continued



RIO CIBUCO BASIN

50038320 RIO CIBUCO BELOW COROZAL, PR.

WATER-QUALITY RECORDS

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
OCT											
26...	1245	14	384	8.0	28.0	3.7	6.8	88	<10	K190	K110
FEB											
18...	1140	17	360	7.6	21.0	4.9	8.8	98	<10	K50	230
MAY											
10...	1200	20	342	7.6	25.5	14	6.8	84	11	3200	6800
AUG											
30...	1440	15	330	8.0	30.1	2.4	6.8	92	<10	3100	480

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT										
26...	140	35	14	19	.7	4.1	133	<1.0	14	28
FEB										
18...	--	--	--	--	--	--	120	--	--	--
MAY										
10...	120	31	11	16	.6	4.2	110	<1.0	19	23
AUG										
30...	140	33	13	20	.7	3.2	120	--	12	24

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT										
26...	.19	31	225	8.55	5	1.77	.031	1.80	.110	.30
FEB										
18...	--	--	--	--	10	.979	.021	1.00	.240	.38
MAY										
10...	.10	26	197	10.7	11	2.39	.110	2.50	.540	--
AUG										
30...	<.10	33	210	8.70	<1	2.36	.040	2.40	.060	--

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (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										
26...	.41	2.2	9.8	.260	<1	<100	30	<1	4	<10
FEB										
18...	.62	1.6	7.2	.200	--	--	--	--	--	--
MAY										
10...	E.86	--	--	E.290	<1	40	50	<1	<1	<10
AUG										
30...	<.20	--	--	.230	--	--	--	--	--	--

50038320 RIO CIBUCO BELOW COROZAL, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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										
26...	210	<1	52	<.10	<1	<1	30	<.010	<4	<.02
FEB										
18...	--	--	--	--	--	--	--	--	--	--
MAY										
10...	240	<1	29	<.10	<1	<1	<40	<.010	<4	.02
AUG										
30...	--	--	--	--	--	--	--	--	--	--

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 mi^2 (256.7 km^2), of which 25.4 mi^2 (65.8 km^2), 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 mean sea level.

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

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 ft^3/s (793 m^3/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	560	1550	202	96	51	42	42	231	42	147	260
2	111	671	2370	186	257	54	42	37	243	612	112	135
3	85	426	3340	181	123	54	46	32	101	258	93	429
4	80	266	2470	171	98	48	113	32	103	134	78	222
5	92	211	1410	173	90	47	51	31	152	435	93	182
6	81	176	800	215	81	47	44	98	79	333	88	116
7	133	152	541	170	76	46	40	168	111	145	135	118
8	341	173	457	152	72	46	55	348	275	192	101	351
9	376	147	419	146	69	65	54	434	600	414	51	336
10	233	400	370	146	66	96	44	92	541	270	58	139
11	129	511	387	170	66	57	39	60	335	188	57	125
12	100	849	348	135	65	170	37	49	146	295	55	152
13	93	1930	325	126	72	82	37	43	98	167	41	85
14	182	655	287	119	66	62	37	38	69	265	41	83
15	89	435	260	125	78	56	36	35	72	331	41	76
16	70	328	248	175	86	56	34	33	165	270	54	93
17	66	268	232	118	67	55	32	33	320	308	44	66
18	59	230	215	108	60	56	32	35	271	316	50	60
19	e54	213	203	101	61	53	32	34	138	185	37	177
20	182	198	291	101	59	55	32	34	186	163	36	e835
21	121	216	295	95	57	50	30	34	105	164	85	728
22	118	185	227	94	54	46	30	32	105	134	102	216
23	119	337	359	99	54	69	32	34	94	127	226	173
24	78	373	369	109	53	156	33	34	55	117	161	e150
25	64	255	287	96	52	61	31	35	45	94	64	e140
26	172	198	318	96	52	52	31	36	42	98	e243	e200
27	740	182	273	114	51	47	74	41	41	94	e376	e230
28	1870	199	243	278	51	45	170	126	46	107	e74	e200
29	1900	213	391	145	---	44	80	120	43	100	e64	e160
30	1540	318	259	103	---	42	48	127	54	316	e88	e150
31	551	---	223	90	---	46	---	215	---	614	e221	---
TOTAL	10022	11275	19767	4339	2132	1914	1438	2542	4866	7288	3116	6387
MEAN	323	376	638	140	76.1	61.7	47.9	82.0	162	235	101	213
MAX	1900	1930	3340	278	257	170	170	434	600	614	376	835
MIN	54	147	203	90	51	42	30	31	41	42	36	60
AC-FT	19880	22360	39210	8610	4230	3800	2850	5040	9650	14460	6180	12670
CFSM	3.26	3.79	6.43	1.41	.77	.62	.48	.83	1.64	2.37	1.01	2.15
IN.	3.76	4.23	7.42	1.63	.80	.72	.54	.95	1.83	2.74	1.17	2.40

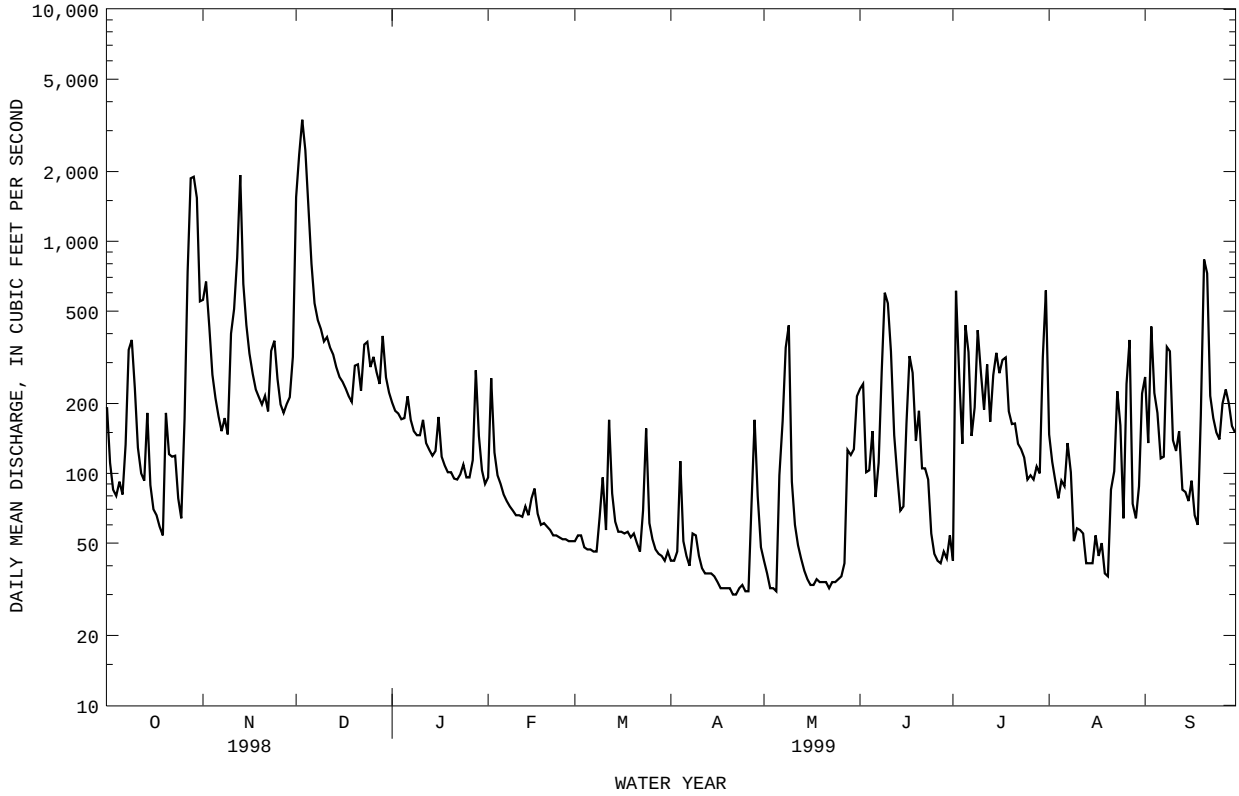
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1999, BY WATER YEAR (WY)

MEAN	158	195	184	102	88.4	80.8	144	183	73.8	58.0	78.5	147
MAX	559	523	1316	339	190	339	667	655	239	235	461	690
(WY)	1986	1980	1982	1997	1988	1990	1987	1985	1987	1999	1979	1996
MIN	45.9	28.3	12.9	30.2	27.2	20.5	16.2	24.7	12.5	14.0	21.2	26.7
(WY)	1974	1998	1998	1995	1994	1994	1984	1977	1994	1994	1978	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1973 - 1999	
ANNUAL TOTAL	64937		75086			
ANNUAL MEAN	178		206		123	
HIGHEST ANNUAL MEAN					236	1982
LOWEST ANNUAL MEAN					38.5	1994
HIGHEST DAILY MEAN	3560	Sep 22	3340	Dec 3	14600	Dec 13 1981
LOWEST DAILY MEAN	13	Mar 26	30	Apr 21	7.2	May 3 1995
ANNUAL SEVEN-DAY MINIMUM	16	Jan 28	31	Apr 20	8.1	Apr 28 1995
INSTANTANEOUS PEAK FLOW			4500	Dec 3	34000	Apr 12 1987
INSTANTANEOUS PEAK STAGE			15.99	Dec 3	19.10	Apr 12 1987
INSTANTANEOUS LOW FLOW			28	Apr 21	7.2	May 2 1995
ANNUAL RUNOFF (AC-FT)	128800		148900		89110	
ANNUAL RUNOFF (CFSM)	1.80		2.08		1.24	
ANNUAL RUNOFF (INCHES)	24.38		28.19		16.86	
10 PERCENT EXCEEDS	371		376		230	
50 PERCENT EXCEEDS	47		111		58	
90 PERCENT EXCEEDS	21		41		22	

e Estimated

50039500 RIO CIBUCO AT VEGA BAJA, PR--Continued



RIO CIBUCO BASIN

50039500 RIO CIBUCO AT VEGA BAJA, PR.

WATER-QUALITY RECORDS

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
04...	0915	268	438	7.8	25.5	30	6.5	82	<10	6000	890
MAR											
08...	0950	45	436	7.8	24.5	3.2	6.7	80	<10	380	K210
MAY											
11...	1000	53	420	7.8	26.0	20	6.3	78	<10	600	710
AUG											
30...	1040	87	425	8.0	26.5	10	6.9	86	<10	3200	2200

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
04...	180	57	8.9	13	.4	4.3	170	<1.0	18	22
MAR										
08...	--	--	--	--	--	--	170	--	--	--
MAY										
11...	170	54	9.0	14	.5	4.1	150	<1.0	20	21
AUG										
30...	190	62	8.9	16	.5	3.5	200	--	16	23

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
04...	.10	19	245	177	59	--	<.010	1.60	.040	.26
MAR										
08...	--	--	--	--	2	1.59	.014	1.60	.040	--
MAY										
11...	.12	17	229	32.8	26	1.67	.030	1.70	.090	--
AUG										
30...	<.10	20	255	59.9	<1	1.38	.020	1.40	.050	.28

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
04...	.30	1.9	8.4	.110	1	<100	30	<1	3	<10
MAR										
08...	<.20	--	--	E.120	--	--	--	--	--	--
MAY										
11...	E.40	--	--	E.140	<1	60	40	<1	2	<10
AUG										
30...	.33	1.7	7.7	.130	--	--	--	--	--	--

50039500 RIO CIBUCO AT VEGA BAJA, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
04...	1800	1	120	<.10	<1	<1	10	<.010	<4	<.02
MAR										
08...	--	--	--	--	--	--	--	--	--	--
MAY										
11...	800	<1	61	<.10	<1	<1	<40	<.010	<4	.03
AUG										
30...	--	--	--	--	--	--	--	--	--	--

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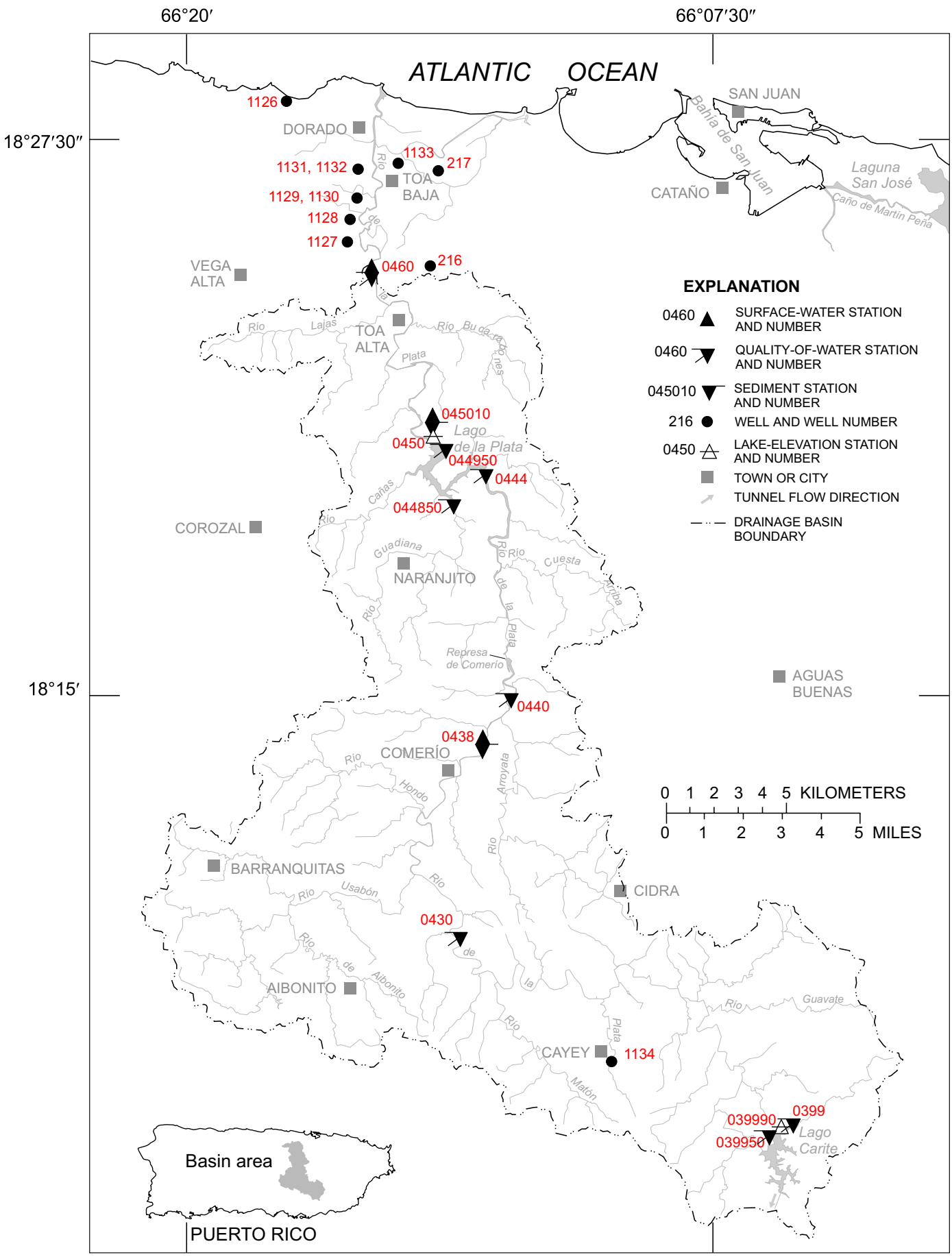


Figure 16. Río de la Plata basin.

50039990 LAGO CARITE AT GATE TOWER NEAR CAYEY, PR

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 Hidroelectrica de Carite Num. 1 and 1.8 mi (2.9 km) northeast from Escuela Segunda Unidad.

DRAINAGE AREA.--8.20 mi^2 (21.24 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--May 1989 to current year. Prior to October 1994, published as Lago Carite at Gate Tower.

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^3). 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 1,789.62 ft (545.48 m), Sep. 21, 1998; minimum elevation,1,761.22 ft (536.81 m), May 28, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum elevation 1,783.66 ft (543.66 m), Dec. 29; minimum elevation, 1,770.43 ft (539.63 m), Sep. 13.

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	1,790	11,048

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	A	1781.63	1781.69	1781.70	1781.52	1781.10	1779.78	1777.68	1774.61	1772.87	1773.19	1771.25
2	A	A	1781.78	1781.64	1781.48	1781.05	1779.77	1777.59	1774.49	1773.47	1773.11	1771.18
3	A	1781.55	1782.56	1781.63	1781.46	1780.96	1779.78	1777.50	1774.38	1773.37	1773.01	1771.10
4	A	1781.51	1782.06	1781.59	1781.46	1780.99	1779.68	1777.41	1774.30	1773.31	1772.95	1771.00
5	A	1781.56	1782.02	1781.58	1781.45	1780.95	1779.66	1777.31	1774.22	A	1772.88	1770.90
6	1781.51	1781.58	1781.81	1781.54	1781.45	1780.90	1779.52	1777.21	1774.12	A	1772.82	1770.81
7	1781.48	1781.55	1781.74	1781.53	1781.49	1780.86	1779.51	1777.12	1774.01	A	1772.78	1770.72
8	1781.47	1781.53	1781.65	1781.51	1781.44	1780.83	1779.44	1777.10	1774.22	A	1772.74	1770.66
9	1781.48	1781.51	1781.63	1781.54	1781.45	1780.78	1779.41	1777.00	1774.13	A	1772.68	1770.70
10	1781.46	1781.54	1781.60	1781.64	1781.42	1780.71	1779.35	1776.90	1774.08	A	1772.63	1770.62
11	1781.42	1781.60	1781.62	1781.60	1781.38	1780.70	1779.30	1776.82	1773.97	A	1772.57	1770.55
12	1781.44	1781.71	1781.59	1781.55	1781.47	1780.66	1779.22	1776.72	1773.88	A	1772.46	1770.45
13	1781.45	1781.94	1781.55	1781.53	1781.48	1780.59	1779.19	1776.64	1773.78	A	1772.38	1774.26
14	1781.42	1781.74	1781.57	1781.51	1781.44	1780.52	1779.10	1776.52	1773.72	A	1772.27	1775.45
15	1781.43	1781.62	1781.55	1781.63	1781.46	1780.56	1779.04	1776.43	1773.61	A	1772.19	1775.52
16	1781.39	1781.61	1781.53	1781.67	1781.40	1780.49	1778.99	1776.33	1773.54	A	1772.11	1775.55
17	1781.38	1781.60	1781.48	1781.61	1781.35	1780.43	1778.91	1776.22	1773.70	A	1772.01	1775.54
18	1781.33	1781.58	1781.52	1781.56	1781.35	1780.37	1778.86	1776.12	1773.60	A	1771.90	1775.62
19	1781.40	1781.54	1781.50	1781.53	1781.34	1780.30	1778.79	1776.01	1773.64	A	1771.91	1776.39
20	1781.75	1781.54	1781.50	1781.53	1781.27	1780.29	1778.76	1775.92	1773.93	A	1771.84	1776.43
21	1781.71	1781.55	1781.49	1781.55	1781.29	1780.24	1778.67	1775.80	1773.86	1774.02	1771.77	1776.44
22	1783.07	1781.50	1781.49	1781.56	1781.30	1780.17	1778.55	1775.69	1773.79	1773.95	1771.92	1776.35
23	1782.35	1781.50	1781.49	1781.59	1781.24	1780.07	1778.47	1775.60	1773.70	1773.90	1771.87	1776.32
24	1781.92	1781.50	1781.48	1781.53	1781.18	1780.18	1778.38	1775.50	1773.59	1773.84	1771.84	1776.32
25	1781.75	1781.47	1781.48	1781.53	1781.17	1780.23	1778.29	1775.39	1773.51	1773.77	1771.78	1776.29
26	1781.65	1781.46	1781.47	1781.52	1781.11	1780.11	1778.19	1775.29	1773.40	1773.69	1771.70	1776.27
27	1781.94	1781.46	1781.49	1781.50	1781.16	1780.07	1778.10	1775.17	1773.27	1773.61	1771.63	1776.47
28	1781.75	1781.49	1783.54	1781.51	1781.09	1780.02	1777.99	1775.06	1773.17	1773.52	1771.56	1777.65
29	1781.65	1781.49	1782.32	1781.48	---	1779.91	1777.88	1774.94	1773.07	1773.43	1771.48	1777.92
30	1781.62	1781.48	1781.95	1781.43	---	1779.92	1777.79	1774.83	1772.96	1773.36	1771.39	1777.95
31	1781.61	---	1781.80	1781.46	---	1779.89	---	1774.73	---	1773.29	1771.34	---
MAX	---	---	1783.54	1781.70	1781.52	1781.10	1779.78	1777.68	1774.61	---	1773.19	1777.95
MIN	---	---	1781.47	1781.43	1781.09	1779.89	1777.79	1774.73	1772.96	---	1771.34	1770.45

A No gage-height record

50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR.

WATER-QUALITY RECORDS

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
03...	1100	117	316	8.1	26.0	19	7.7	97	<10	2200	K82
MAR											
08...	1430	34	443	8.2	26.0	2.0	8.7	110	<10	K50	920
MAY											
12...	1055	15	417	8.2	27.0	10	10.7	139	11	K1200	K90
SEP											
02...	1100	15	476	8.5	29.0	5.3	8.5	115	<10	K180	K150

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
03...	110	28	11	19	.8	1.9	110	<1.0	11	22
MAR										
08...	--	--	--	--	--	--	150	--	--	--
MAY										
12...	140	35	14	32	1	2.4	140	<1.0	18	35
SEP										
02...	150	36	15	40	1	3.3	150	--	21	46

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
03...	<.10	22	181	57.4	19	1.30	.098	1.40	.020	.21
MAR										
08...	--	--	--	--	<1	1.87	.029	1.90	.040	--
MAY										
12...	.15	22	242	10.1	8	2.26	.040	2.30	.050	--
SEP										
02...	.13	24	276	11.5	8	2.17	.030	2.20	.060	.47

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
03...	.23	1.6	7.2	.060	<1	<100	30	<1	<1	<10
MAR										
08...	E.26	--	--	<.020	--	--	--	--	--	--
MAY										
12...	E.46	--	--	E.150	<1	30	80	<1	<1	18
SEP										
02...	.53	2.7	12	.100	--	--	--	--	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
03...	710	<1	23	<.10	<1	<1	<10	<.010	<4	.02
MAR										
08...	--	--	--	--	--	--	--	--	--	--
MAY										
12...	170	<1	18	<.10	<1	<1	<40	<.010	<4	<.02
SEP										
02...	--	--	--	--	--	--	--	--	--	--

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) northeast of Plaza de Comerío.

DRAINAGE AREA.--109 mi^2 (282 km^2).

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 except those for estimated daily discharges, which are poor. Filtration plant more or less 1,000 feet upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	218	243	1060	236	95	55	41	36	52	24	32	44
2	164	e200	2020	187	120	126	40	32	46	534	31	49
3	152	173	1450	182	93	93	125	30	65	207	35	60
4	138	144	1580	156	88	54	148	31	36	59	36	129
5	123	127	615	145	88	48	57	31	54	122	41	63
6	113	121	555	145	83	46	44	38	27	45	41	115
7	113	120	446	128	80	43	40	50	24	28	41	135
8	108	116	271	123	77	40	39	107	209	34	48	161
9	100	110	220	119	76	44	39	113	385	454	43	154
10	95	142	199	128	77	47	43	87	196	228	35	122
11	90	147	198	158	79	42	54	67	101	86	43	88
12	97	648	178	134	78	44	41	51	78	73	40	79
13	91	1220	159	121	85	50	39	44	50	63	29	1370
14	88	557	144	114	77	40	37	38	32	244	27	1600
15	90	307	135	181	75	37	36	35	27	416	28	332
16	79	199	131	199	81	36	35	32	28	171	26	134
17	77	167	138	173	73	39	35	30	146	84	27	92
18	74	149	124	137	67	38	34	30	155	129	29	79
19	74	132	119	124	64	37	32	32	41	69	26	1030
20	173	149	148	120	63	41	35	35	30	54	32	660
21	223	130	140	115	61	39	35	33	55	48	36	165
22	2150	113	124	111	58	37	34	31	35	39	224	e92
23	1280	111	118	108	58	40	33	30	25	36	458	e74
24	475	211	116	110	55	49	35	28	21	34	115	e91
25	255	130	112	108	56	58	90	30	18	33	66	e120
26	e245	105	109	111	54	50	87	28	17	33	55	e90
27	e1170	95	107	106	50	44	54	32	17	33	51	e300
28	995	98	107	204	48	41	67	42	19	31	42	e1400
29	548	114	2510	120	---	40	46	27	24	29	42	565
30	320	148	535	97	---	47	42	50	25	40	47	96
31	523	---	313	90	---	45	---	27	---	39	45	---
TOTAL	10441	6426	14181	4290	2059	1490	1517	1307	2038	3519	1871	9489
MEAN	337	214	457	138	73.5	48.1	50.6	42.2	67.9	114	60.4	316
MAX	2150	1220	2510	236	120	126	148	113	385	534	458	1600
MIN	74	95	107	90	48	36	32	27	17	24	26	44
MED	138	143	159	124	76	44	40	32	36	54	41	121
AC-FT	20710	12750	28130	8510	4080	2960	3010	2590	4040	6980	3710	18820
CFSM	3.10	1.97	4.22	1.28	.68	.44	.47	.39	.63	1.05	.56	2.92
IN.	3.58	2.20	4.86	1.47	.71	.51	.52	.45	.70	1.21	.64	3.25

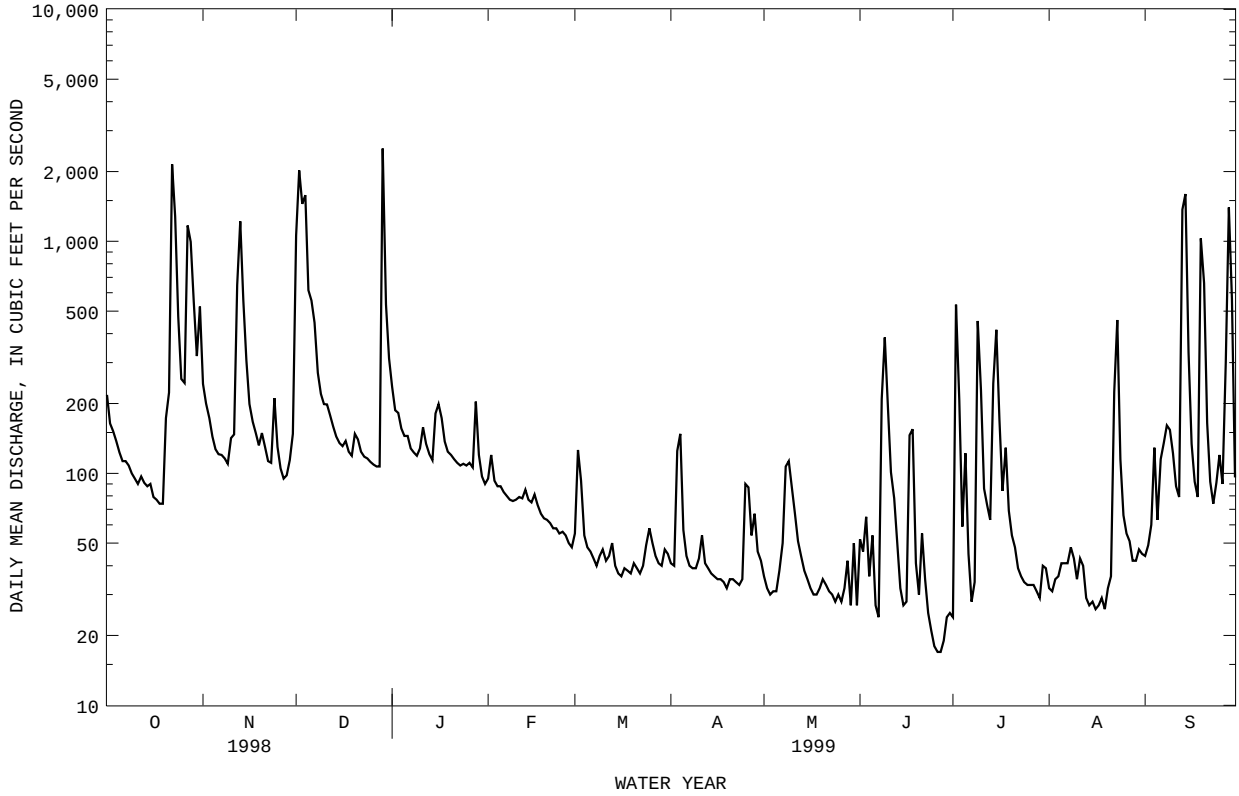
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)

MEAN	231	114	93.1	136	97.7	44.1	53.4	85.9	72.5	91.7	92.8	461
MAX	866	214	457	732	268	75.7	162	263	213	291	277	1433
(WY)	1991	1999	1999	1992	1998	1989	1993	1992	1996	1993	1998	1996
MIN	40.6	19.0	17.1	21.3	24.4	20.6	22.3	19.7	13.2	10.4	12.7	26.2
(WY)	1992	1995	1995	1995	1990	1993	1991	1994	1994	1994	1994	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1989 - 1999	
ANNUAL TOTAL	96625		58628			
ANNUAL MEAN	265		161		130	
HIGHEST ANNUAL MEAN					239	1996
LOWEST ANNUAL MEAN					35.3	1994
HIGHEST DAILY MEAN	26900	Sep 22	2510	Dec 29	32400	Sep 10 1996
LOWEST DAILY MEAN	11	Aug 4	17	Jun 26	5.8	Jun 25 1994
ANNUAL SEVEN-DAY MINIMUM	12	Jul 31	20	Jun 23	7.3	Jul 31 1994
INSTANTANEOUS PEAK FLOW			6510	Dec 29	127000	Jan 5 1992
INSTANTANEOUS PEAK STAGE			9.50	Dec 29	29.22	Jan 5 1992
ANNUAL RUNOFF (AC-FT)	191700		116300		93920	
ANNUAL RUNOFF (CFSM)	2.44		1.48		1.19	
ANNUAL RUNOFF (INCHES)	33.13		20.10		16.23	
10 PERCENT EXCEEDS	401		261		179	
50 PERCENT EXCEEDS	60		79		39	
90 PERCENT EXCEEDS	18		31		15	

e Estimated

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



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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1989 to current year.

INSTRUMENTATION.-- USD-77 sediment sampler since 1989. Automatic sediment sampler since 1989.

REMARKS.--Sediment samples were collected by a local observer on a week basis. During high flow events sediment samples were collected by local observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 8,800 mg/L Jan. 05, 1992; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 950,000 tons (862,000 tonnes) Jan. 05, 1992; Minimum daily mean, 0.04 tons (0.04 tonne) November 28, 1994.

EXTREMES FOR WATER YEARS 1999.--
SEDIMENT CONCENTRATION: Maximun daily mean, 1,360 mg/L December 29, 1998; Minimun daily mean, 3 mg/L several days.

SEDIMENT LOADS: Maximun daily mean, 12,000 tons (10,900 tonnes) December 29, 1998; Minimun daily mean, 0.33 tons (0.30 tonns) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	218	100	61	243	95	67	1060	459	2440
2	164	35	16	e200	e200	e28	2020	898	5200
3	152	12	5.1	173	20	9.8	1450	519	2460
4	138	5	2.0	144	9	3.4	1580	749	3860
5	123	5	1.5	127	7	2.5	615	148	256
6	113	4	1.3	121	7	2.4	555	139	260
7	113	4	1.3	120	8	2.6	446	232	293
8	108	6	1.8	116	9	2.8	271	141	104
9	100	9	2.4	110	10	3.0	220	115	69
10	95	12	3.0	142	10	3.8	199	99	53
11	90	12	2.9	147	26	13	198	90	48
12	97	12	3.0	648	261	850	178	82	39
13	91	11	2.8	1220	496	1790	159	76	33
14	88	11	2.7	557	259	423	144	73	29
15	90	11	2.6	307	127	107	135	70	26
16	79	11	2.3	199	70	38	131	67	24
17	77	11	2.2	167	42	19	138	64	24
18	74	10	2.1	149	36	14	124	62	21
19	74	10	2.0	132	32	11	119	59	19
20	173	64	43	149	69	28	148	58	23
21	223	119	77	130	28	9.8	140	58	22
22	2150	833	7660	113	22	6.7	124	57	19
23	1280	689	2870	111	21	6.4	118	57	18
24	475	202	271	211	33	20	116	57	18
25	255	103	72	130	26	9.1	112	57	17
26	e245	e133	e102	105	19	5.5	109	57	17
27	e1170	e564	e4230	95	15	3.9	107	56	16
28	995	645	2080	98	15	4.0	107	57	16
29	548	320	495	114	15	4.6	2510	1360	12000
30	320	178	160	148	15	6.0	535	303	448
31	523	146	287	---	---	---	313	170	147
TOTAL	10441	---	18465.0	6426	---	3494.3	14181	---	28019

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	236	115	74	95	41	10	55	5	.77
2	187	96	49	120	36	12	126	56	21
3	182	80	39	93	32	8.0	93	110	29
4	156	67	28	88	28	6.7	54	29	4.4
5	145	56	22	88	25	5.8	48	6	.72
6	145	47	18	83	22	4.9	46	4	.45
7	128	39	14	80	19	4.1	43	3	.39
8	123	33	11	77	17	3.5	40	3	.33
9	119	25	8.1	76	15	3.0	44	3	.41
10	128	17	6.0	77	13	2.7	47	4	.50
11	158	12	5.2	79	11	2.4	42	5	.55
12	134	8	3.1	78	10	2.1	44	6	.69
13	121	6	2.0	85	9	2.0	50	7	.91
14	114	6	1.9	77	8	1.6	40	8	.82
15	181	66	42	75	7	1.4	37	9	.88
16	199	42	24	81	6	1.3	36	9	.88
17	173	42	19	73	5	1.0	39	9	.94
18	137	65	24	67	5	.84	38	8	.79
19	124	89	30	64	4	.71	37	6	.63
20	120	84	27	63	4	.68	41	5	.60
21	115	78	24	61	4	.65	39	5	.50
22	111	72	22	58	4	.62	37	4	.42
23	108	67	20	58	3	.54	40	5	.55
24	110	62	19	55	3	.46	49	7	.95
25	108	58	17	56	3	.48	58	16	2.4
26	111	54	16	54	3	.49	50	35	4.7
27	106	50	14	50	4	.48	44	40	4.8
28	204	99	58	48	4	.48	41	39	4.3
29	120	62	20	---	---	---	40	39	4.2
30	97	47	12	---	---	---	47	42	5.4
31	90	44	11	---	---	---	45	47	5.6
TOTAL	4290	---	680.3	2059	---	78.93	1490	---	99.48

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	41	43	4.7	36	25	2.4	52	53	12
2	40	37	4.1	32	14	1.2	46	89	11
3	125	67	43	30	9	.74	65	83	15
4	148	85	41	31	11	.91	36	70	7.0
5	57	24	3.8	31	14	1.2	54	38	6.7
6	44	17	2.0	38	11	1.1	27	13	.96
7	40	13	1.4	50	8	1.1	24	10	.61
8	39	10	1.0	107	49	21	209	96	156
9	39	7	.77	113	57	19	385	213	333
10	43	6	.73	87	26	6.6	196	118	73
11	54	6	.82	67	11	1.9	101	71	20
12	41	5	.58	51	8	1.2	78	54	12
13	39	6	.65	44	8	.94	50	38	5.2
14	37	8	.77	38	8	.81	32	28	2.4
15	36	8	.73	35	8	.72	27	22	1.6
16	35	7	.67	32	7	.64	28	18	1.3
17	35	7	.63	30	7	.57	146	71	87
18	34	6	.58	30	8	.65	155	92	55
19	32	6	.53	32	10	.84	41	22	2.5
20	35	6	.60	35	14	1.3	30	13	1.1
21	35	7	.66	33	20	1.8	55	29	4.5
22	34	9	.79	31	19	1.6	35	18	1.7
23	33	11	.95	30	17	1.4	25	11	.75
24	35	11	1.0	28	15	1.2	21	11	.62
25	90	46	30	30	14	1.1	18	11	.54
26	87	20	6.3	28	12	.95	17	11	.50
27	54	19	3.7	32	15	1.6	17	11	.51
28	67	52	9.4	42	28	3.3	19	11	.55
29	46	46	5.8	27	14	1.2	24	11	.70
30	42	40	4.6	50	29	4.2	25	11	.75
31	---	---	---	27	25	1.8	---	---	---
TOTAL	1517	---	172.26	1307	---	84.97	2038	---	814.49

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	24	11	.70	32	14	1.2	44	30	3.6
2	534	245	793	31	14	1.2	49	30	3.9
3	207	124	91	35	14	1.3	60	30	4.9
4	59	30	4.9	36	14	1.3	129	70	58
5	122	100	112	41	14	1.5	63	30	5.2
6	45	21	2.8	41	13	1.5	115	54	64
7	28	11	.81	41	13	1.5	135	78	39
8	34	15	1.6	48	13	1.7	161	78	109
9	454	480	1660	43	13	1.5	154	100	57
10	228	152	123	35	12	1.1	122	74	31
11	86	46	11	43	11	1.3	88	41	11
12	73	46	9.1	40	12	1.3	79	41	9.1
13	63	32	5.5	29	14	1.1	1370	681	4770
14	244	302	434	27	17	1.3	1600	774	3900
15	416	211	270	28	21	1.6	332	181	181
16	171	95	49	26	26	1.8	134	77	28
17	84	41	9.3	27	28	2.0	92	55	14
18	129	60	22	29	29	2.2	79	39	8.4
19	69	33	6.3	26	29	2.1	1030	519	3290
20	54	22	3.2	32	29	2.5	660	156	516
21	48	15	1.9	36	30	2.9	165	22	9.7
22	39	13	1.4	224	115	402	e92	e55	e14
23	36	14	1.4	458	236	496	e74	e34	e8.4
24	34	14	1.3	115	30	9.1	e91	e55	e14
25	33	15	1.3	66	34	6.0	e120	e70	e55
26	33	15	1.3	55	32	4.8	e90	e55	e14
27	33	15	1.3	51	30	4.0	e300	e180	e180
28	31	15	1.2	42	29	3.3	e1400	e681	e4760
29	29	15	1.1	42	29	3.3	565	280	552
30	40	14	1.6	47	29	3.7	96	49	14
31	39	14	1.5	45	29	3.6	---	---	---
TOTAL	3519	---	3624.51	1871	---	969.7	9489	---	18724.2
YEAR	58628		75227.14						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
28...	0900	1090	468	1380	99
NOV					
14...	0705	618	291	486	96
MAR					
03...	1745	67	98	18	96
MAY					
26...	1340	28	257	19	97
JUL					
02...	1520	1040	883	2480	95

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
OCT							
22...	1430	3970	1580	17000	56	66	80
JUL							
09...	1740	1720	2540	11800	42	50	60

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
OCT							
22...	90	97	99	100	100	100	100
JUL							
09...	68	77	82	93	98	100	100

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 mi^2 (360 km^2), excludes 8.2 mi^2 (21.1 km^2) 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 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
17...	1415	229	350	8.1	27.0	6.9	7.5	96	<10	5500	470
MAR											
04...	1215	83	333	8.3	25.5	17	8.7	108	<10	K820	K40
MAY											
12...	1605	54	385	8.1	26.5	10	8.0	103	<10	2700	750
SEP											
01...	1130	44	399	8.5	29.7	6.5	8.3	113	<10	310	K50

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
17...	130	31	14	30	1	3.1	120	<1.0	13	32
MAR										
04...	--	--	--	--	--	--	130	--	--	--
MAY										
12...	160	35	17	22	.8	2.0	140	<1.0	15	26
SEP										
01...	140	33	15	26	1	3.2	140	--	15	29

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
17...	<.10	25	219	136	9	--	<.010	1.50	.030	.22
MAR										
04...	--	--	--	--	7	1.38	.016	1.40	.060	.20
MAY										
12...	.14	32	231	33.6	6	--	<.010	.630	.030	--
SEP										
01...	.12	28	233	27.8	13	.990	.010	1.00	.040	.35

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
17...	.25	1.8	7.7	.110	<1	<100	50	<1	1	<10
MAR										
04...	.26	1.7	7.3	.100	--	--	--	--	--	--
MAY										
12...	<.20	--	--	E.070	<1	20	40	<1	<1	<10
SEP										
01...	.39	1.4	6.2	.090	--	--	--	--	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
17...	390	<1	10	<.10	<1	<1	<10	<.010	<4	.02
MAR										
04...	--	--	--	--	--	--	--	--	--	--
MAY										
12...	110	<1	18	<.10	<1	<1	<40	<.010	<4	<.02
SEP										
01...	--	--	--	--	--	--	--	--	--	--

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 mi^2 (10.3 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
09...	0930	20	366	7.9	25.5	.67	7.6	92	<10	K6400	750
FEB											
25...	1505	10	361	8.3	25.5	1.8	7.8	95	<10	K9000	K160
MAY											
11...	1320	5.3	386	8.0	26.0	10	6.2	78	<10	560	470
AUG											
31...	1400	15	345	8.3	29.5	15	7.0	92	<10	3600	3200

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
09...	140	33	15	16	.6	2.8	120	<1.0	22	24
FEB										
25...	--	--	--	--	--	--	130	--	--	--
MAY										
11...	150	34	15	18	.6	2.5	130	<1.0	21	25
AUG										
31...	140	32	15	17	.6	2.5	120	--	17	22

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
09...	.15	24	209	11.2	<1	--	<.010	1.70	.060	.33
FEB										
25...	--	--	--	--	5	1.68	.017	1.70	.050	.28
MAY										
11...	.12	25	219	3.12	30	1.88	.020	1.90	.030	--
AUG										
31...	.10	27	204	8.26	31	1.69	.010	1.70	.040	.36

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
09...	.39	2.1	9.3	.100	1	<100	30	<1	<1	<10
FEB										
25...	.33	2.0	9.0	.290	--	--	--	--	--	--
MAY										
11...	<.20	--	--	E.210	1	50	40	<1	<1	<10
AUG										
31...	.40	2.1	9.3	.230	--	--	--	--	--	--

50044850 RIO GUADIANA NEAR NARANJITO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
09...	80	<1	44	<.10	<1	<1	<10	<.010	<4	<.02
FEB										
25...	--	--	--	--	--	--	--	--	--	--
MAY										
11...	150	<1	47	<.10	<1	<1	<40	<.010	<4	<.02
AUG										
31...	--	--	--	--	--	--	--	--	--	--

50045000 LAGO LA PLATA AT DAMSITE NEAR TOA ALTA, 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 Corozal.

DRAINAGE AREA.--181 mi^2 (469 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--February 1989 to current year. Prior to October 1994, published as Lago La Plata at Damsite.

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 hm^3) 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 crest 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. New capacity table based on U.S. Geological Survey Water-Resources Investigations Report 00-40-45, October 1998.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 170.90 ft (52.09 m), Sept. 10, 1996; minimum elevation, 107.95 ft (32.90 m), Feb. 21, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 168.11 ft (51.24 m), Nov. 27; minimum elevation, 156.67 ft (47.75 m), May 29.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 00-4045,Puerto Rico-1998)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
82	0	144	12,915
105	1,873	164	24,021
125	5,943	171	28,748

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	164.80	164.76	165.51	165.93	165.63	165.93	163.47	161.04	A	162.34	163.03	163.29
2	164.12	A	165.64	165.60	165.73	166.11	163.34	160.80	A	164.64	162.97	163.25
3	164.51	165.90	165.56	165.74	165.91	166.23	163.85	160.56	A	163.86	162.88	163.22
4	164.79	166.02	165.48	165.71	165.59	166.19	164.37	160.31	A	163.86	162.75	163.83
5	165.00	165.75	165.47	165.81	165.49	166.13	164.33	160.11	A	163.99	162.65	163.87
6	164.14	165.94	165.47	165.72	165.56	166.03	164.22	160.17	A	164.00	162.54	164.10
7	164.85	165.76	165.43	166.03	165.63	165.95	164.11	160.07	A	163.87	162.42	164.37
8	164.14	165.99	165.79	165.59	165.66	165.86	163.99	160.53	160.26	163.53	162.30	163.94
9	164.29	165.76	165.56	165.88	165.69	166.06	163.88	160.79	162.21	163.87	162.18	164.24
10	164.39	166.03	165.82	165.43	165.73	166.04	163.88	160.79	163.47	164.43	162.02	164.42
11	164.44	165.98	165.95	165.79	165.77	165.98	163.90	160.71	163.77	163.88	161.90	164.33
12	164.52	165.85	165.82	165.74	165.91	165.91	163.78	160.63	163.96	164.07	161.77	164.42
13	164.58	165.75	165.75	165.57	166.04	165.83	163.64	160.45	164.00	164.25	161.59	163.95
14	164.61	165.80	165.45	165.81	166.08	165.69	163.49	160.25	163.98	164.10	161.40	164.02
15	164.65	165.78	165.96	165.55	166.13	165.55	163.32	160.02	163.90	163.90	161.28	163.95
16	164.65	165.83	165.73	165.94	166.20	165.39	163.15	159.78	164.09	164.32	161.14	164.06
17	164.63	166.02	165.44	165.50	166.21	165.24	162.97	A	164.69	163.93	160.96	164.15
18	164.59	165.98	165.85	165.80	166.23	165.10	162.92	159.29	164.42	164.42	160.76	164.16
19	164.70	165.88	165.48	165.94	166.23	164.94	162.75	159.06	163.90	163.82	160.57	164.67
20	164.92	165.77	165.72	165.58	166.20	164.78	162.57	158.81	163.95	163.84	160.45	163.89
21	165.54	165.81	165.89	165.78	166.16	164.62	162.38	158.56	163.99	163.84	160.34	164.07
22	164.84	166.03	165.63	165.96	166.14	164.46	162.20	158.34	163.93	163.78	160.76	164.24
23	165.57	165.95	165.74	165.46	166.10	164.49	162.00	158.08	163.80	163.82	163.53	164.29
24	165.29	165.80	165.66	165.68	166.06	164.38	161.82	157.82	163.64	163.75	163.86	164.42
25	165.13	165.99	166.06	165.88	166.02	164.30	161.69	157.56	163.45	163.64	163.84	164.42
26	164.78	165.89	165.68	165.55	165.97	164.20	161.83	157.28	163.25	163.52	163.73	163.93
27	165.81	165.82	165.71	165.47	165.91	164.07	161.68	A	163.07	163.38	163.60	163.85
28	164.81	165.91	166.11	165.67	165.85	163.94	161.62	A	162.89	163.24	163.44	164.01
29	164.68	165.84	165.47	165.99	---	163.80	161.45	A	162.72	163.19	163.37	163.86
30	164.73	165.71	165.47	165.44	---	163.72	161.26	156.99	162.54	163.10	163.24	164.27
31	164.70	---	165.48	165.54	---	163.62	---	A	---	163.01	163.39	---
MAX	165.81	---	166.11	166.03	166.23	166.23	164.37	---	---	164.64	163.86	164.67
MIN	164.12	---	165.43	165.43	165.49	163.62	161.26	---	---	162.34	160.34	163.22

A No gage-height record

50045010 RIO DE LA PLATA BELOW LA PLATA DAM

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 Corozal, 3.0 mi (4.8 km) northeast of Plaza de Naranjito.

DRAINAGE AREA.--173 mi^2 (448 km^2).

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.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e46	e241	3340	63	169	.70	.17	.07	.80	.16	1.3	1.5
2	e87	e95	5470	393	149	.70	.10	.04	.32	106	1.4	1.5
3	e40	e31	3760	129	.79	.67	.34	.04	.12	657	1.5	1.7
4	e9.9	e22	3660	242	141	.67	.25	.06	.08	39	1.3	2.6
5	e11	e30	e1720	111	101	.70	.22	.06	.06	1.9	1.2	1.8
6	e86	e9.6	e1230	244	.58	.80	.72	.32	.06	1.7	1.3	1.4
7	e11	e15	e1020	1.1	.57	.82	1.1	.29	.04	1.4	1.2	156
8	e78	e5.0	e332	278	.50	.74	.78	4.8	.45	206	1.1	229
9	e38	e51	e476	.55	.52	1.6	2.3	.36	.55	438	1.1	2.2
10	e5.5	e45	290	318	.48	.99	1.7	.09	1.0	167	1.1	2.4
11	e3.1	e71	322	56	.46	.90	.80	.06	.52	537	1.1	242
12	e2.5	e1360	347	118	.40	.96	.73	.08	.46	67	.85	2.1
13	e7.1	e1010	278	185	.43	.87	.75	.06	.29	11	.69	1430
14	e3.3	e207	347	.89	.49	1.2	.88	.44	.45	314	.63	1770
15	e1.9	77	3.8	383	.53	.77	.96	.32	.42	824	.66	429
16	e1.5	37	278	109	.59	.52	.37	.05	.62	164	1.1	89
17	e1.4	80	e262	362	.53	.51	.21	.04	.77	612	.66	2.6
18	e1.1	233	4.1	1.2	1.2	.46	.23	.04	350	2.7	.45	2.3
19	e1.4	168	304	8.5	.43	.49	.15	.05	184	295	.49	1680
20	e2.0	275	159	241	.54	.35	.43	.06	1.0	34	.22	1440
21	e6.3	199	183	.62	.64	.34	.83	.04	.82	1.3	.29	177
22	e1690	67	344	.55	.61	.26	.20	.04	.70	1.7	.23	5.6
23	e592	251	145	270	.67	.55	.24	.05	.72	1.8	1.1	4.4
24	e172	473	250	.82	.71	.35	.22	.03	.75	1.6	1.4	4.6
25	e63	127	4.9	.53	.65	11	.12	.07	.40	1.3	1.4	3.9
26	e309	193	377	184	.65	1.0	.12	.05	.33	1.1	2.0	398
27	e3240	136	143	119	.65	.35	.15	.04	.22	1.2	2.4	214
28	e1890	46	159	363	.60	.48	.10	.07	.20	1.3	1.5	239
29	e1950	266	3120	.73	---	.30	.13	.08	.30	2.0	1.2	791
30	e203	585	256	227	---	.29	.14	.05	.17	2.1	1.0	5.3
31	e140	---	110	9.3	---	.24	---	.53	---	1.6	1.7	---
TOTAL	10693.0	6405.6	28694.8	4419.79	574.22	30.58	15.44	8.38	546.62	4495.86	33.57	9329.9
MEAN	345	214	926	143	20.5	.99	.51	.27	18.2	145	1.08	311
MAX	3240	1360	5470	393	169	11	2.3	4.8	350	824	2.4	1770
MIN	1.1	5.0	3.8	.53	.40	.24	.10	.03	.04	.16	.22	1.4
AC-FT	21210	12710	56920	8770	1140	61	31	17	1080	8920	67	18510
CFSM	2.00	1.24	5.36	.83	.12	.01	.00	.00	.11	.84	.01	1.80
IN.	2.30	1.38	6.18	.95	.12	.01	.00	.00	.12	.97	.01	2.01

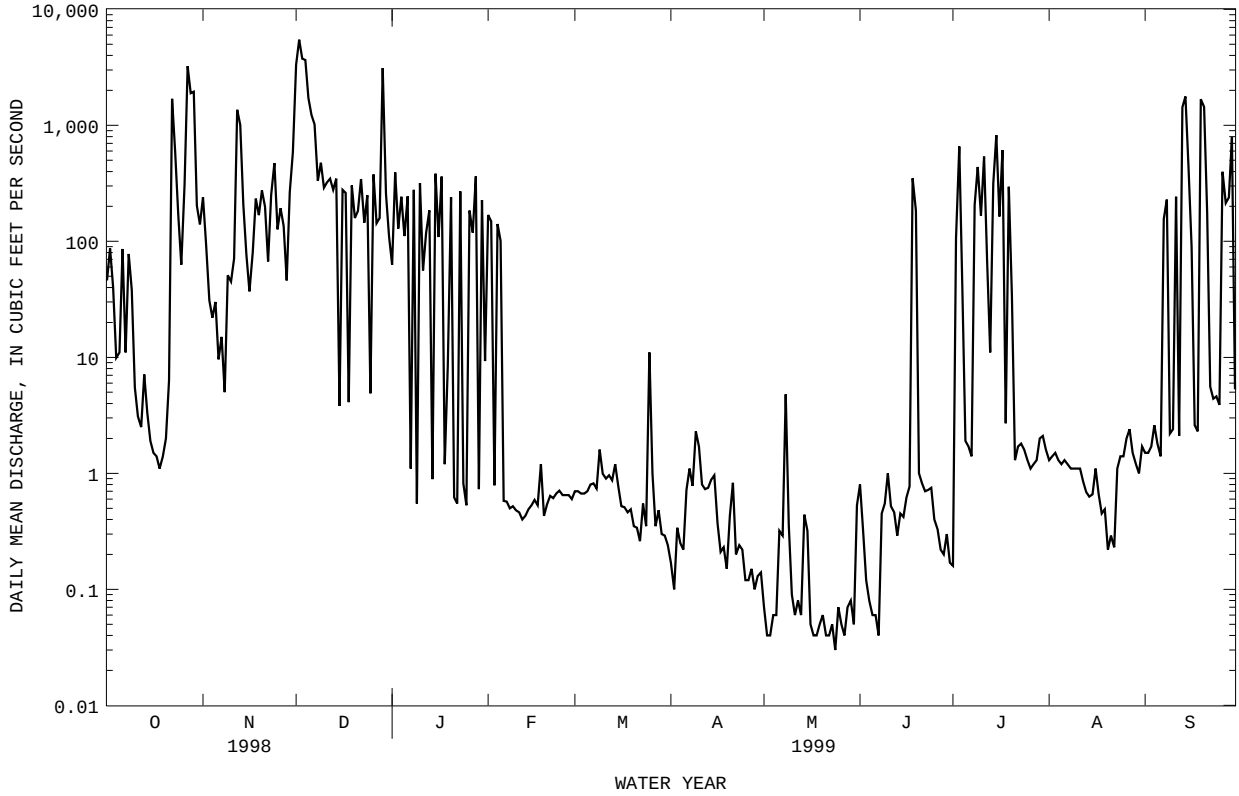
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)

MEAN	188	89.1	124	208	55.8	14.4	28.3	98.6	36.4	72.9	39.6	1046
MAX	1107	225	926	1581	241	83.2	231	494	220	384	166	8046
(WY)	1991	1993	1999	1992	1998	1990	1993	1993	1993	1993	1998	1996
MIN	.048	.004	.000	.19	.14	.022	.011	.000	.002	.037	.020	.001
(WY)	1992	1995	1995	1990	1995	1995	1995	1994	1994	1994	1989	1991

SUMMARY STATISTICS	FOR 1999 WATER YEAR		WATER YEARS 1989 - 1999	
ANNUAL TOTAL	65247.76			
ANNUAL MEAN	179		171	
HIGHEST ANNUAL MEAN			714	1996
LOWEST ANNUAL MEAN			8.62	1997
HIGHEST DAILY MEAN	5470	Dec 2	141000	Sep 10 1996
LOWEST DAILY MEAN	.03	May 24	.00	Jul 14 1989
ANNUAL SEVEN-DAY MINIMUM	.04	May 18	.00	Jul 14 1989
INSTANTANEOUS PEAK FLOW	18500	Dec 29	197000	Sep 10 1996
INSTANTANEOUS PEAK STAGE	16.84	Dec 29	42.26	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	129400		123600	
ANNUAL RUNOFF (CFSM)	1.03		.99	
ANNUAL RUNOFF (INCHES)	14.05		13.42	
10 PERCENT EXCEEDS	348		177	
50 PERCENT EXCEEDS	1.4		1.2	
90 PERCENT EXCEEDS	.15		.00	

e Estimated

50045010 RIO DE LA PLATA BELOW LA PLATA DAM--Continued



50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1989 to current year.

INSTRUMENTATION.-- Automatic sediment sampler since 1989.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 4,390 mg/L September 10, 1996; Minimum daily mean, <1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 1,810,000 tons (1,640,000 tonnes) September 10, 1996; Minimum daily mean, <0.01 ton (<0.01) several years.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1,430 tons (1,300 tonnes) December 2, 1998; Minimum daily mean, ton <0.01 (<0.01 tonnes) several days.

SEDIMENT LOADS: Maximum daily mean, 122 mg/L November 19, 1998; Minimum daily mean, 1 mg/L several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	e46	e16	e2.0	e241	e16	e10	3340	99	894
2	e87	e15	e3.6	e95	e16	e4.1	5470	97	1430
3	e40	e15	e1.6	e31	e16	e1.3	3760	94	948
4	e9.9	e14	e.38	e22	e16	e.95	3660	91	903
5	e11	e13	e.39	e30	e17	e1.4	e1720	e89	e411
6	e86	e13	e3.0	e9.6	e17	e.43	e1230	e87	e287
7	e11	e12	e.36	e15	e17	e.70	e1020	e84	e233
8	e78	e11	e2.4	e5.0	e17	e.23	e332	e82	e77
9	e38	e11	e1.1	e51	e18	e2.5	e476	e85	e120
10	e5.5	e11	e.17	e45	e18	e2.1	290	89	74
11	e3.1	e11	e.10	e71	e18	e3.5	322	84	84
12	e2.5	e12	e.08	e1360	e18	e69	347	85	90
13	e7.1	e12	e.23	e1010	e19	e49	278	84	71
14	e3.3	e12	e.11	e207	e19	e10	347	74	82
15	e1.9	e12	e.06	77	17	3.5	3.8	73	.75
16	e1.5	e12	e.05	37	14	1.4	278	76	65
17	e1.4	e13	e.05	80	16	4.2	e262	e71	e60
18	e1.1	e13	e.04	233	81	80	4.1	73	.80
19	e1.4	e13	e.05	168	122	63	304	62	63
20	e2.0	e13	e.07	275	118	99	159	68	33
21	e6.3	e13	e.23	199	114	66	183	68	36
22	e1690	e13	e62	67	112	23	344	64	70
23	e592	e14	e21	251	115	88	145	61	32
24	e172	e14	e6.4	473	117	164	250	62	48
25	e63	e14	e2.4	127	109	40	4.9	40	.54
26	e309	e14	e12	193	113	64	377	56	66
27	e3240	e14	e128	136	86	29	143	49	27
28	e1890	e15	e74	46	80	9.8	159	52	26
29	e1950	e15	e79	266	95	83	3120	47	469
30	e203	e15	e8.3	585	109	171	256	30	21
31	e140	e15	e5.8	---	---	---	110	56	16
TOTAL	10693.0	---	414.97	6405.6	---	1144.11	28694.8	---	6738.09

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	63	54	9.3	169	15	17	.70	4	.01
2	393	61	71	149	18	8.2	.70	4	.01
3	129	56	25	.79	14	.03	.67	4	.01
4	242	58	40	141	14	14	.67	3	.01
5	111	44	15	101	17	5.9	.70	3	.01
6	244	46	30	.58	12	.02	.80	3	.01
7	1.1	41	.12	.57	10	.01	.82	3	.01
8	278	40	31	.50	10	.01	.74	2	<.01
9	.55	37	.05	.52	10	.01	1.6	2	.01
10	318	35	31	.48	10	.01	.99	2	.01
11	56	34	5.1	.46	10	.01	.90	2	<.01
12	118	32	11	.40	10	.01	.96	2	<.01
13	185	30	16	.43	10	.01	.87	2	<.01
14	.89	26	.06	.49	10	.01	1.2	2	<.01
15	383	23	24	.53	10	.01	.77	2	<.01
16	109	22	6.1	.59	10	.02	.52	2	<.01
17	362	18	17	.53	10	.01	.51	1	<.01
18	1.2	17	.05	1.2	10	.03	.46	1	<.01
19	8.5	18	.80	.43	9	.01	.49	1	<.01
20	241	23	15	.54	9	.01	.35	1	<.01
21	.62	20	.03	.64	8	.01	.34	1	<.01
22	.55	18	.03	.61	7	.01	.26	1	<.01
23	270	18	14	.67	7	.01	.55	1	<.01
24	.82	18	.04	.71	6	.01	.35	1	<.01
25	.53	16	.02	.65	6	.01	11	4	.45
26	184	17	16	.65	5	.01	1.0	14	.04
27	119	16	6.5	.65	5	.01	.35	13	.01
28	363	22	29	.60	5	.01	.48	13	.02
29	.73	21	.04	---	---	---	.30	12	.01
30	227	15	15	---	---	---	.29	12	.01
31	9.3	16	.27	---	---	---	.24	11	.01
TOTAL	4419.79	---	428.51	574.22	---	45.40	30.58	---	0.64

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	11	<.01	.07	3	<.01	.80	4	.01
2	.10	10	<.01	.04	3	<.01	.32	4	<.01
3	.34	10	.01	.04	3	<.01	.12	4	<.01
4	.25	9	.01	.06	3	<.01	.08	4	<.01
5	.22	9	<.01	.06	3	<.01	.06	4	<.01
6	.72	9	.02	.32	3	<.01	.06	4	<.01
7	1.1	8	.02	.29	2	<.01	.04	4	<.01
8	.78	8	.02	4.8	2	.03	.45	4	<.01
9	2.3	8	.05	.36	2	<.01	.55	3	<.01
10	1.7	7	.03	.09	2	<.01	1.0	3	.01
11	.80	7	.01	.06	2	<.01	.52	3	<.01
12	.73	7	.01	.08	3	<.01	.46	3	<.01
13	.75	6	.01	.06	3	<.01	.29	3	<.01
14	.88	6	.01	.44	3	<.01	.45	4	<.01
15	.96	6	.01	.32	3	<.01	.42	4	<.01
16	.37	6	.01	.05	3	<.01	.62	4	.01
17	.21	6	<.01	.04	3	<.01	.77	4	.01
18	.23	5	<.01	.04	3	<.01	350	15	14
19	.15	5	<.01	.05	3	<.01	184	9	6.1
20	.43	5	.01	.06	3	<.01	1.0	8	.02
21	.83	5	.01	.04	3	<.01	.82	6	.01
22	.20	4	<.01	.04	3	<.01	.70	5	.01
23	.24	4	<.01	.05	3	<.01	.72	4	.01
24	.22	4	<.01	.03	3	<.01	.75	4	.01
25	.12	4	<.01	.07		<.01	.40	2	<.01
26	.12	4	<.01	.05	3	<.01	.33	2	<.01
27	.15	4	<.01	.04	4	<.01	.22	3	<.01
28	.10	4	<.01	.07	4	<.01	.20	3	<.01
29	.13	3	<.01	.08	4	<.01	.30	3	<.01
30	.14	3	<.01	.05	4	<.01	.17	4	<.01
31	---	---	---	.53	4	<.01	---	---	---
TOTAL	15.44	---	0.24	8.38	---	0.03	546.62	---	20.20

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	.16	4	<.01	1.3	2	.01	1.5	1	<.01
2	106	5	2.3	1.4	2	.01	1.5	1	<.01
3	657	10	15	1.5	1	.01	1.7	1	<.01
4	39	10	1.1	1.3	1	<.01	2.6	1	.01
5	1.9	10	.05	1.2	1	<.01	1.8	1	<.01
6	1.7	9	.04	1.3	1	<.01	1.4	1	<.01
7	1.4	9	.04	1.2	1	<.01	156	3	2.5
8	206	15	18	1.1	1	<.01	229	5	2.8
9	438	50	45	1.1	1	<.01	2.2	5	.03
10	167	14	15	1.1	1	<.01	2.4	4	.04
11	537	60	47	1.1	1	<.01	242	6	3.9
12	67	8	4.3	.85	1	<.01	2.1	6	.03
13	11	5	1.5	.69	1	<.01	1430	24	174
14	314	20	27	.63	1	<.01	1770	28	141
15	824	80	77	.66	1	<.01	429	12	15
16	164	13	14	1.1	1	<.01	89	6	1.5
17	612	75	66	.66	1	<.01	2.6	5	.03
18	2.7	4	.08	.45	1	<.01	2.3	4	.03
19	295	20	25	.49	1	<.01	1680	15	163
20	34	16	2.0	.22	1	<.01	1440	19	84
21	1.3	7	.03	.29	1	<.01	177	15	7.2
22	1.7	5	.02	.23	1	<.01	5.6	13	.20
23	1.8	3	.01	1.1	1	<.01	4.4	13	.15
24	1.6	2	.01	1.4	1	<.01	4.6	12	.15
25	1.3	2	.01	1.4	1	<.01	3.9	11	.12
26	1.1	2	<.01	2.0	1	<.01	398	17	22
27	1.2	2	.01	2.4	1	.01	214	14	8.4
28	1.3	2	.01	1.5	1	<.01	239	9	5.8
29	2.0	2	.01	1.2	1	<.01	791	17	41
30	2.1	2	.01	1.0	1	<.01	5.3	11	.16
31	1.6	2	.01	1.7	1	<.01	---	---	---
TOTAL	4495.86	---	360.54	33.57	---	0.04	9329.9	---	673.05
YEAR	65247.76		9825.82						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
DEC					
30...	1420	339	43	39	91
31...	0350	273	63	46	91
JAN					
13...	0834	4.6	30	.37	69
15...	1830	1080	23	67	82
30...	2005	1390	34	128	90
JUN					
19...	0615	794	10	21	73
JUL					
03...	0545	970	12	31	74
SEP					
26...	1240	834	18	41	94
29...	0440	733	181	358	88

50046000 RIO DE LA PLATA AT HIGHWAY 2 NEAR 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, 11.3 mi (18.2 km) downstream from Puerto Rico Aqueduct and Sewer Authority reservoir.

DRAINAGE AREA.--208 mi^2 (539 km^2), excludes 8.2 mi^2 (21.2 km^2) upstream from Lago Carite, flow from which is diverted to Río Guamaní. Area at site used prior to September 25, 1984, 200 mi^2 (518 km^2).

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 and crest-stage gage. 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 poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height and precipitation satellite telemetry at station. Flow affected by water extraction for La Virgencita water treatment plant by Puerto Rico Aqueduct and Sewer Authority of about 3.99 ft^3/s (0.11 m^3/s). Located about 1,000 ft upstream from station.

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 ft^3/s (3,400 m^3/s), gage height, 37.4 ft (11.40 m);June 16, 1943, 82,000 ft^3/s (2,322 m^3/s), gage height, 34.4 ft (10.48 m), at site 1.0 mi upstream and different datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	471	954	3650	259	67	31	23	19	57	27	46	162
2	182	570	6000	304	292	41	31	18	46	729	38	71
3	425	415	5570	115	53	28	37	18	32	605	37	258
4	96	243	4320	321	42	26	34	19	22	165	43	308
5	108	212	1610	79	214	26	27	19	20	107	116	163
6	377	226	997	332	46	25	24	51	19	86	62	104
7	179	162	821	75	38	26	22	47	40	57	218	84
8	194	156	431	226	35	25	25	174	46	106	112	298
9	467	277	437	81	33	48	30	108	130	302	54	92
10	120	450	472	179	35	64	24	38	222	480	44	56
11	80	446	379	207	34	37	22	27	123	433	151	252
12	72	1680	385	57	37	32	22	23	65	327	103	101
13	104	3880	323	255	39	31	21	21	94	150	51	960
14	95	1160	253	56	36	30	21	18	46	289	43	1790
15	66	566	197	217	37	28	20	20	79	557	46	427
16	62	337	266	291	36	28	21	23	137	427	88	197
17	60	322	128	239	32	27	20	20	147	570	92	65
18	56	250	249	104	39	28	19	20	353	220	48	51
19	60	265	131	49	33	31	21	19	392	226	48	758
20	70	215	268	221	32	30	26	19	144	158	42	2270
21	111	256	318	53	32	31	20	18	66	119	42	323
22	2480	212	249	41	30	28	19	22	196	102	48	88
23	2770	393	209	198	30	35	26	29	119	139	103	51
24	749	385	372	85	27	47	22	20	50	87	80	81
25	263	233	103	44	30	31	20	24	35	67	43	72
26	902	214	298	38	31	31	19	24	31	53	37	425
27	3680	223	160	261	28	30	24	19	28	47	35	304
28	5730	202	294	362	25	26	28	31	28	41	33	175
29	4080	239	4170	92	---	27	23	39	33	36	70	566
30	1090	636	730	54	---	32	22	23	37	74	68	179
31	705	---	416	215	---	25	---	50	---	91	344	---
TOTAL	25904	15779	34206	5110	1443	985	713	1020	2837	6877	2385	10731
MEAN	836	526	1103	165	51.5	31.8	23.8	32.9	94.6	222	76.9	358
MAX	5730	3880	6000	362	292	64	37	174	392	729	344	2270
MIN	56	156	103	38	25	25	19	18	19	27	33	51
AC-FT	51380	31300	67850	10140	2860	1950	1410	2020	5630	13640	4730	21280
CFSM	4.18	2.63	5.52	.83	.26	.16	.12	.16	.47	1.11	.39	1.79
IN.	4.82	2.94	6.37	.95	.27	.18	.13	.19	.53	1.28	.44	2.00

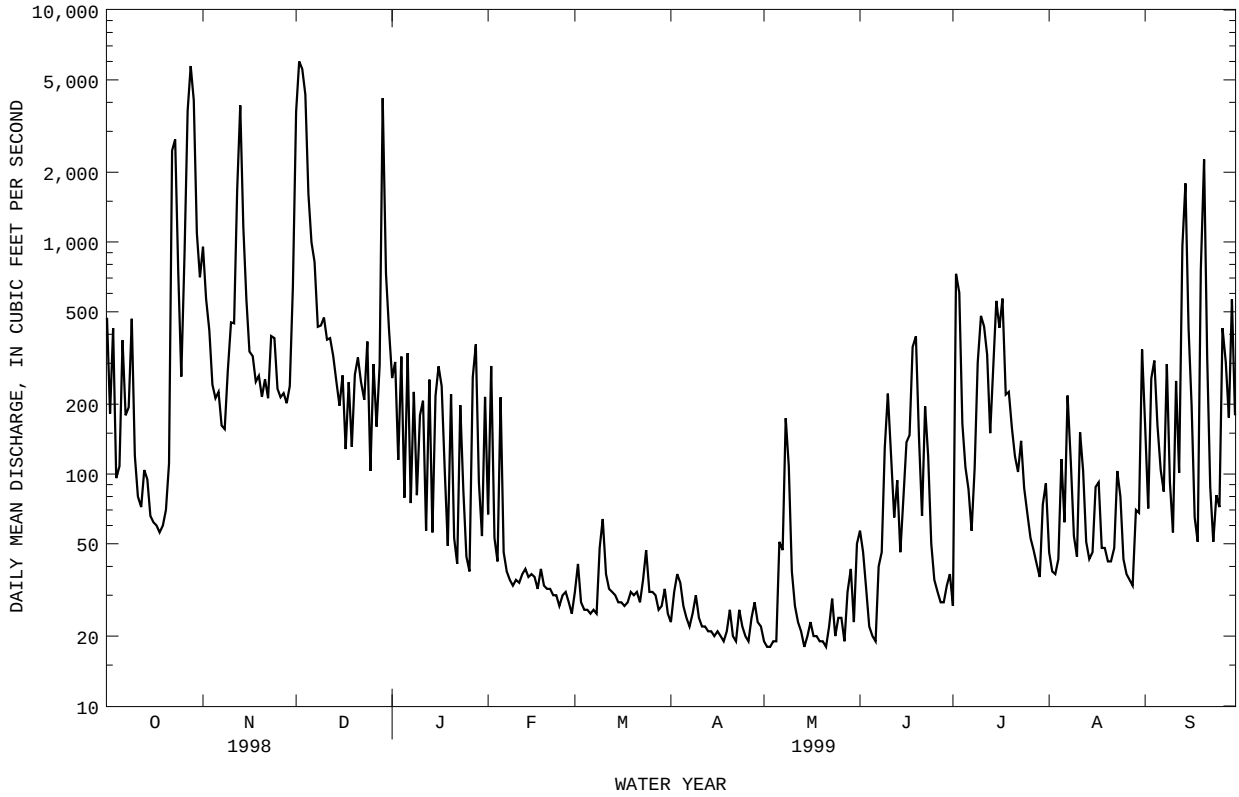
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1999, BY WATER YEAR (WY)

MEAN	465	417	329	182	131	95.1	174	324	156	145	239	442
MAX	4813	2015	1352	929	409	468	722	1939	847	690	1677	3173
(WY)	1971	1985	1971	1992	1989	1969	1987	1985	1970	1961	1979	1996
MIN	18.8	18.4	14.8	16.9	16.0	8.31	5.07	7.63	11.4	13.2	16.5	19.2
(WY)	1995	1995	1995	1984	1983	1986	1984	1984	1977	1994	1976	1991

RIO DE LA PLATA BASIN

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

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1960 - 1999	
ANNUAL TOTAL	167966		107990			
ANNUAL MEAN	460		296		256	
HIGHEST ANNUAL MEAN					824	1971
LOWEST ANNUAL MEAN					31.5	1994
HIGHEST DAILY MEAN	47100	Sep 22	6000	Dec 2	68100	Sep 10 1996
LOWEST DAILY MEAN	13	Aug 5	18	May 2	2.7	Apr 17 1984
ANNUAL SEVEN-DAY MINIMUM	18	Jul 31	20	Apr 29	2.9	Apr 15 1984
INSTANTANEOUS PEAK FLOW			19200	Oct 27	Not determined	Sep 10 1996
INSTANTANEOUS PEAK STAGE			17.93	Oct 27	27.33	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	333200		214200		185700	
ANNUAL RUNOFF (CFSM)	2.30		1.48		1.28	
ANNUAL RUNOFF (INCHES)	31.27		20.11		17.43	
10 PERCENT EXCEEDS	650		471		473	
50 PERCENT EXCEEDS	38		72		80	
90 PERCENT EXCEEDS	21		23		18	



50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR

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 mi^2 (539 km^2), exclude 8.2 mi^2 (21.2 km^2) 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 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
04...	1145	E360	361	7.6	27.5	39	6.4	81	11	K15000	560
FEB											
18...	1445	40	479	7.5	25.5	2.8	7.8	95	17	K740	K82
MAY											
10...	1510	35	490	7.5	28.0	20	4.3	56	12	K1300	650
AUG											
26...	1005	38	446	7.7	29.4	2.7	5.5	72	<10	360	K30

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
04...	140	42	8.2	15	.6	3.4	130	<1.0	15	22
FEB										
18...	--	--	--	--	--	--	180	--	--	--
MAY										
10...	150	43	9.7	18	.6	3.7	130	<1.0	19	22
AUG										
26...	190	59	11	21	.7	2.8	180	--	17	30

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
04...	.11	17	200	--	36	--	<.010	1.30	.110	.39
FEB										
18...	--	--	--	--	3	.896	.074	.970	.150	.43
MAY										
10...	.14	14	207	19.5	23	.770	.070	.840	.370	--
AUG										
26...	.10	21	270	27.4	5	.660	.050	.710	.080	.34

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
04...	.50	1.8	8.0	.080	1	<100	40	<1	2	<10
FEB										
18...	.58	1.5	6.9	.050	--	--	--	--	--	--
MAY										
10...	E1.0	--	--	E.110	<1	80	50	<1	<1	<10
AUG										
26...	.42	1.1	5.0	.040	--	--	--	--	--	--

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
04...	1600	1	130	<.10	<1	<1	<10	<.010	4	<.02
FEB										
18...	--	--	--	--	--	--	--	--	--	--
MAY										
10...	500	<1	220	<.10	1	<1	<40	<.010	<4	.04
AUG										
26...	--	--	--	--	--	--	--	--	--	--

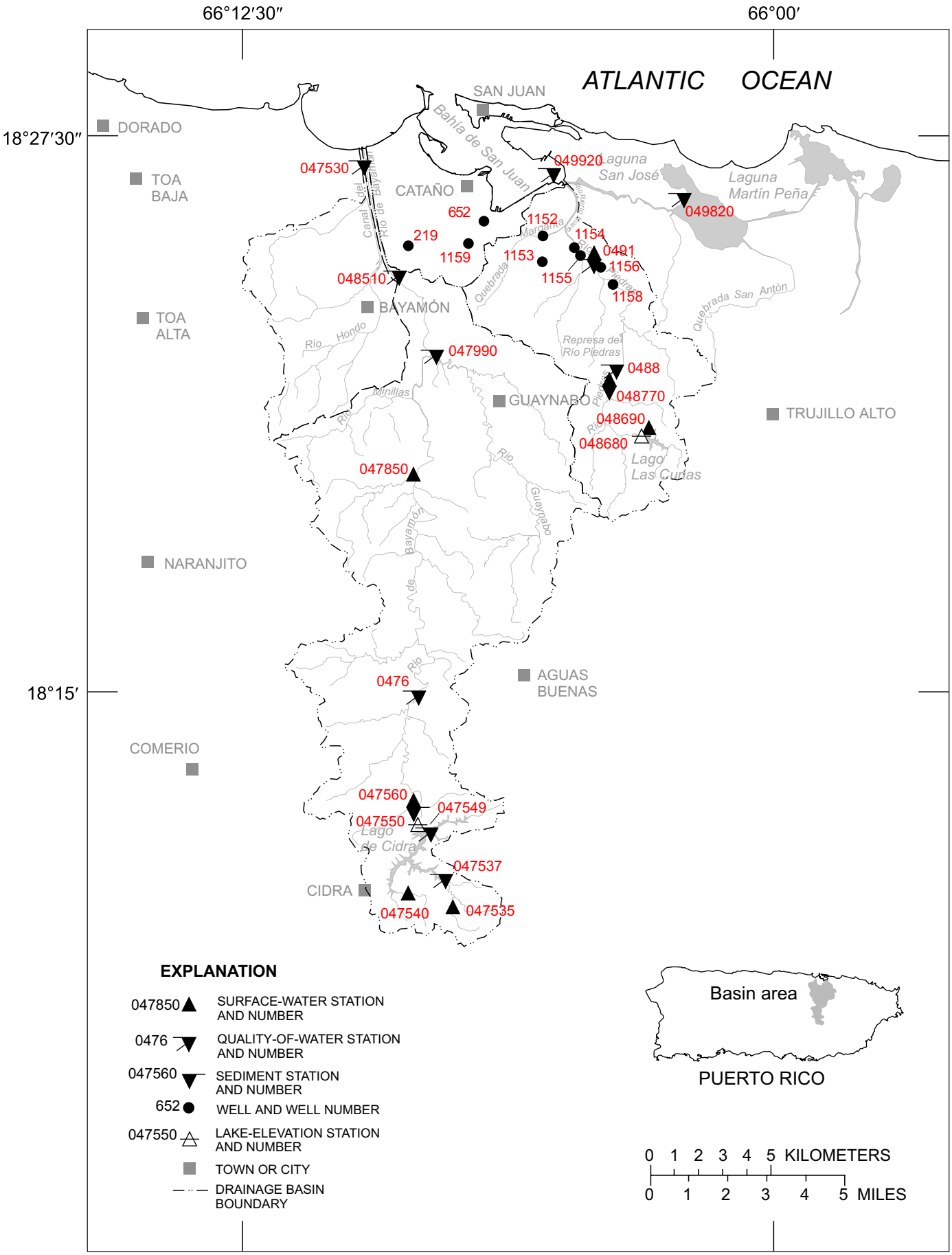


Figure 17. Río Hondo to Río Puerto Nuevo basins.

50047530 RIO HONDO AT FLOOD CHANNEL NEAR CATAÑO, 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.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV										
17...	1130	5620	7.8	28.5	36	2.6	33	15	34000	2000
MAR										
16...	0950	33400	7.2	26.9	8.3	8.4	105	160	K1700	K300
JUN										
14...	0945	2040	7.6	28.0	50	3.2	41	25	K7200	4000
SEP										
02...	1330	26300	8.4	32.0	8.6	11.7	162	--	460	450

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
17...	500	56	89	734	14	31	100	<1.0	160	1200
MAR										
16...	--	--	--	--	--	--	160	--	--	--
JUN										
14...	290	47	42	346	9	16	98	<1.0	120	660
SEP										
02...	3000	210	596	4970	40	160	130	--	970	8600

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
NOV										
17...	.12	8.7	2370	56	.335	.075	.410	.670	.63	1.3
MAR										
16...	--	--	--	34	.057	.033	.090	.440	--	E1.2
JUN										
14...	.13	8.4	1300	64	.480	.050	.530	.460	--	E1.2
SEP										
02...	.42	5.1	15600	56	.020	.020	.040	.050	1.0	1.1

DATE	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
NOV										
17...	1.7	7.6	.150	3	<100	350	<1	2	14	1000
MAR										
16...	--	--	E.240	--	--	--	--	--	--	--
JUN										
14...	--	--	E.110	1	70	190	<1	2	12	1900
SEP										
02...	1.1	5.0	.100	--	--	--	--	--	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	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)
NOV									
17...	2	190	<.10	<1	<1	10	<.010	<4	.06
MAR									
16...	--	--	--	--	--	--	--	--	--
JUN									
14...	2	170	<.10	<1	<1	<40	<.010	6	.12
SEP									
02...	--	--	--	--	--	--	--	--	--

50047535 RIO DE BAYAMON AT ARENAS, PR

LOCATION.--Lat 18°10'11", long 66°07'18", Hydrologic Unit 21010005, at left bank, 2.61 mi (4.20 km) southeast of plaza de Cidra, 0.56 mi (0.90 km) southwest from Escuela Segunda Unidad de Bayamón, and 2.70 mi (4.34 km) northeast from Central Cayey.

DRAINAGE AREA.--0.45 mi^2 (1.16 km^2).

PERIOD OF RECORD.--July 1992 to September 1993, October 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,378 ft (420 m), from topographic map.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	1.3	13	1.2	.44	1.4	.15	.11	.11	.14	.20	.58
2	.25	.62	23	.98	1.2	.58	.17	.10	.09	8.9	.18	.58
3	.25	.41	17	2.5	.59	.29	.67	.10	.09	.69	.29	2.1
4	.23	.37	6.4	.82	.48	.24	.33	.10	.18	.21	.32	.82
5	.22	.31	2.9	.71	.48	.21	.28	.10	.11	.20	.25	.32
6	.22	.29	6.0	.57	.44	.20	.22	.11	.08	.22	.13	.21
7	.21	.26	2.8	.46	.42	.20	.19	.12	.09	.14	.33	.19
8	.19	.25	1.3	.40	.40	.20	.19	.22	.26	.23	.23	.18
9	.17	.35	1.8	.45	.40	.21	.26	.16	.70	1.1	.13	.16
10	.16	.35	1.2	.70	.41	.22	.19	.14	.24	.45	2.5	.16
11	.16	2.5	2.6	.59	.34	.21	.19	.14	.15	.52	.71	.33
12	.17	7.5	1.4	.46	.37	.21	.17	.14	.16	.56	.21	.15
13	.13	6.8	1.0	.40	.34	.20	.16	.12	.16	1.3	.15	10
14	.14	1.4	.79	.37	.34	.18	.15	.11	.10	5.7	.14	5.9
15	.14	.68	.64	5.4	.34	.18	.14	.10	.09	3.9	.14	.91
16	.13	.47	.54	.68	.34	.18	.12	.09	.09	e1.1	.13	.41
17	.15	.51	.50	.46	.31	.16	.12	.09	4.7	.70	.13	.30
18	.14	.38	.45	.37	.30	.17	.13	.08	.67	.40	.13	1.0
19	.25	2.4	.50	.32	.30	.17	.14	.07	.36	.30	.31	14
20	.56	2.4	.54	.33	.30	.16	.14	.07	.30	.27	.32	2.3
21	.34	1.0	.52	.32	.30	.16	.13	.07	.19	.17	.28	.77
22	7.4	.66	.46	.32	.30	.16	.13	.06	.16	.14	4.5	.47
23	2.5	3.0	.47	.34	.29	.15	.15	.06	.14	.15	1.3	.37
24	.72	3.2	.43	.33	.29	.22	.14	.08	.10	.15	.43	.43
25	.45	.90	.44	1.4	.27	.21	.13	.09	.08	.17	.25	.46
26	.34	.72	.42	1.2	.27	.20	.12	.07	.08	.13	.21	1.2
27	12	.51	.41	.84	.25	.17	.13	.06	.09	.12	.20	.89
28	2.9	.42	35	2.7	.23	.21	.13	.07	.08	.11	.17	2.6
29	1.2	.39	15	.92	---	.22	.12	.07	.08	.68	.18	2.1
30	.85	.92	3.9	.59	---	.17	.11	.11	.07	.33	.15	.73
31	.57	---	2.0	.48	---	.15	---	.10	---	.23	.15	---
TOTAL	33.41	41.27	143.41	27.61	10.74	7.59	5.40	3.11	9.80	29.41	14.75	50.62
MEAN	1.08	1.38	4.63	.89	.38	.24	.18	.10	.33	.95	.48	1.69
MAX	12	7.5	35	5.4	1.2	1.4	.67	.22	4.7	8.9	4.5	14
MIN	.13	.25	.41	.32	.23	.15	.11	.06	.07	.11	.13	.15
AC-FT	66	82	284	55	21	15	11	6.2	19	58	29	100
CFSM	2.39	3.06	10.3	1.98	.85	.54	.40	.22	.73	2.11	1.06	3.75
IN.	2.76	3.41	11.86	2.28	.89	.63	.45	.26	.81	2.43	1.22	4.18

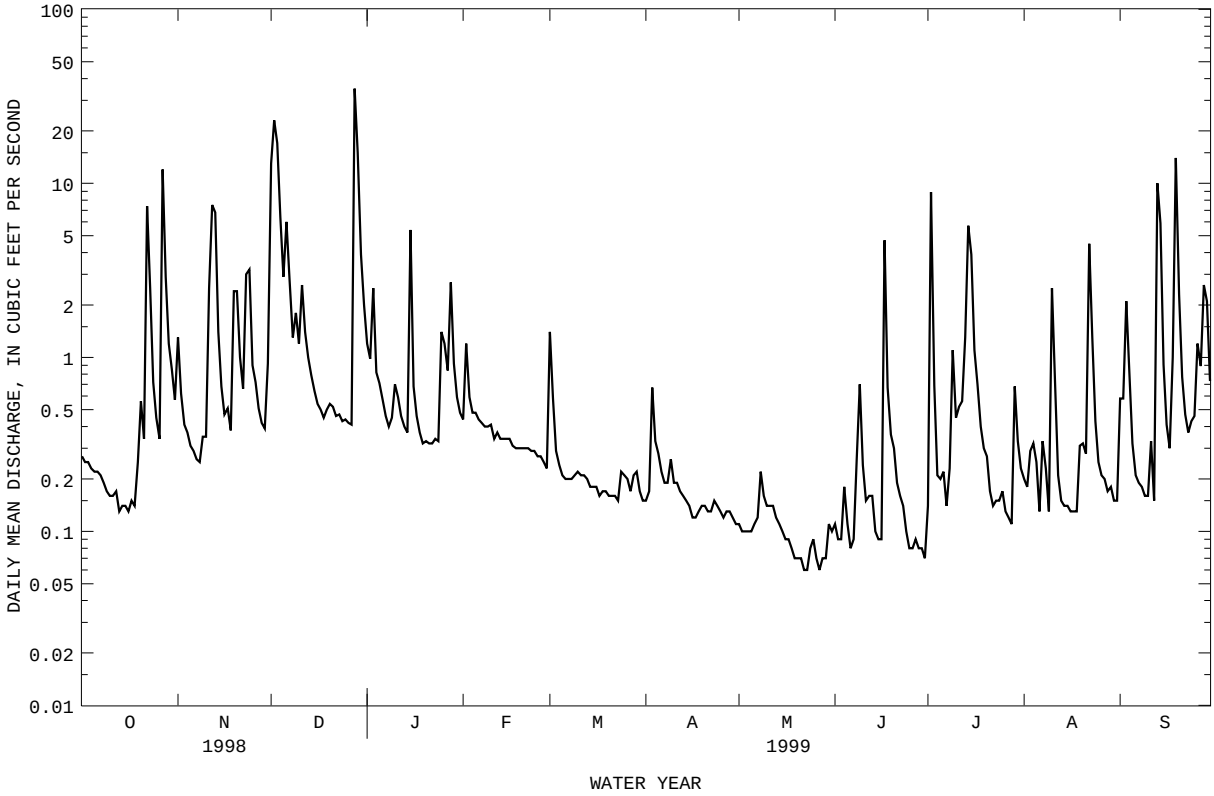
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1999, BY WATER YEAR (WY)

MEAN	.75	.81	1.15	.62	.73	.26	.21	.52	.67	.99	.92	2.83
MAX	1.73	1.38	4.63	.89	2.38	.65	.45	2.02	1.79	2.12	1.87	6.52
(WY)	1998	1999	1999	1999	1998	1998	1993	1993	1996	1993	1996	1998
MIN	.30	.32	.048	.41	.16	.097	.095	.10	.10	.092	.46	.20
(WY)	1997	1998	1998	1998	1993	1993	1997	1999	1998	1998	1992	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1992 - 1999	
ANNUAL TOTAL	569.59		377.12			
ANNUAL MEAN	1.56		1.03		.90	
HIGHEST ANNUAL MEAN					1.16	1996
LOWEST ANNUAL MEAN					.31	1997
HIGHEST DAILY MEAN	97	Sep 22	35	Dec 28	141	Sep 10 1996
LOWEST DAILY MEAN	.02	Jul 26	.06	May 22	.02	Jul 3 1997
ANNUAL SEVEN-DAY MINIMUM	.03	Jul 8	.07	May 18	.03	Jun 28 1997
INSTANTANEOUS PEAK FLOW			1050	Dec 28	1150	Sep 21 1998
INSTANTANEOUS PEAK STAGE			7.70	Dec 28	7.89	Sep 21 1998
INSTANTANEOUS LOW FLOW					.02	Jul 15 1997
ANNUAL RUNOFF (AC-FT)	1130		748		651	
ANNUAL RUNOFF (CFSM)	3.47		2.30		2.00	
ANNUAL RUNOFF (INCHES)	47.09		31.18		27.14	
10 PERCENT EXCEEDS	2.1		2.2		1.2	
50 PERCENT EXCEEDS	.18		.29		.18	
90 PERCENT EXCEEDS	.04		.11		.06	

e Estimated

50047535 RIO DE BAYAMON AT ARENAS, PR--Continued



50047540 RIO SABANA AT VISTA MONTE, PR

LOCATION.--Lat 18°10'28", long 66°08'38", Hydrologic Unit 21010005, at left bank, 1.2 mi (1.9 km) southeast of Plaza de Cidra, 1.2 mi (1.9 km) southwest from Escuela Segunda Unidad de Bayamón, and 0.4 mi (0.6 km) upstream from Lago de Cidra.

DRAINAGE AREA.--0.80 mi^2 (2.07 km^2).

PERIOD OF RECORD.--August 1992 to September 1993, October 1995 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,345 ft (410 m), from topographic map.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	e4.8	26	3.4	1.6	.72	.45	.29	1.2	.76	.54	.37
2	1.5	e2.3	46	3.0	1.1	.60	.48	.28	.25	11	.53	.33
3	1.4	e1.5	26	3.7	.88	.45	4.8	.27	.19	1.4	.47	1.1
4	1.3	e1.4	10	e2.4	.92	.43	.98	.25	.29	.69	.43	.49
5	1.2	e1.2	4.9	e2.1	.87	.43	.64	.27	.32	.49	.43	.35
6	1.4	e1.1	5.1	e1.7	.76	.45	.57	.46	.27	.42	.40	.32
7	1.2	e1.0	3.6	e1.3	.72	.46	.53	.30	.33	.40	.99	.33
8	1.1	e.94	2.6	e1.2	.71	.46	.60	.57	5.3	.84	.55	.30
9	1.1	e1.3	2.8	e1.3	.70	.48	.56	.35	6.8	3.2	.40	.30
10	1.1	e1.3	2.1	e2.1	.70	.48	1.3	.27	1.4	1.1	3.5	.30
11	1.1	e10	3.4	e1.7	.70	.45	.61	.26	.72	3.8	.86	.40
12	1.2	e28	2.2	e1.3	.68	.43	.51	.25	.58	1.8	.49	.26
13	1.1	e25	1.9	e1.2	.63	.41	.51	.24	.61	2.5	.43	4.5
14	1.1	e5.2	1.7	e1.1	.60	.41	.49	.22	.49	5.9	.40	4.5
15	1.0	e2.6	1.5	e5.3	.67	.44	.47	.20	.45	7.6	.39	.69
16	.98	e1.0	1.4	e2.1	.68	.42	.43	.20	.43	2.2	.38	.52
17	.98	e1.1	1.4	e1.4	.68	.42	.42	.18	16	1.9	.38	.40
18	.94	e.82	1.3	e1.1	.71	.41	.43	.19	2.5	1.1	.37	.73
19	1.7	2.9	2.2	e1.7	.58	.44	.43	.19	1.8	.95	.65	10
20	2.3	1.7	1.9	1.3	.56	.43	.38	.20	1.2	1.2	.68	2.2
21	1.9	1.1	1.6	1.2	.55	.43	.36	.19	.88	.74	.45	.88
22	27	1.0	1.5	1.2	.54	.43	.35	.17	.70	.61	5.4	.66
23	7.3	8.5	1.5	1.3	.56	.42	.36	.18	.63	.57	.91	.53
24	3.0	11	1.3	1.9	.53	.64	.35	.18	.54	.57	.48	.50
25	2.1	2.1	1.9	2.2	.53	.46	.33	.20	.49	.48	.38	.48
26	e1.7	1.4	1.3	1.8	.52	.47	.33	.17	.52	.44	.34	2.5
27	e45	1.0	1.2	1.6	.51	.48	.33	.17	.53	.43	.32	1.7
28	e10	.87	46	4.5	.50	.67	.32	.18	.53	.38	.30	8.8
29	e4.5	1.3	28	1.3	---	.50	.32	.20	.51	1.4	.30	9.4
30	e3.2	1.5	6.2	.98	---	.45	.31	.24	.52	.67	.29	1.5
31	e2.1	---	4.1	.90	---	.46	---	.25	---	.50	.28	---
TOTAL	133.00	124.93	242.6	59.28	19.69	14.63	18.95	7.57	46.98	56.04	22.72	55.34
MEAN	4.29	4.16	7.83	1.91	.70	.47	.63	.24	1.57	1.81	.73	1.84
MAX	45	28	46	5.3	1.6	.72	4.8	.57	16	11	5.4	10
MIN	.94	.82	1.2	.90	.50	.41	.31	.17	.19	.38	.28	.26
AC-FT	264	248	481	118	39	29	38	15	93	111	45	110
CFSM	5.36	5.21	9.78	2.39	.88	.59	.79	.31	1.96	2.26	.92	2.31
IN.	6.18	5.81	11.28	2.76	.92	.68	.88	.35	2.18	2.61	1.06	2.57

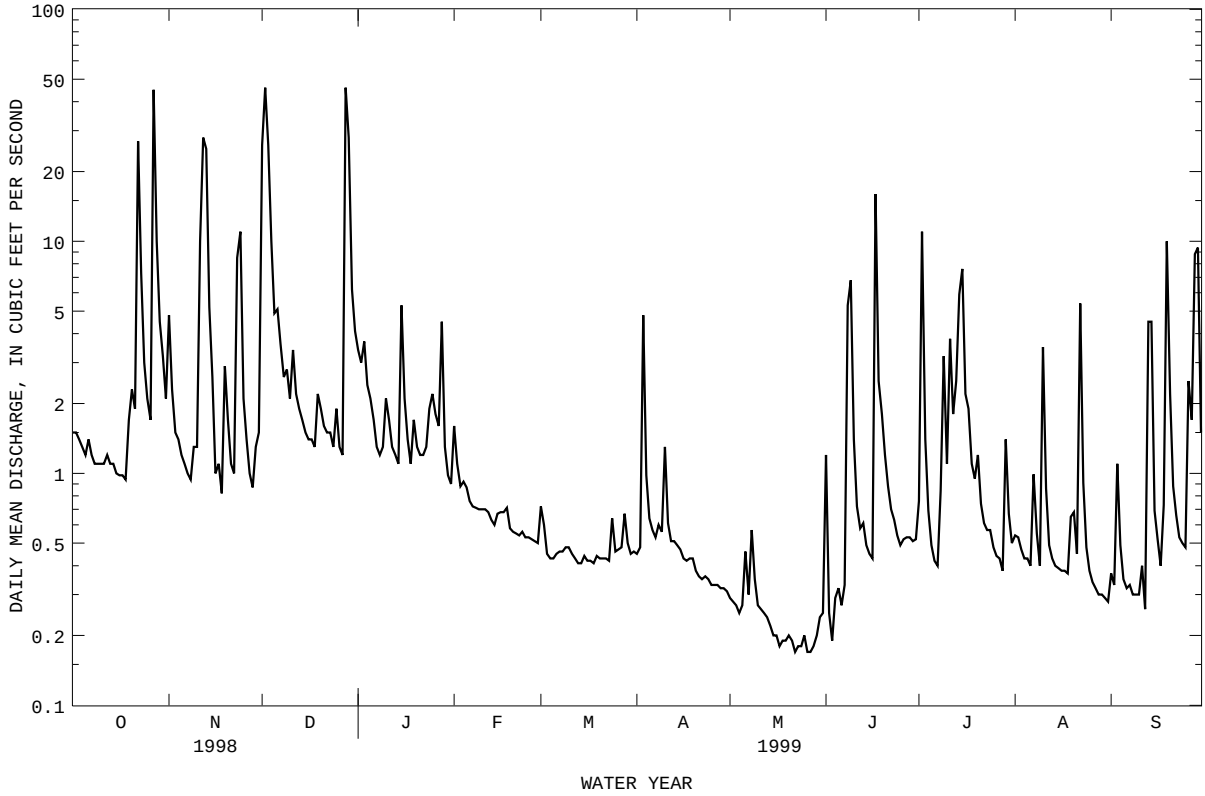
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1999, BY WATER YEAR (WY)

MEAN	2.24	1.74	2.12	.96	1.24	.54	.65	.79	.84	1.55	1.33	5.83
MAX	4.51	4.16	7.83	1.91	3.50	1.01	1.23	2.26	1.57	3.02	2.34	16.7
(WY)	1998	1999	1999	1999	1998	1998	1993	1993	1999	1993	1998	1996
MIN	.76	.86	.31	.33	.33	.15	.37	.24	.25	.29	.48	.25
(WY)	1997	1998	1998	1998	1993	1993	1996	1999	1997	1997	1997	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1992 - 1999	
ANNUAL TOTAL	1191.27		801.73			
ANNUAL MEAN	3.26		2.20		1.72	
HIGHEST ANNUAL MEAN					2.37	1998
LOWEST ANNUAL MEAN					.63	1997
HIGHEST DAILY MEAN	219	Sep 22	46	Dec 2	401	Sep 10 1996
LOWEST DAILY MEAN	.09	Jul 13	.17	May 22	.09	Jul 13 1998
ANNUAL SEVEN-DAY MINIMUM	.12	Jul 8	.18	May 22	.12	Jun 6 1993
INSTANTANEOUS PEAK FLOW			709	Dec 28	2380	Sep 10 1996
INSTANTANEOUS PEAK STAGE			6.70	Dec 28	12.02	Sep 10 1996
INSTANTANEOUS LOW FLOW			.13	Jun 1	.08	Jul 14 1998
ANNUAL RUNOFF (AC-FT)	2360		1590		1250	
ANNUAL RUNOFF (CFSM)	4.08		2.75		2.16	
ANNUAL RUNOFF (INCHES)	55.39		37.28		29.29	
10 PERCENT EXCEEDS	4.0		4.3		1.8	
50 PERCENT EXCEEDS	.49		.70		.49	
90 PERCENT EXCEEDS	.24		.30		.21	

e Estimated

50047540 RIO SABANA AT VISTA MONTE, PR--Continued



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 km^2).

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 hm^3) 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 ogee 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. New capacity table based on U.S. Geological Survey Water-Resources Investigations Report 99-4144,November 1997.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 1,328.09 ft (404.80 m), Sep. 10, 1996; minimum elevation 1,295.86 ft (394.98 m), April 22,1995.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 1,324.40 ft (403.68 m), Dec. 28; minimum elevation,1,310.11 ft (399.32 m), June 8.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 99-4144,Puerto Rico-1997)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
1,260	0	1,309	2,059
1,276	97	1,315	3,170
1,296	762	1,322	4,670

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1321.88	1320.20	1323.02	1322.46	1322.03	1320.80	1318.47	1315.82	1311.04	1312.68	1315.52	1314.02
2	1321.69	1320.28	1323.17	1322.43	1321.97	1320.76	1318.39	1315.60	1310.90	1313.26	1315.57	1313.81
3	1321.49	1320.36	1323.05	1322.46	1321.95	1320.67	1318.74	1315.43	1310.75	1313.33	1315.59	1313.72
4	1321.26	1320.41	1322.62	1322.43	1321.96	1320.59	1318.65	1315.28	1310.63	1313.42	1315.57	1313.72
5	1321.04	1320.40	1322.54	1322.39	1321.92	1320.50	1318.53	1315.15	1310.48	1313.52	1315.52	1313.56
6	1320.93	1320.37	1322.59	1322.39	1321.88	1320.40	1318.44	1315.05	1310.33	1313.58	1315.45	1313.30
7	1320.72	1320.35	1322.45	1322.36	1321.85	1320.32	1318.37	1314.88	1310.19	1313.65	1315.45	1313.33
8	1320.49	1320.33	1322.44	1322.35	1321.81	1320.19	1318.38	1314.73	A	1313.75	1315.46	1313.24
9	1320.25	1320.39	1322.48	1322.36	1321.75	1320.12	1318.36	1314.55	1310.58	1313.89	1315.46	A
10	1319.99	1320.42	1322.45	1322.41	1321.91	1320.00	1318.56	1314.42	1310.76	1313.96	1315.36	1313.03
11	1319.72	1320.70	1322.48	1322.40	1321.88	1319.90	1318.52	1314.28	1310.80	A	1315.25	1312.98
12	1319.48	1321.80	1322.45	1322.37	1321.87	1319.86	1318.49	1314.15	1310.89	A	1315.17	1312.86
13	1319.21	1322.34	1322.43	1322.26	1321.82	1319.78	1318.47	1314.05	1310.97	A	1315.11	1313.60
14	1318.98	1322.43	1322.39	1322.27	1321.74	1319.78	1318.42	1313.94	1310.98	A	1315.01	1313.81
15	1318.77	1322.41	1322.38	1322.48	1321.67	1319.77	1318.39	1313.83	1311.01	A	1314.89	1313.67
16	1318.60	1322.39	1322.37	1322.35	1321.58	1319.88	1318.29	1313.68	1311.06	1314.33	1314.80	1313.56
17	1318.43	1322.45	1322.35	1322.28	1321.50	1319.81	1318.08	1313.49	1311.76	1314.68	1314.70	1313.40
18	1318.24	1322.41	1322.36	1322.22	1321.43	1319.81	1317.89	1313.30	1311.90	1314.94	1315.24	1313.37
19	1318.14	1322.49	1322.40	1322.16	1321.35	1319.81	1317.68	1313.11	1312.06	1314.95	1315.20	1314.02
20	1318.09	1322.47	1322.43	1322.09	1321.30	1319.76	1317.50	1312.93	1312.16	1315.09	1315.08	1313.97
21	1317.99	1322.42	1322.39	1321.92	1321.24	1319.75	1317.33	1312.73	1312.26	1315.18	1314.95	1313.88
22	1319.32	1322.41	1322.37	1321.80	1321.19	1319.65	A	1312.53	1312.35	1315.24	1315.55	1313.77
23	1319.35	1322.75	1322.39	1321.86	1321.14	1319.55	A	1312.33	1312.45	1315.31	1315.42	1313.68
24	1319.23	1322.55	1322.40	1321.91	1321.06	1319.46	A	1312.16	1312.53	1315.35	1315.22	1313.57
25	1319.07	1322.44	1322.44	1321.97	1321.00	1319.37	A	1312.02	1312.55	1315.33	A	1313.46
26	1318.95	1322.39	1322.42	1321.96	1320.93	1319.23	1316.55	1311.86	1312.58	1315.36	1314.92	1313.62
27	1319.78	1322.39	1322.41	1321.91	1320.86	1319.12	1316.41	1311.72	1312.59	1315.34	1314.74	1313.62
28	1319.84	1322.36	1324.06	1322.11	1320.80	1318.95	1316.25	1311.57	1312.61	1315.33	1314.57	1314.01
29	1319.89	1322.46	1322.68	1322.06	---	1318.78	1316.11	1311.41	1312.64	1315.42	1314.41	1314.24
30	1319.96	1322.46	1322.54	1322.01	---	1318.65	1315.98	1311.23	1312.65	1315.46	1314.31	1314.23
31	1320.07	---	1322.49	1321.95	---	1318.56	---	1311.10	---	1315.48	1314.15	---
MAX	1321.88	1322.75	1324.06	1322.48	1322.03	1320.80	---	1315.82	---	---	---	---
MIN	1317.99	1320.20	1322.35	1321.80	1320.80	1318.56	---	1311.10	---	---	---	---

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 km^2).

WATER-DISCHARGE RECORDS

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

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

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	11	299	23	15	14	16	22	16	17	22	20
2	38	11	523	18	15	15	16	39	13	18	23	20
3	39	10	217	22	13	15	17	27	16	12	24	21
4	39	13	135	22	13	15	16	22	18	12	25	21
5	40	19	38	17	13	15	16	22	18	13	22	21
6	40	19	32	15	13	15	15	23	18	12	22	21
7	38	18	31	13	13	15	9.0	23	19	11	22	21
8	39	19	21	13	12	16	5.0	23	20	14	22	20
9	40	19	20	13	12	17	4.8	23	12	15	20	20
10	39	20	18	14	12	17	6.2	21	8.0	12	21	20
11	40	22	23	16	12	17	5.0	20	7.0	11	21	18
12	41	21	19	15	13	17	4.3	19	7.4	8.5	21	18
13	40	11	17	14	14	17	4.1	16	13	6.4	21	19
14	e36	22	15	14	18	17	4.1	16	16	7.1	21	19
15	26	28	14	48	18	17	4.1	16	18	9.3	21	18
16	24	24	14	31	18	17	12	16	12	7.6	21	18
17	24	26	13	21	17	17	25	21	11	7.8	25	19
18	23	26	13	19	15	17	25	25	8.1	8.1	28	21
19	26	30	13	19	15	17	25	25	7.5	8.4	26	21
20	28	50	15	21	13	17	22	26	7.7	12	24	15
21	27	38	15	35	13	17	18	31	8.3	14	25	12
22	32	27	14	25	13	17	18	34	8.5	14	30	12
23	25	40	12	14	13	17	18	34	9.0	14	20	13
24	24	213	9.9	15	14	17	18	23	9.9	14	16	13
25	27	47	11	15	14	18	18	17	19	14	15	12
26	32	26	11	15	15	18	19	16	19	14	19	13
27	e34	22	11	15	15	19	19	16	20	14	20	13
28	29	22	220	15	14	31	19	16	18	14	21	10
29	22	30	392	15	---	21	20	18	18	15	21	4.6
30	11	40	49	15	---	17	20	19	19	21	21	4.9
31	11	---	33	15	---	16	---	20	---	22	21	---
TOTAL	968	924	2267.9	582	395	532	438.6	689	414.4	392.2	681	498.5
MEAN	31.2	30.8	73.2	18.8	14.1	17.2	14.6	22.2	13.8	12.7	22.0	16.6
MAX	41	213	523	48	18	31	25	39	20	22	30	21
MIN	11	10	9.9	13	12	14	4.1	16	7.0	6.4	15	4.6
AC-FT	1920	1830	4500	1150	783	1060	870	1370	822	778	1350	989
CFSM	3.75	3.70	8.79	2.26	1.70	2.06	1.76	2.67	1.66	1.52	2.64	2.00
IN.	4.33	4.13	10.14	2.60	1.77	2.38	1.96	3.08	1.85	1.75	3.04	2.23

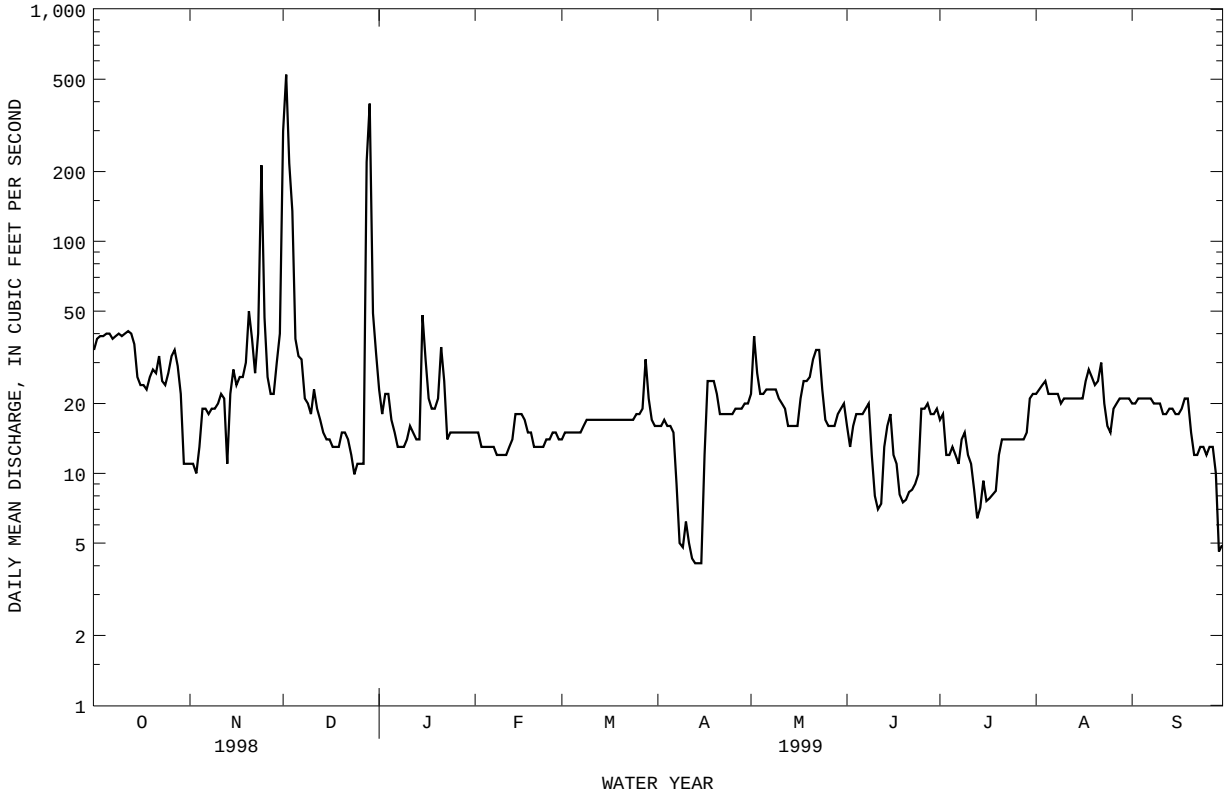
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1999, BY WATER YEAR (WY)

MEAN	16.1	22.9	22.0	18.5	17.9	17.4	13.8	12.4	11.6	14.0	14.6	45.9
MAX	31.2	41.2	73.2	59.6	36.5	26.3	24.5	23.2	20.6	39.6	29.2	233
(WY)	1999	1992	1999	1992	1991	1998	1996	1998	1998	1993	1996	1996
MIN	3.74	8.85	4.36	5.45	7.24	11.4	5.72	4.13	3.47	1.56	1.18	1.64
(WY)	1995	1995	1994	1995	1994	1994	1997	1993	1994	1994	1995	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1991 - 1999	
ANNUAL TOTAL	11990.5		8782.6			
ANNUAL MEAN	32.9		24.1		18.9	
HIGHEST ANNUAL MEAN					36.1	1996
LOWEST ANNUAL MEAN					5.93	1994
HIGHEST DAILY MEAN	2050	Sep 22	523	Dec 2	5420	Sep 10 1996
LOWEST DAILY MEAN	6.4	Aug 26	4.1	Apr 13	.60	Aug 6 1992
ANNUAL SEVEN-DAY MINIMUM	9.9	Jul 28	4.7	Apr 9	.80	May 1 1995
INSTANTANEOUS PEAK FLOW			1790	Dec 28	15000	Sep 10 1996
INSTANTANEOUS PEAK STAGE			15.92	Dec 28	27.34	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	23780		17420		13710	
ANNUAL RUNOFF (CFSM)	3.95		2.89		2.27	
ANNUAL RUNOFF (INCHES)	53.61		39.27		30.90	
10 PERCENT EXCEEDS	33		32		28	
50 PERCENT EXCEEDS	21		18		13	
90 PERCENT EXCEEDS	11		11		3.4	

e Estimated

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued



50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued

PERIOD OF RECORDS.-- Water years 1991 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: November 1990 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1990.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected by a local observerand automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 3,670 mg/L Jan. 05, 1992; Minimum daily mean,3 mg/L November 27, 1993 and June 27-28, 1997.

SEDIMENT LOADS: Maximum daily mean, 27,700 tons (25,100 tonnes) September 10, 1996; Minimum daily mean, 0.02 ton (0.02 tonne) November 21, 1993.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, 3,140 mg/L November 11,1998; Minimum daily mean, 5 mg/L February 25-26, 1999.

SEDIMENT LOADS: Maximum daily mean, 2,730 tons (2,480 tonnes) December 28, 1998; Minimum daily mean, tons 0.20 (0.18 tonne) February 25, 1999.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	34	330	30	11	124	3.6	299	265	270
2	38	282	29	11	124	3.5	523	1200	2310
3	39	238	25	10	123	3.5	217	837	766
4	39	210	22	13	112	3.9	135	2150	904
5	40	190	21	19	121	6.1	38	868	90
6	40	297	35	19	122	6.2	32	365	31
7	38	290	30	18	108	5.4	31	156	13
8	39	238	25	19	102	5.1	21	70	3.9
9	40	242	26	19	98	5.1	20	62	3.3
10	39	261	27	20	94	5.0	18	69	3.4
11	40	256	28	22	3140	213	23	73	4.4
12	41	245	27	21	1700	90	19	74	3.7
13	40	234	25	11	264	8.4	17	63	2.9
14	e36	e208	e20	22	61	3.2	15	51	2.1
15	26	186	13	28	48	3.7	14	42	1.6
16	24	190	12	24	59	3.8	14	48	1.7
17	24	195	13	26	71	4.9	13	57	2.0
18	23	186	12	26	76	5.5	13	60	2.1
19	26	174	12	30	80	6.6	13	64	2.2
20	28	164	12	50	84	11	15	100	4.2
21	27	156	11	38	87	8.9	15	174	6.8
22	32	148	13	27	77	5.6	14	284	11
23	25	144	9.7	40	104	36	12	229	7.4
24	24	148	9.5	213	510	429	9.9	158	4.2
25	27	152	11	47	31	4.1	11	145	4.3
26	32	148	13	26	21	1.5	11	136	4.2
27	e34	e308	e33	22	32	2.0	11	127	3.7
28	29	253	20	22	62	3.7	220	767	2730
29	22	142	8.6	30	77	6.3	392	1040	2110
30	11	125	3.6	40	88	9.6	49	115	15
31	11	124	3.6	---	---	---	33	84	7.4
TOTAL	968	---	580.0	924	---	904.2	2267.9	---	9325.5

50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	23	98	6.0	15	34	1.4	14	6	.22
2	18	121	5.9	15	32	1.3	15	6	.24
3	22	122	7.3	13	30	1.0	15	6	.24
4	22	119	7.1	13	28	.96	15	6	.24
5	17	115	5.3	13	25	.86	15	6	.24
6	15	105	4.2	13	22	.75	15	6	.25
7	13	96	3.4	13	20	.69	15	7	.26
8	13	94	3.2	12	19	.61	16	7	.31
9	13	93	3.2	12	17	.57	17	8	.35
10	14	90	3.4	12	16	.54	17	8	.38
11	16	86	3.7	12	15	.50	17	9	.41
12	15	82	3.2	13	17	.61	17	10	.47
13	14	83	3.1	14	20	.75	17	12	.56
14	14	85	3.3	18	21	.98	17	17	.78
15	48	90	12	18	20	.98	17	25	1.1
16	31	94	7.8	18	20	.98	17	35	1.6
17	21	89	5.0	17	19	.86	17	37	1.7
18	19	82	4.1	15	23	.97	17	35	1.6
19	19	71	3.7	15	17	.70	17	21	.97
20	21	62	3.5	13	9	.33	17	11	.51
21	35	66	6.3	13	8	.30	17	10	.48
22	25	74	4.8	13	9	.31	17	11	.49
23	14	82	3.1	13	9	.32	17	11	.51
24	15	78	3.0	14	7	.26	17	11	.53
25	15	71	2.8	14	5	.20	18	12	.59
26	15	65	2.5	15	5	.21	18	17	.83
27	15	68	2.7	15	6	.23	19	25	1.2
28	15	72	3.0	14	6	.23	31	21	1.7
29	15	56	2.2	---	---	---	21	16	.93
30	15	40	1.6	---	---	---	17	13	.58
31	15	37	1.4	---	---	---	16	14	.58
TOTAL	582	---	131.8	395	---	18.40	532	---	20.85

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	16	14	.62	22	18	1.1	16	33	1.6
2	16	14	.60	39	20	2.1	13	31	1.1
3	17	13	.61	27	23	1.6	16	27	1.2
4	16	13	.56	22	25	1.5	18	23	1.1
5	16	12	.55	22	21	1.3	18	20	.96
6	15	12	.51	23	16	.99	18	18	.87
7	9.0	14	.35	23	12	.75	19	15	.80
8	5.0	17	.22	23	10	.64	20	15	.82
9	4.8	19	.25	23	11	.71	12	17	.53
10	6.2	30	.74	21	13	.71	8.0	19	.41
11	5.0	25	.34	20	14	.76	7.0	22	.41
12	4.3	21	.24	19	15	.79	7.4	24	.48
13	4.1	22	.24	16	17	.73	13	29	1.1
14	4.1	23	.26	16	18	.79	16	34	1.4
15	4.1	24	.26	16	20	.87	18	27	1.4
16	12	35	1.5	16	23	1.0	12	22	.75
17	25	49	3.3	21	27	1.5	11	101	3.2
18	25	34	2.3	25	25	1.7	8.1	52	1.1
19	25	23	1.6	25	21	1.4	7.5	36	.72
20	22	16	.95	26	18	1.3	7.7	28	.57
21	18	14	.69	31	15	1.3	8.3	22	.48
22	18	14	.70	34	13	1.2	8.5	21	.49
23	18	15	.71	34	13	1.2	9.0	24	.57
24	18	15	.74	23	14	.83	9.9	26	.70
25	18	19	.92	17	14	.64	19	27	1.4
26	19	23	1.2	16	13	.58	19	22	1.1
27	19	20	1.0	16	12	.51	20	20	1.0
28	19	14	.73	16	11	.48	18	18	.92
29	20	14	.75	18	10	.49	18	17	.82
30	20	16	.87	19	10	.49	19	14	.70
31	---	---	---	20	9	.50	---	---	---
TOTAL	438.6	---	24.31	689	---	30.46	414.4	---	28.70

50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	17	13	.58	22	18	1.1	20	26	1.4
2	18	630	59	23	17	1.1	20	29	1.6
3	12	28	.94	24	16	1.0	21	32	1.8
4	12	20	.67	25	17	1.1	21	33	1.9
5	13	22	.76	22	18	1.1	21	27	1.5
6	12	30	.98	22	18	1.1	21	21	1.2
7	11	44	1.4	22	19	1.1	21	17	.93
8	14	63	2.5	22	18	1.0	20	15	.81
9	15	91	3.7	20	17	.92	20	14	.74
10	12	125	4.0	21	15	.86	20	13	.69
11	11	127	3.9	21	15	.85	18	12	.58
12	8.5	121	2.8	21	15	.86	18	11	.55
13	6.4	115	2.0	21	15	.85	19	73	4.0
14	7.1	110	2.1	21	15	.85	19	34	1.8
15	9.3	296	36	21	13	.76	18	32	1.5
16	7.6	91	1.8	21	12	.70	18	31	1.6
17	7.8	44	.93	25	11	.76	19	31	1.6
18	8.1	36	.78	28	17	1.4	21	31	1.8
19	8.4	35	.80	26	74	5.4	21	681	70
20	12	33	1.0	24	46	3.0	15	111	4.8
21	14	31	1.2	25	28	1.9	12	44	1.4
22	14	29	1.1	30	1370	202	12	32	1.0
23	14	27	1.0	20	125	6.9	13	30	1.0
24	14	25	.98	16	36	1.6	13	28	.98
25	14	25	.96	15	27	1.1	12	27	.90
26	14	24	.93	19	25	1.3	13	26	.94
27	14	23	.89	20	23	1.2	13	25	.87
28	14	22	.84	21	21	1.2	10	31	1.1
29	15	21	.83	21	21	1.2	4.6	53	.67
30	21	20	1.1	21	21	1.2	4.9	41	.54
31	22	19	1.1	21	23	1.3	---	---	---
TOTAL	392.2	---	137.57	681	---	246.71	498.5	---	110.20
YEAR	8782.6		11558.70						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
20...	0830	28	165	12	99
DEC					
22...	1611	14	328	12	99
FEB					
06...	1345	12	22	.71	72
APR					
16...	1832	26	65	4.6	89

50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
OCT							
27...	1630	E62	2430	400	56	66	77

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
OCT							
27...	85	93	95	99	100	100	100

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 mi^2 (47.9 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
03...	1345	28	294	8.1	26.5	27	6.8	88	<10	360	370
MAR											
04...	1340	26	255	8.1	25.0	3.0	7.7	95	<10	K190	K36
MAY											
12...	1730	24	280	7.7	25.5	10	7.9	100	10	K130	360
SEP											
01...	1345	29	279	8.4	27.6	4.0	7.4	99	<10	400	K160

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
03...	110	26	11	12	.5	3.1	100	<1.0	9.9	18
MAR										
04...	--	--	--	--	--	--	100	--	--	--
MAY										
12...	94	21	9.9	15	.7	2.5	93	<1.0	6.3	20
SEP										
01...	100	24	11	17	.7	2.3	110	--	7.9	19

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
03...	<.10	24	164	12.5	17	.964	.016	.980	.030	.25
MAR										
04...	--	--	--	--	1	--	<.010	.750	.040	--
MAY										
12...	<.10	21	151	9.89	5	--	<.010	.460	.020	--
SEP										
01...	<.10	25	172	13.4	5	--	<.010	.640	.030	.26

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
03...	.28	1.3	5.6	.030	1	<100	20	<1	2	<10
MAR										
04...	<.20	--	--	.170	--	--	--	--	--	--
MAY										
12...	E.21	--	--	<.020	<1	20	E30	<1	<1	<10
SEP										
01...	.29	.93	4.1	<.020	--	--	--	--	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
03...	1200	<1	49	<.10	<1	<1	<10	<.010	5	<.02
MAR										
04...	--	--	--	--	--	--	--	--	--	--
MAY										
12...	360	<1	65	<.10	<1	<1	<40	<.010	<4	<.02
SEP										
01...	--	--	--	--	--	--	--	--	--	--

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 (2.1km) south of colonia Santa Rosa and 4.7 mi (7.6 km) south of Bayamón.

DRAINAGE AREA.--41.8 mi^2 (108.3 km^2).

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 topographic 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 Represa 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	17	871	95	58	48	15	8.9	31	8.8	162	40
2	21	74	1240	81	55	30	27	9.2	12	606	134	27
3	23	25	906	77	29	21	20	9.4	9.6	47	54	27
4	19	18	724	72	27	20	16	9.2	8.9	12	26	46
5	19	15	405	65	26	19	14	9.2	8.7	12	24	26
6	22	14	301	63	e26	18	14	25	8.4	9.5	20	185
7	31	16	219	54	e25	18	13	15	65	9.2	21	104
8	22	14	145	51	25	18	13	110	270	60	19	53
9	19	38	112	51	24	165	13	29	54	233	18	31
10	18	108	84	71	23	32	19	9.1	19	43	18	30
11	17	140	109	75	23	21	27	e8.1	9.8	137	118	66
12	18	508	92	54	37	19	11	e8.3	11	69	21	34
13	18	675	76	50	48	19	11	e8.6	9.3	38	18	34
14	17	164	56	50	25	e19	10	8.0	83	24	18	31
15	16	85	45	225	24	e19	11	7.6	187	212	30	27
16	13	62	43	97	e29	e20	9.7	7.5	222	55	77	26
17	13	53	37	52	e26	20	9.6	7.4	359	142	25	26
18	13	48	34	40	e24	19	10	7.3	99	38	19	27
19	18	47	34	38	e23	18	10	7.3	46	26	17	285
20	15	53	101	36	e23	17	9.7	7.4	44	172	29	138
21	20	71	52	36	e22	17	9.5	7.4	21	75	30	34
22	162	46	40	44	e22	16	9.7	7.3	11	24	177	23
23	114	44	69	33	e21	16	11	7.5	9.8	176	364	23
24	22	135	44	30	20	17	10	7.2	9.1	46	62	103
25	17	81	34	30	21	16	9.7	7.7	8.8	27	28	26
26	130	52	44	37	20	15	9.6	6.8	8.5	24	22	78
27	e469	56	100	30	20	14	9.4	6.6	8.4	23	21	45
28	843	49	233	169	20	14	9.2	6.7	9.0	21	19	36
29	636	81	852	33	---	14	9.2	26	14	38	42	45
30	166	146	214	28	---	38	9.2	34	9.9	26	28	23
31	25	---	130	28	---	23	---	85	---	22	196	---
TOTAL	2981	2935	7446	1895	766	780	379.5	513.7	1666.2	2455.5	1857	1699
MEAN	96.2	97.8	240	61.1	27.4	25.2	12.6	16.6	55.5	79.2	59.9	56.6
MAX	843	675	1240	225	58	165	27	110	359	606	364	285
MIN	13	14	34	28	20	14	9.2	6.6	8.4	8.8	17	23
AC-FT	5910	5820	14770	3760	1520	1550	753	1020	3300	4870	3680	3370
CFSM	2.30	2.34	5.75	1.46	.65	.60	.30	.40	1.33	1.89	1.43	1.35
IN.	2.65	2.61	6.63	1.69	.68	.69	.34	.46	1.48	2.19	1.65	1.51

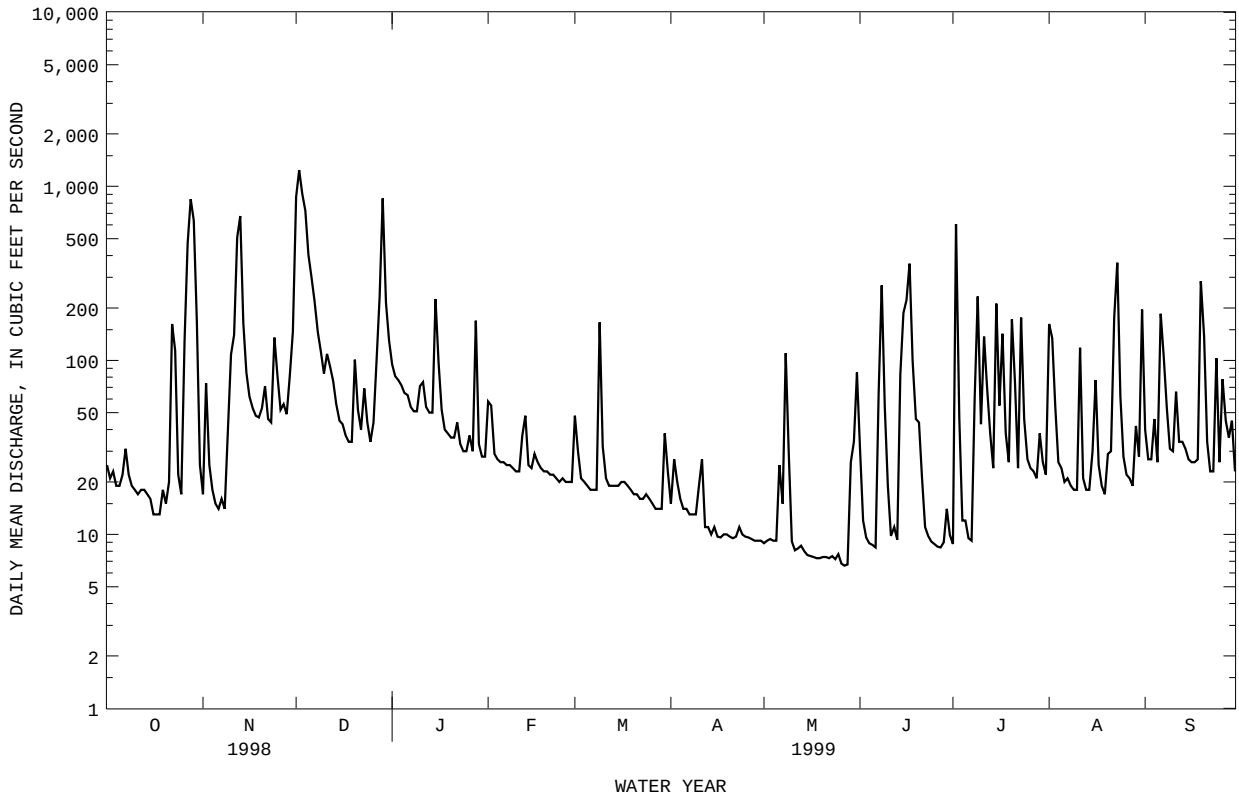
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)

MEAN	37.1	45.3	50.7	36.3	23.4	18.1	20.1	36.6	20.6	24.3	42.7	67.3
MAX	129	174	263	159	75.3	52.9	72.7	131	60.8	79.2	137	360
(WY)	1991	1970	1966	1969	1989	1990	1971	1966	1970	1999	1970	1996
MIN	4.30	7.91	3.45	5.30	4.75	3.58	5.36	4.85	3.68	4.01	7.47	6.02
(WY)	1969	1965	1998	1968	1965	1965	1965	1994	1994	1994	1994	1967

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1964 - 1999	
ANNUAL TOTAL	24759.4		25373.9			
ANNUAL MEAN	67.8		69.5		35.3	
HIGHEST ANNUAL MEAN					69.5	1999
LOWEST ANNUAL MEAN					10.9	1994
HIGHEST DAILY MEAN	3640	Sep 22	1240	Dec 2	8640	Sep 10 1996
LOWEST DAILY MEAN	2.5	Jan 2	6.6	May 27	2.2	Apr 19 1965
ANNUAL SEVEN-DAY MINIMUM	4.6	Jan 28	7.1	May 22	2.4	Apr 14 1965
INSTANTANEOUS PEAK FLOW			5240	Oct 28	65000	Sep 10 1996
INSTANTANEOUS PEAK STAGE			11.69	Oct 28	29.07	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	49110		50330		25590	
ANNUAL RUNOFF (CFSM)	1.62		1.66		.84	
ANNUAL RUNOFF (INCHES)	22.03		22.58		11.48	
10 PERCENT EXCEEDS	118		152		60	
50 PERCENT EXCEEDS	11		26		13	
90 PERCENT EXCEEDS	6.2		9.3		5.0	

e Estimated

50047850 RIO BAYAMON NR BAYAMON, PR--Continued



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 mi^2 (189.6 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
15...	1145	59	435	7.6	27.0	8.0	6.6	82	<10	75000	7100
FEB											
23...	1510	--	465	8.1	27.0	17	4.9	61	<10	2400	520
JUN											
04...	1045	--	46	--	27.6	16	4.2	53	11	2400	550
AUG											
23...	1120	1140	118	7.7	25.5	410	6.4	78	92	230000	210000

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
15...	160	44	13	23	.8	3.2	160	<1.0	12	31
FEB										
23...	--	--	--	--	--	--	171	--	--	--
JUN										
04...	170	47	13	26	.9	3.2	166	<1.0	18	34
AUG										
23...	37	11	2.7	5.7	.4	1.6	51	--	3.8	6.0

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
15...	.15	29	252	40.0	17	1.02	.083	1.10	.260	.30
FEB										
23...	--	--	--	--	23	.796	.054	.850	.150	.32
JUN										
04...	.17	27	269	--	64	.550	.030	.580	.090	--
AUG										
23...	<.10	7.1	68	209	1220	.270	.040	.310	.160	2.8

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
15...	.56	1.7	7.3	.160	<1	<100	30	<1	<1	<10
FEB										
23...	.47	1.3	5.8	.150	--	--	--	--	--	--
JUN										
04...	E.51	--	--	E.160	<1	100	60	<1	<1	E12
AUG										
23...	3.0	3.3	15	1.30	--	--	--	--	--	--

50047990 RIO GUAYNABO NEAR BAYAMON, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
15...	500	<1	130	<.10	<1	<1	<10	<.010	--	.07
FEB										
23...	--	--	--	--	--	--	--	--	--	--
JUN										
04...	820	<1	150	<.10	<1	<1	<40	<.010	7	.24
AUG										
23...	--	--	--	--	--	--	--	--	--	--

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 mi (1.6 km) downstream from bridge on Highway 2, and 3.2 mi (5.1 km) above mouth.

DRAINAGE AREA.--71.9 mi^2 (186.2 km^2).

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 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
15...	0930	134	420	7.7	25.0	4.4	7.3	88	<10	58000	2600
MAR											
15...	1215	39	437	7.4	28.4	6.2	5.3	68	<10	2700	64
JUN											
07...	1230	14	481	8.1	30.5	10	6.9	92	32	K1200	K20
AUG											
23...	0945	174	278	7.7	25.9	--	7.5	99	17	27000	44000

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
15...	160	42	14	21	.7	2.8	150	<1.0	12	28
MAR										
15...	--	--	--	--	--	--	162	--	--	--
JUN										
07...	180	49	15	29	.9	2.5	174	<1.0	14	43
AUG										
23...	99	25	8.7	15	.6	2.7	96	--	9.8	19

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
15...	.14	27	237	85.7	1	.826	.034	.860	.070	.27
MAR										
15...	--	--	--	--	7	.444	.026	.470	.180	--
JUN										
07...	.28	27	283	10.6	11	--	<.010	.050	.030	--
AUG										
23...	.11	21	159	74.8	170	.790	.040	.830	.100	.83

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
15...	.34	1.2	5.3	.080	<1	<100	20	<1	<1	10
MAR										
15...	E.43	--	--	E.110	--	--	--	--	--	--
JUN										
07...	E.55	--	--	E.070	<1	80	60	<1	<1	E9
AUG										
23...	.93	1.8	7.8	.200	--	--	--	--	--	--

50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
15...	400	<1	150	<.10	<1	<1	10	<.010	<1	.07
MAR										
15...	--	--	--	--	--	--	--	--	--	--
JUN										
07...	480	<1	310	<.10	<1	<1	<40	<.010	5	<.13
AUG										
23...	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN I TOTAL (UG/L) (39388)
JUN 1999										
07...	1230	<.100	<.010	<.100	<.010	<.010	<.010	.012	<.010	<.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)
JUN 1999										
07...	<.010	<.010	<.010	<.010	<.010	.015	<.010	<.010	--	<.010

DATE	PARA-THION, TOTAL (UG/L) (39540)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	2,4-DP TOTAL (UG/L) (82183)	SILVEX, TOTAL (UG/L) (39760)
JUN 1999									
07...	<.010	<.100	<.100	<1.00	<.010	.098	<.010	<.010	<.010

50048680 LAGO LAS CURIAS AT DAMSITE NEAR RIO PIEDRAS, PR

LOCATION.--Lat 18°24'23", long 66°03'05", Hydrologic Unit 21010005 at Lago Las Curias Dam on Río Piedras, 4.15 mi (6.67 km) south of University of Puerto Rico Tower, 1.6 mi (2.57 km) northwest from Escuela José F. Díaz and 0.8 mi (1.28 km) north of Escuela Cupey Alto.

DRAINAGE AREA.--0.97 mi^2 (2.51 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--April 1997 to current year.

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

REMARKS.--Lago Las Curias was completed in 1946. The reservoir has a capacity of 1,135 ac-ft (1.40 hm^3) at spillway crest elevation 315.78 ft (96.25 m) for water supply. The dam is earthfill and has a crest elevation of 327.3 ft (99.75 m). Masonry parapet walls continous from abutment on each side of the 25 ft (7.62 m) wide crest. The dam is about 82.0 ft (25.0 m) high and 984.2 ft (300.0 m) long. The morning-glory inlet conduit spillway in located along the left abutment of the dam and has an uncontrolled capacity of about 5,000 ft^3/s (141.6 m^3/s) at reservoir elevation 321.5 ft (98.0 m). This dam is operated by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 317.01 ft (96.62 m),Aug. 11, 1998; minimum elevation, 313.04 ft (95.41 m), Oct. 5, 1998.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 316.86 ft (96.56 m), Oct. 29; minimum elevation, 313.06 ft (95.41 m), Oct. 5.

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
284.7	154	313.0	677
298.2	462	314.3	1,078
307.1	770	317.5	1,232

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	313.89	316.18	315.94	315.87	A	A	A	315.71	315.95	315.86	315.88	315.84
2	313.65	316.21	316.03	315.88	A	A	A	315.70	315.91	315.91	315.85	315.84
3	313.41	316.20	315.92	315.88	A	A	A	315.70	315.87	315.87	315.86	315.89
4	313.16	316.27	315.91	315.87	315.86	A	A	315.69	315.88	315.87	315.87	315.86
5	313.06	316.29	315.94	315.89	315.84	A	A	315.68	315.86	315.87	315.88	315.87
6	313.11	316.28	315.87	315.88	315.85	A	A	315.68	315.85	315.85	315.86	315.86
7	313.13	316.27	315.86	315.88	315.85	A	A	315.83	315.87	315.85	A	315.89
8	313.16	316.28	315.86	315.88	315.85	A	A	315.86	315.90	315.86	315.86	315.85
9	313.18	316.31	315.86	315.88	A	A	A	315.80	315.95	315.87	A	315.97
10	313.20	316.30	315.88	315.94	A	A	A	315.79	315.89	315.85	A	315.87
11	313.23	316.32	315.88	315.88	A	A	A	315.80	315.87	315.86	A	315.90
12	313.20	316.46	315.87	315.88	315.85	A	A	315.80	315.96	315.85	A	315.85
13	313.22	316.00	315.86	315.88	A	A	A	315.78	315.88	315.86	A	315.84
14	313.22	315.95	315.86	315.93	315.84	A	A	315.77	315.87	315.88	315.90	315.85
15	313.25	315.94	315.89	315.90	315.84	A	A	315.76	315.87	A	A	315.84
16	313.27	315.97	315.89	315.90	315.84	A	A	315.75	315.87	315.88	A	315.85
17	313.31	315.89	315.88	315.88	315.85	A	A	315.74	315.89	315.87	A	315.84
18	313.33	315.89	315.88	315.88	A	A	A	315.74	315.88	315.85	A	315.91
19	313.36	315.90	315.90	315.88	A	A		315.73	315.88	315.85	A	315.87
20	313.38	315.89	315.91	315.87	315.86	A	A	315.73	315.88	A	A	315.88
21	313.72	315.86	315.89	315.89	315.86	A	A	315.73	315.86	315.85	A	315.86
22	316.09	315.84	315.92	315.88	A	A	A	315.74	315.87	315.87	A	315.84
23	316.06	315.85	315.98	315.88	A	A	A	315.76	315.85	315.94	A	315.85
24	316.10	315.85	315.89	315.86	A	315.86	A	315.75	315.84	315.87	A	315.85
25	316.16	315.83	315.89	315.89	A	315.86	A	A	315.82	A	A	315.86
26	316.06	315.83	315.89	315.87	A	315.84	A	A	A	A	315.85	315.89
27	316.17	315.91	315.89	315.86	A	315.83	315.76	315.78	A	A	315.84	315.87
28	316.02	315.85	316.07	315.87	A	315.83	315.74	A	A	A	315.85	315.87
29	316.08	315.86	315.89	A	---	A	315.74	315.89	315.90	A	315.86	315.87
30	315.95	315.88	315.89	A	---	A	315.72	315.89	315.85	315.85	315.85	315.86
31	316.25	---	315.88	---	---	A	---	315.91	---	315.85	315.86	---
MAX	316.25	316.46	316.07	---	---	---	---	---	---	---	---	315.97
MIN	313.06	315.83	315.86	---	---	---	---	---	---	---	---	315.84

A No gage-height record

50048690 QUEBRADA LAS CURIAS BELOW LAS CURIAS DAM, PR

LOCATION.--Lat 18°20'43", long 66°03'08", Hydrologic Unit 21010005, at 0.20 miles from Lago Las Curias Dam on Río Piedras, 4.13 mi (6.64 km) south of University of Puerto Rico Tower, 2.55 mi (4.10 km) northwest from Lago Loíza spillway crest and 0.85 mi (1.37 km) north of Escuela Cupey Alto.

DRAINAGE AREA.--1.08 mi^2 (2.79 km^2).

PERIOD OF RECORD.--August 1997 to current year.

GAGE.--Water stage recorder. Elevation of gage is 262.47 ft (80.0 km), from topographic map.

REMARKS.--Records poor. Flow completly regulated by Lago Las Curias Dam, 0.20 mi (0.32 km) from gage. Gage-height and precipitation telemetry at station.

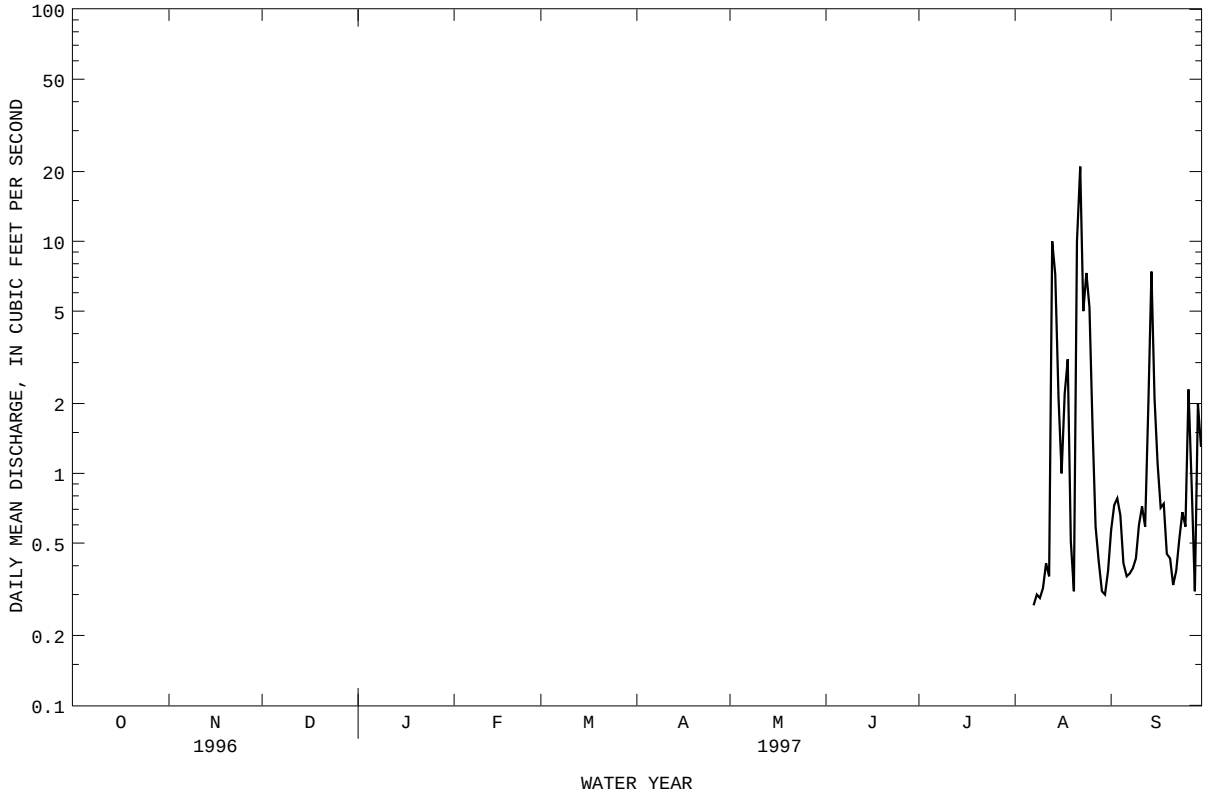
DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1												.57
2												.73
3												.78
4												.66
5												.41
6												.36
7											.27	.37
8											.30	.39
9											.29	.43
10											.32	.60
11											.41	.72
12											.36	.59
13											10	2.0
14											7.2	7.4
15											2.1	2.1
16											1.0	1.1
17											2.2	.71
18											3.1	.74
19											.51	.45
20											.31	.43
21											10	.33
22											21	.38
23											5.0	.52
24											7.3	.68
25											5.2	.59
26											1.6	2.3
27											.59	.86
28											.42	.31
29											.31	2.0
30											.30	1.3
31											.38	---
TOTAL											---	30.81
MEAN											---	1.03
MAX											---	7.4
MIN											---	.31
AC-FT											---	61

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1997, BY WATER YEAR (WY)

MEAN	---	1.03
MAX	---	1.03
(WY)	---	1997
MIN	---	1.03
(WY)	---	1997

50048690 QUEBRADA LAS CURIAS BELOW LAS CURIAS DAM, PR--Continued



50048690 QUEBRADA LAS CURIAS BELOW LAS CURIAS DAM, PR--continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	.52	.76	e.61	.42	.38	.42	.26	.40	.18	.30	4.8
2	15	.50	.57	e.61	.40	.35	.39	.25	.25	.19	.28	.55
3	6.4	.62	.55	e.70	.48	.33	.28	.27	.24	.24	.30	.37
4	1.1	.66	.56	e.64	2.9	.33	.30	.27	.25	1.4	.33	.40
5	.64	.98	.57	e.66	18	.34	.36	.28	2.0	.83	.36	.43
6	.71	.59	.55	e1.9	1.6	.30	.29	.26	1.5	.23	e.40	36
7	.71	.62	.59	e2.1	1.1	.32	.32	.25	.60	.58	1.7	10
8	14	.56	.54	e.58	3.2	.34	.33	.25	.30	.29	1.6	2.8
9	6.1	.81	.49	e.56	4.2	.33	.25	.25	2.0	.33	.62	2.3
10	1.5	.86	.45	e.52	.56	.27	.23	.25	2.0	.23	3.9	1.7
11	.88	.69	.45	e.48	.47	.28	.24	.26	.42	.25	46	.84
12	6.3	.68	.45	e.55	.56	.29	.58	.26	.28	.28	12	1.6
13	6.4	.72	.44	e1.9	e.55	.29	1.5	.27	.25	.22	2.8	3.2
14	31	.80	.47	e1.2	1.8	.34	.43	.32	.31	.18	1.2	2.4
15	3.1	1.8	.47	e.90	2.2	.29	.48	.25	.26	.20	.91	1.6
16	1.7	2.6	.47	.79	1.0	.30	9.2	.27	.26	9.4	.74	2.1
17	.95	.84	.46	.55	1.1	.35	2.3	.27	.37	2.0	.60	5.9
18	1.2	.97	.50	2.8	.84	.39	.45	.26	e.91	1.5	5.8	9.6
19	.94	1.4	.49	1.6	.61	.31	.44	.26	.55	.81	3.2	15
20	.60	.80	e.48	.50	.40	.30	1.3	.26	.38	4.3	1.1	15
21	.53	2.7	e.69	.58	.46	.35	.86	.27	.28	2.5	6.7	37
22	.61	1.5	e.47	.57	.38	.32	.67	.28	.30	.65	7.9	96
23	.59	.81	e.44	.42	.48	.29	.47	.34	.23	.54	7.7	19
24	.71	.56	e.49	.48	.38	.28	e.36	.38	.22	1.6	7.8	14
25	.62	.59	e.47	.56	.34	.28	e.30	.32	.21	.70	7.7	14
26	.62	.76	e.48	.51	.36	.31	e.27	.32	.20	.47	7.6	14
27	.63	.64	e.48	.59	.38	.32	.28	.47	.20	.49	7.9	14
28	.52	.62	e.47	.48	.38	.31	.28	.34	.20	.51	53	14
29	.53	.63	e.49	.46	---	.50	.29	.31	.18	.40	11	13
30	.51	.76	e.51	.42	---	.28	.31	.32	.19	.41	8.9	13
31	.54	---	e.57	.42	---	.42	---	.30	---	.30	8.4	---
TOTAL	107.34	27.59	15.87	25.64	45.55	10.09	24.18	8.92	15.74	32.21	218.74	364.59
MEAN	3.46	.92	.51	.83	1.63	.33	.81	.29	.52	1.04	7.06	12.2
MAX	31	2.7	.76	2.8	18	.50	9.2	.47	2.0	9.4	53	96
MIN	.51	.50	.44	.42	.34	.27	.23	.25	.18	.18	.28	.37
AC-FT	213	55	31	51	90	20	48	18	31	64	434	723

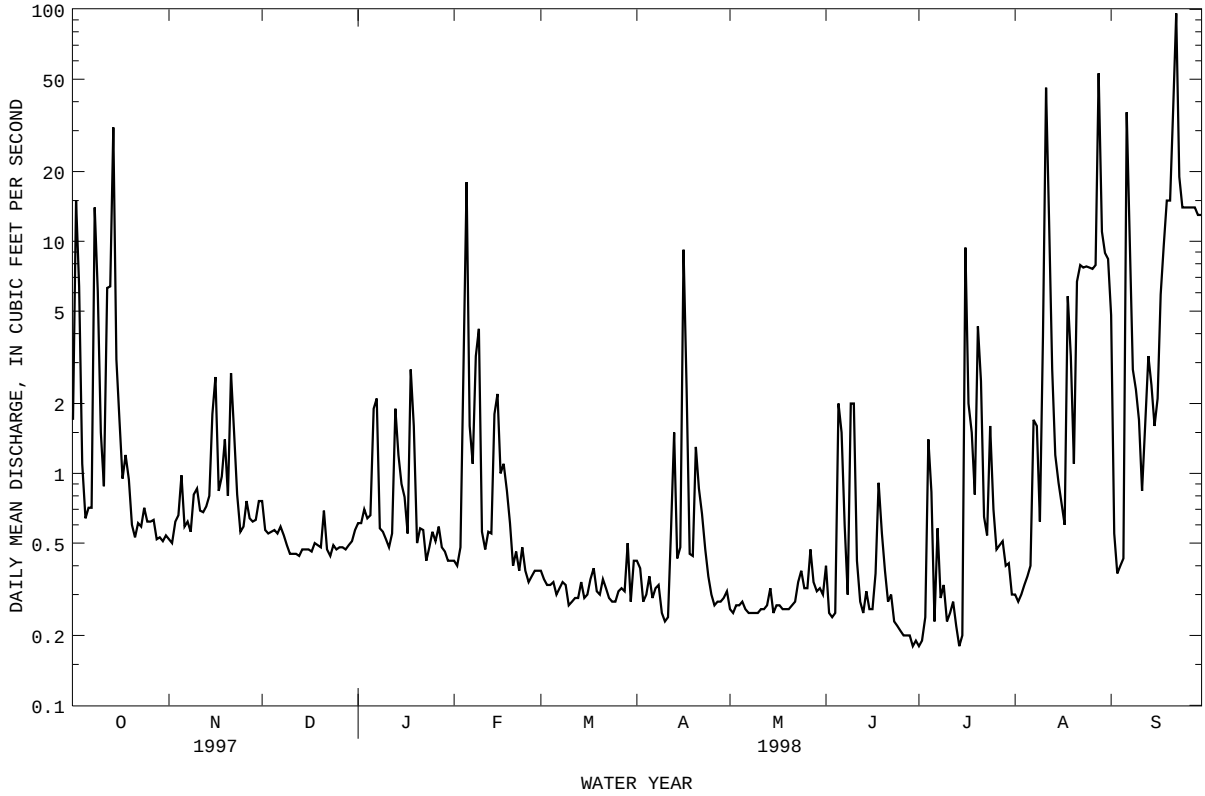
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1998, BY WATER YEAR (WY)

MEAN	3.46	.92	.51	.83	1.63	.33	.81	.29	.52	1.04	7.06	6.59
MAX	3.46	.92	.51	.83	1.63	.33	.81	.29	.52	1.04	7.06	12.2
(WY)	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998
MIN	3.46	.92	.51	.83	1.63	.33	.81	.29	.52	1.04	7.06	1.03
(WY)	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1997

SUMMARY STATISTICS	FOR 1998 WATER YEAR		WATER YEARS 1997 - 1998	
ANNUAL TOTAL	896.46			
ANNUAL MEAN	2.46		2.46	
HIGHEST ANNUAL MEAN			2.46	1998
LOWEST ANNUAL MEAN			2.46	1998
HIGHEST DAILY MEAN	96	Sep 22	96	Sep 22 1998
LOWEST DAILY MEAN	.18	Jun 29	.18	Jun 29 1998
ANNUAL SEVEN-DAY MINIMUM	.19	Jun 26	.19	Jun 26 1998
INSTANTANEOUS PEAK FLOW	431	Sep 22	431	Sep 22 1998
INSTANTANEOUS PEAK STAGE	11.70	Sep 22	11.70	Sep 22 1998
ANNUAL RUNOFF (AC-FT)	1780		1780	
10 PERCENT EXCEEDS	6.3		6.4	
50 PERCENT EXCEEDS	.52		.54	
90 PERCENT EXCEEDS	.26		.27	

e Estimated

50048690 QUEBRADA LAS CURIAS BELOW LAS CURIAS DAM, PR--continued



50048690 QUEBRADA LAS CURIAS BELOW LAS CURIAS DAM, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

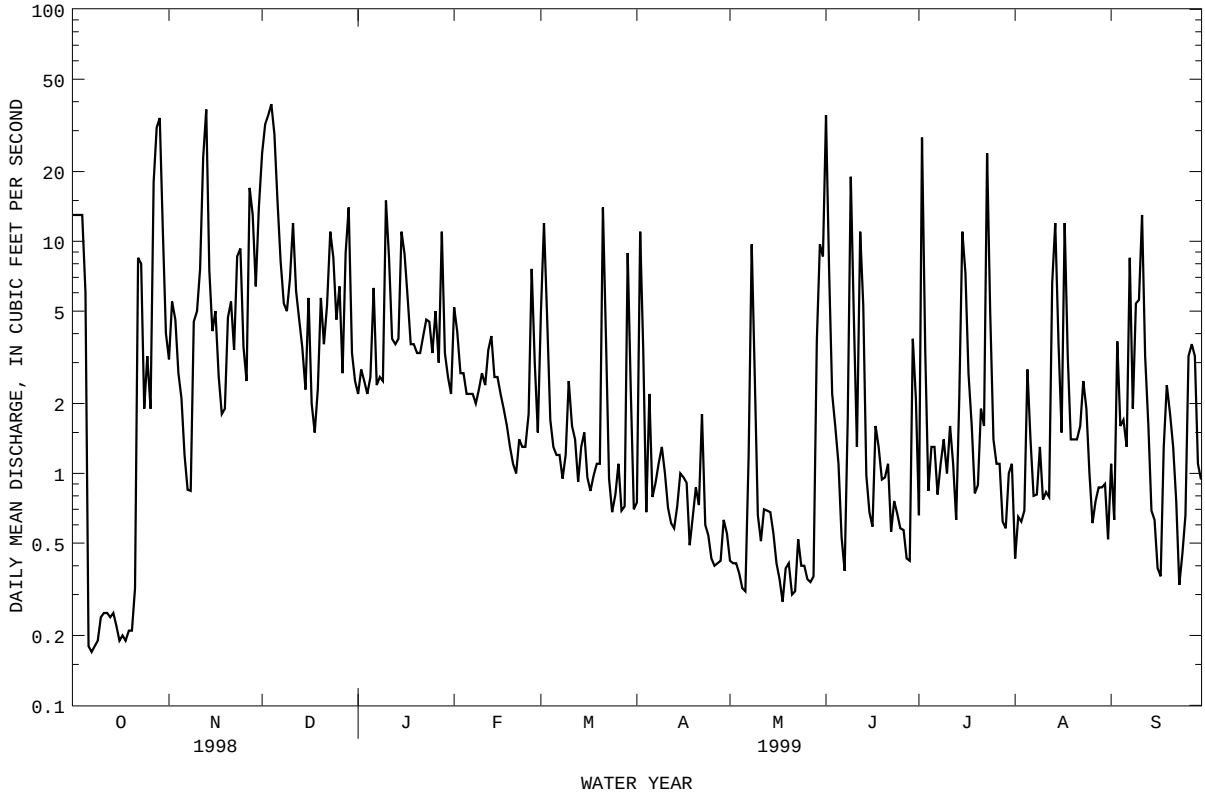
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	3.1	24	2.2	5.2	4.9	.75	.42	35	.66	.43	1.1
2	13	5.5	32	2.8	4.1	12	11	.41	7.5	28	.65	.63
3	13	4.6	35	2.5	2.7	4.8	3.4	.41	2.2	3.3	.62	3.7
4	13	2.7	39	2.2	2.7	1.7	.68	.37	1.6	.84	.69	1.6
5	6.0	2.1	29	2.6	2.2	1.3	2.2	.32	1.1	1.3	2.8	1.7
6	.18	1.2	15	6.3	2.2	1.2	.79	.31	.53	1.3	1.4	1.3
7	.17	.85	8.3	2.4	2.2	1.2	.91	1.2	.38	.81	.80	8.5
8	.18	.84	5.4	2.6	2.0	.95	1.1	9.7	1.7	1.1	.81	1.9
9	.19	4.5	5.0	2.5	2.3	1.2	1.3	2.6	19	1.4	1.3	5.4
10	.24	5.0	6.9	15	2.7	2.5	1.0	.66	4.7	1.0	.77	5.6
11	.25	7.6	12	8.5	2.4	1.6	.71	.51	1.3	1.6	.83	13
12	.25	23	6.1	3.8	3.4	1.4	.61	.70	11	1.1	.79	3.2
13	.24	37	4.6	3.6	3.9	.92	.58	.69	5.3	.63	6.6	1.6
14	.25	7.5	3.5	3.8	2.6	1.3	.72	.68	.98	2.1	12	.69
15	.22	4.1	2.3	11	2.6	1.5	1.0	.55	.68	11	3.6	.63
16	.19	5.0	5.7	8.8	2.2	.96	.96	.41	.59	7.3	1.5	.39
17	.20	2.6	2.0	5.7	1.9	.84	.91	.35	1.6	2.7	12	.36
18	.19	1.8	1.5	3.6	1.6	.98	.49	.28	1.3	1.6	3.2	1.3
19	.21	1.9	2.3	3.6	1.3	1.1	.65	.39	.94	.82	1.4	2.4
20	.21	4.7	5.7	3.3	1.1	1.1	.87	.41	.96	.89	1.4	1.8
21	.32	5.5	3.6	3.3	1.0	14	.73	.30	1.1	1.9	1.4	1.3
22	8.5	3.4	5.3	3.9	1.4	3.8	1.8	.31	.56	1.6	1.6	.76
23	8.0	8.6	11	4.6	1.3	.95	.60	.52	.76	24	2.5	.33
24	1.9	9.3	8.5	4.5	1.3	.68	.54	.40	.67	5.0	1.9	.45
25	3.2	3.5	4.6	3.3	1.8	.81	.43	.40	.58	1.4	1.0	.66
26	1.9	2.5	6.4	5.0	7.6	1.1	.40	.35	.57	1.1	.61	3.2
27	18	17	2.7	3.0	3.0	.69	.41	.34	.43	1.1	.76	3.6
28	31	13	8.9	11	1.5	.72	.42	.36	.42	.62	.87	3.2
29	34	6.4	14	3.3	---	8.9	.63	3.7	3.8	.58	.87	1.1
30	11	14	3.3	2.6	---	2.3	.55	9.7	2.1	1.0	.90	.94
31	4.0	---	2.5	2.2	---	.70	---	8.6	---	1.1	.52	---
TOTAL	182.99	208.79	316.1	143.5	70.2	78.10	37.14	46.35	109.35	108.85	66.52	72.34
MEAN	5.90	6.96	10.2	4.63	2.51	2.52	1.24	1.50	3.64	3.51	2.15	2.41
MAX	34	37	39	15	7.6	14	11	9.7	35	28	12	13
MIN	.17	.84	1.5	2.2	1.0	.68	.40	.28	.38	.58	.43	.33
AC-FT	363	414	627	285	139	155	74	92	217	216	132	143

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1999, BY WATER YEAR (WY)

MEAN	4.68	3.94	5.35	2.73	2.07	1.42	1.02	.89	2.08	2.28	4.60	5.20
MAX	5.90	6.96	10.2	4.63	2.51	2.52	1.24	1.50	3.64	3.51	7.06	12.2
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1998	1998
MIN	3.46	.92	.51	.83	1.63	.33	.81	.29	.52	1.04	2.15	1.03
(WY)	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1999	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1997 - 1999	
ANNUAL TOTAL	1453.54		1440.23			
ANNUAL MEAN	3.98		3.95		3.20	
HIGHEST ANNUAL MEAN					3.95	1999
LOWEST ANNUAL MEAN					2.46	1998
HIGHEST DAILY MEAN	96	Sep 22	39	Dec 4	96	Sep 22 1998
LOWEST DAILY MEAN	.17	Oct 7	.17	Oct 7	.17	Oct 7 1998
ANNUAL SEVEN-DAY MINIMUM	.19	Jun 26	.21	Oct 6	.19	Jun 26 1998
INSTANTANEOUS PEAK FLOW			326	Jun 1	431	Aug 11 1998
INSTANTANEOUS PEAK STAGE			11.08	Jun 1	11.70	Aug 11 1998
ANNUAL RUNOFF (AC-FT)	2880		2860		2320	
10 PERCENT EXCEEDS	12		11		8.4	
50 PERCENT EXCEEDS	.56		1.6		.83	
90 PERCENT EXCEEDS	.25		.41		.29	

50048690 QUEBRADA LAS CURIAS BELOW LAS CURIAS DAM, PR--Contined--Continued



50048770 RIO PIEDRAS AT EL SEÑORIAL, PR

LOCATION.--Lat 18°21'51", long 66°03'56", Hydrologic Unit 21010005, on right bank, in the Riberas of Señorial 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 mi^2 (19.40 km^2).

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. Low flow is affected by discharges from water treatment plant of PRASA and others dispersed pollution points directly to the rivr. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	27	151	21	31	46	8.1	5.8	168	6.3	8.6	13
2	9.6	38	184	30	17	70	77	5.5	50	179	9.5	9.7
3	9.4	24	246	18	14	17	16	5.4	14	17	8.6	106
4	9.3	18	229	17	e14	11	9.7	5.4	18	8.9	8.5	19
5	9.0	17	178	22	e14	10	14	5.2	7.4	10	39	19
6	8.5	16	80	37	e14	9.9	8.9	5.4	6.3	8.3	14	16
7	8.3	17	56	17	e13	9.6	8.4	36	9.6	7.7	13	57
8	9.1	16	43	16	e13	9.2	10	70	24	13	12	15
9	9.6	26	35	18	e14	13	17	12	116	20	9.7	27
10	11	50	30	91	e14	15	14	7.7	26	8.0	8.7	28
11	9.2	61	50	33	14	10	8.6	7.0	9.9	23	22	63
12	8.9	135	28	19	26	9.5	8.0	7.2	84	8.6	11	17
13	8.3	123	23	17	21	9.0	8.0	6.9	27	35	60	12
14	e8.2	56	19	19	15	8.9	8.8	6.6	9.3	22	35	9.8
15	8.5	41	15	76	15	9.5	8.6	6.1	8.8	77	13	9.1
16	7.4	31	44	38	13	8.4	7.5	5.6	8.2	65	17	8.6
17	14	27	25	22	12	8.1	7.2	5.7	20	34	84	8.8
18	7.8	24	18	18	12	8.1	7.7	5.7	10	14	17	15
19	9.2	24	28	21	12	12	7.3	5.6	10	10	14	21
20	8.4	30	42	19	14	8.2	6.8	5.4	12	11	7.5	37
21	65	35	25	21	13	145	6.6	5.3	7.9	26	11	12
22	266	24	47	16	14	16	9.3	16	26	24	61	10
23	70	24	74	21	12	10	8.3	5.9	9.3	151	35	8.5
24	44	e34	44	21	10	10	6.6	5.8	6.9	e18	11	11
25	54	25	38	19	16	10	6.4	6.0	6.7	e12	9.1	19
26	49	17	57	25	31	9.9	6.3	5.0	6.1	e14	9.0	54
27	e194	58	35	17	14	8.8	6.2	4.8	6.1	e12	7.6	51
28	305	44	80	65	11	8.3	6.0	7.5	15	10	9.7	38
29	264	45	71	17	---	82	6.0	48	34	17	16	14
30	65	69	36	15	---	13	6.2	62	8.7	12	8.0	11
31	41	---	25	13	---	9.0	---	34	---	9.7	17	---
TOTAL	1600.7	1176	2056	819	433	624.4	329.5	420.5	765.2	883.5	606.5	739.5
MEAN	51.6	39.2	66.3	26.4	15.5	20.1	11.0	13.6	25.5	28.5	19.6	24.6
MAX	305	135	246	91	31	145	77	70	168	179	84	106
MIN	7.4	16	15	13	10	8.1	6.0	4.8	6.1	6.3	7.5	8.5
AC-FT	3170	2330	4080	1620	859	1240	654	834	1520	1750	1200	1470
CFSM	6.89	5.23	8.85	3.53	2.06	2.69	1.47	1.81	3.41	3.81	2.61	3.29
IN.	7.95	5.84	10.21	4.07	2.15	3.10	1.64	2.09	3.80	4.39	3.01	3.67

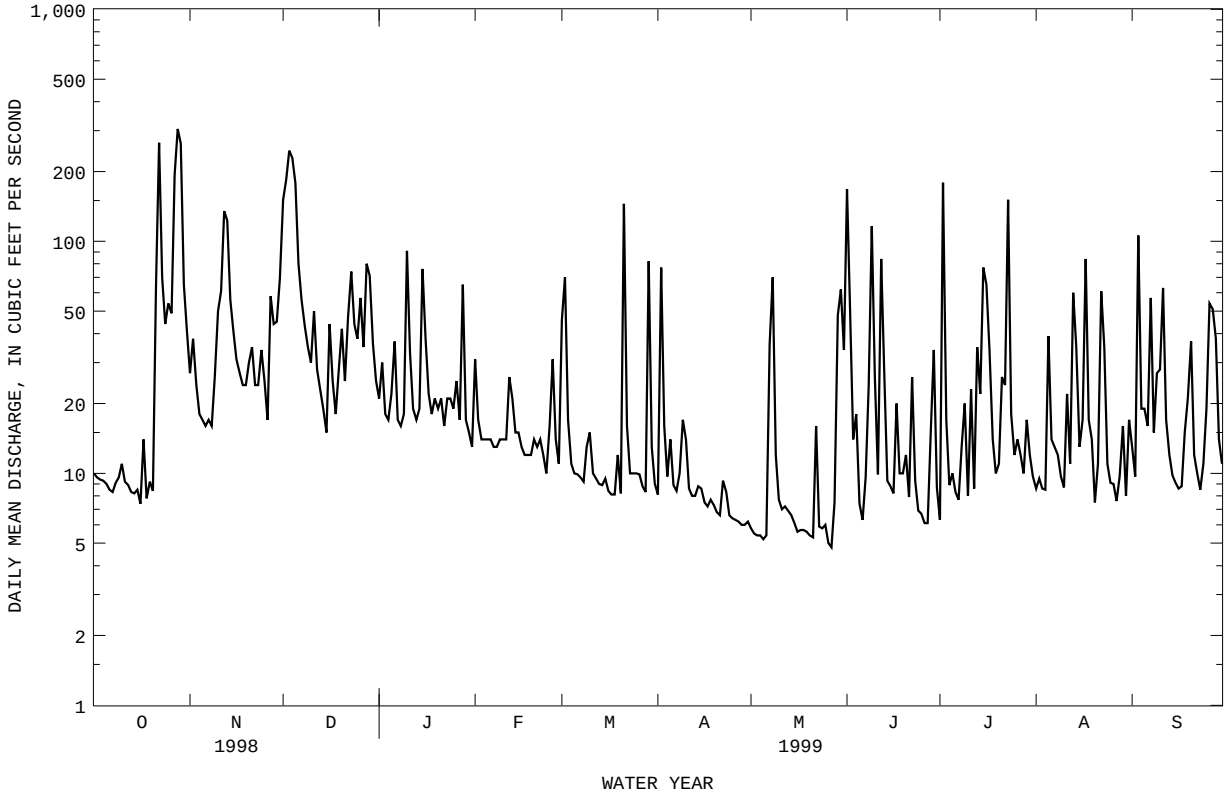
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

MEAN	26.8	22.4	19.0	15.2	12.9	11.5	11.6	14.2	12.4	15.5	21.5	31.8
MAX	57.3	59.8	66.3	26.4	23.6	20.1	23.9	47.2	25.5	38.0	66.9	80.8
(WY)	1991	1993	1999	1999	1991	1999	1993	1992	1999	1993	1992	1998
MIN	8.48	5.93	4.32	6.95	2.70	1.85	2.83	3.38	2.66	4.22	6.60	6.90
(WY)	1992	1996	1996	1995	1996	1996	1995	1994	1994	1994	1990	1991

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1988 - 1999	
ANNUAL TOTAL	9736.7		10453.8			
ANNUAL MEAN	26.7		28.6		17.8	
HIGHEST ANNUAL MEAN					28.6	1999
LOWEST ANNUAL MEAN					7.76	1994
HIGHEST DAILY MEAN	1030	Sep 22	305	Oct 28	1650	Sep 10 1996
LOWEST DAILY MEAN	3.0	Feb 1	4.8	May 27	.84	Aug 13 1995
ANNUAL SEVEN-DAY MINIMUM	3.3	Jan 28	5.6	Apr 30	.97	Jun 30 1996
INSTANTANEOUS PEAK FLOW			5280	Oct 28	5390	Sep 10 1996
INSTANTANEOUS PEAK STAGE			15.35	Oct 28	15.46	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	19310		20740		12860	
ANNUAL RUNOFF (CFSM)	3.56		3.82		2.37	
ANNUAL RUNOFF (INCHES)	48.36		51.92		32.20	
10 PERCENT EXCEEDS	52		64		36	
50 PERCENT EXCEEDS	8.3		14		8.0	
90 PERCENT EXCEEDS	3.9		7.1		2.7	

e Estimated

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued



RIO PUERTO NUEVO BASIN

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 mi^2 (20.9 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
18...	1045	19	443	7.6	26.0	4.4	6.0	74	<10	>60000	84000
MAR											
04...	1530	9.2	443	8.0	26.6	7.5	6.8	83	<10	K1500	K2000
JUN											
08...	1130	8.1	475	7.9	29.2	1.5	4.6	59	56	60000	60000
SEP											
20...	0945	9.2	415	8.0	26.3	19	7.1	88	<10	38000	55000

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
18...	150	39	13	28	1	2.9	150	E1.0	18	33
MAR										
04...	--	--	--	--	--	--	156	--	--	--
JUN										
08...	160	40	13	30	1	3.3	169	<1.0	17	37
SEP										
20...	140	37	13	24	.9	2.7	150	--	14	29

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
18...	.15	37	260	13.1	2	1.13	.069	1.20	1.50	.60
MAR										
04...	--	--	--	--	11	1.07	.029	1.10	.190	--
JUN										
08...	.17	2.5	245	5.37	57	.690	.080	.770	2.50	--
SEP										
20...	.13	32	242	6.03	9	.960	.140	1.10	1.50	.00

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
18...	2.1	3.3	15	.200	3	<100	20	<1	1	<10
MAR										
04...	E.58	--	--	E.430	--	--	--	--	--	--
JUN										
08...	E3.1	--	--	E.420	1	100	80	<1	<1	E12
SEP										
20...	1.5	2.6	12	.230	--	--	--	--	--	--

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
18...	260	<1	100	<.10	<1	<1	20	.160	<4	.28
MAR										
04...	--	--	--	--	--	--	--	--	--	--
JUN										
08...	1100	<1	170	<.10	1	<1	<40	<.010	<4	.08
SEP										
20...	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN I TOTAL (UG/L) (39388)
JUN 1999										
08...	1130	<.100	<.010	<.100	<.010	<.010	<.010	.053	<.010	<.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)
JUN 1999										
08...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010

DATE	PARA-THION, TOTAL (UG/L) (39540)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	2,4-DP TOTAL (UG/L) (82183)	SILVEX, TOTAL (UG/L) (39760)
JUN 1999									
08...	<.010	<.100	<.100	<1.00	<.010	<.010	<.010	<.010	<.010

50049100 RIO PIEDRAS AT HATO REY, PR

LOCATION.--Lat 18°24'34", long 66°04'10", Hydrologic Unit 21010005, at bridge on Avenida Piñeiro near Expreso Las Américas (Luis A. Ferré), and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA.--15.4 mi^2 (39.9 km^2).

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 ft^3/s (0.06 m^3/s), 20 ft (6 m) upstream from gaging station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e204	e87	236	43	42	119	21	14	183	20	20	32
2	e116	e235	218	58	27	150	90	13	185	287	21	29
3	e109	e134	602	41	26	28	28	13	28	28	45	119
4	e102	e61	327	e45	28	21	21	13	167	22	55	37
5	e110	e30	232	e55	26	21	24	15	29	27	39	35
6	e90	31	80	e60	25	20	21	64	23	21	21	35
7	e86	32	59	38	25	20	20	103	27	21	22	59
8	e85	31	47	39	24	19	41	126	36	25	19	34
9	e80	61	45	39	25	21	29	25	164	e34	18	37
10	e81	67	44	119	e26	25	46	20	41	e21	18	39
11	e72	131	69	41	25	19	18	33	26	e37	22	112
12	e74	202	41	33	48	19	16	18	212	e22	19	25
13	e63	332	43	36	32	18	16	17	42	e49	102	22
14	e59	63	38	35	23	18	16	16	24	e36	27	19
15	e57	66	37	69	23	18	17	15	23	92	19	61
16	e51	51	52	56	22	18	15	15	23	45	21	22
17	e62	38	42	31	22	17	15	15	31	48	135	21
18	e52	36	35	33	21	17	15	14	48	23	24	21
19	e62	36	51	31	22	20	15	14	32	20	113	31
20	e57	44	60	36	21	17	15	14	33	21	25	61
21	e139	48	47	38	21	183	14	14	22	27	34	25
22	e721	38	77	28	21	41	17	28	30	26	140	22
23	e119	48	86	31	21	28	21	18	22	264	178	20
24	e64	65	56	33	21	28	15	14	20	42	44	23
25	e86	38	64	38	40	44	14	14	19	27	45	23
26	e70	33	83	35	72	26	14	13	19	33	82	72
27	e502	58	47	28	23	25	16	13	19	25	32	55
28	e698	54	183	95	20	32	14	22	35	23	30	41
29	e603	48	106	28	---	84	14	41	33	26	40	21
30	e95	91	70	26	---	25	14	43	21	83	28	18
31	e71	---	48	26	---	22	---	82	---	22	30	---
TOTAL	4840	2289	3225	1344	772	1163	652	879	1617	1497	1468	1171
MEAN	156	76.3	104	43.4	27.6	37.5	21.7	28.4	53.9	48.3	47.4	39.0
MAX	721	332	602	119	72	183	90	126	212	287	178	119
MIN	51	30	35	26	20	17	14	13	19	20	18	18
AC-FT	9600	4540	6400	2670	1530	2310	1290	1740	3210	2970	2910	2320
CFSM	10.3	5.02	6.84	2.85	1.81	2.47	1.43	1.87	3.55	3.18	3.12	2.57
IN.	11.85	5.60	7.89	3.29	1.89	2.85	1.60	2.15	3.96	3.66	3.59	2.87

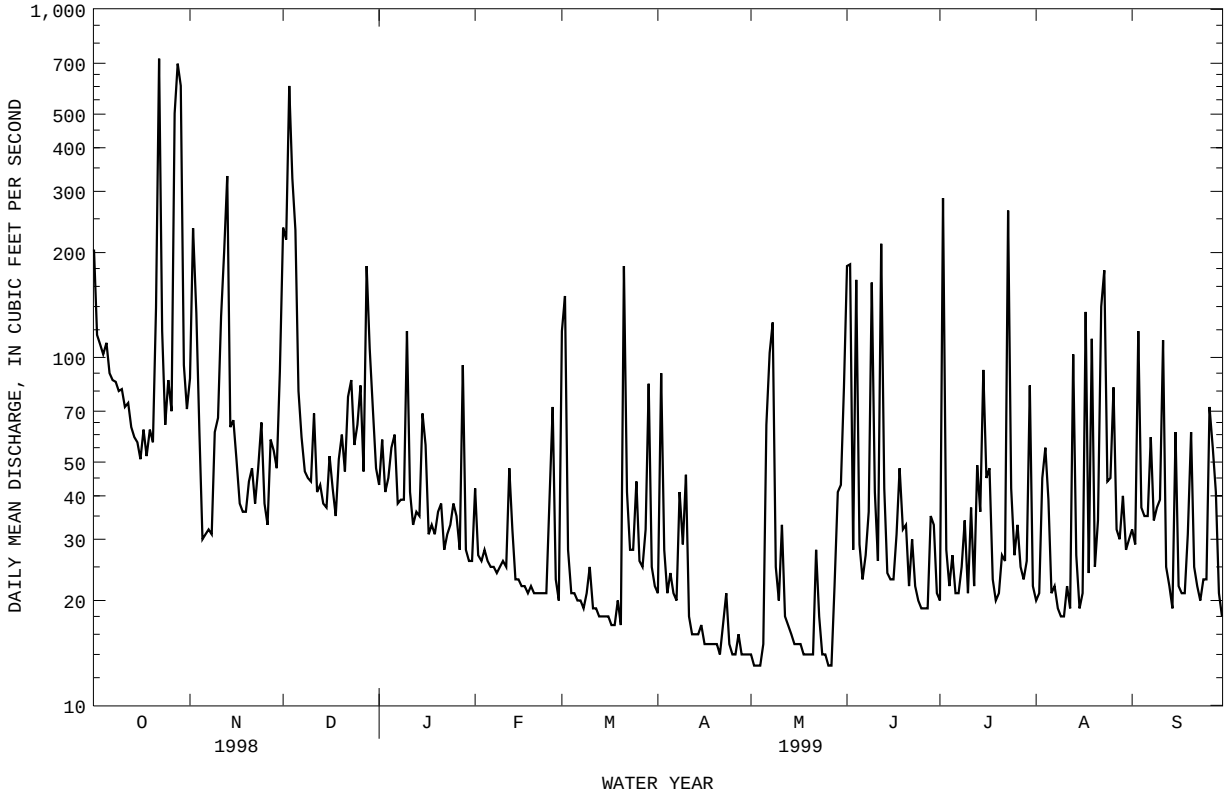
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1999, BY WATER YEAR (WY)

MEAN	74.4	74.0	52.5	45.4	42.6	37.5	51.6	43.4	42.2	49.2	56.3	97.7
MAX	156	235	168	97.4	86.9	78.5	150	97.5	81.9	97.4	84.2	261
(WY)	1999	1993	1993	1993	1995	1972	1972	1992	1995	1993	1988	1996
MIN	16.6	23.9	18.8	12.9	10.8	11.5	13.6	4.12	20.0	12.8	20.2	26.3
(WY)	1992	1991	1992	1973	1992	1994	1995	1972	1994	1994	1993	1972

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1972 - 1999	
ANNUAL TOTAL	27973.9		20917			
ANNUAL MEAN	76.6		57.3		54.9	
HIGHEST ANNUAL MEAN					84.0	1993
LOWEST ANNUAL MEAN					28.7	1994
HIGHEST DAILY MEAN	2140	Sep 22	721	Oct 22	4550	Sep 10 1996
LOWEST DAILY MEAN	5.6	May 13	13	May 2	1.2	Jun 28 1972
ANNUAL SEVEN-DAY MINIMUM	7.7	Jan 28	14	Apr 28	1.2	Jul 5 1972
INSTANTANEOUS PEAK FLOW					10500	Sep 10 1996
INSTANTANEOUS PEAK STAGE					22.11	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	55490		41490		39800	
ANNUAL RUNOFF (CFSM)	5.04		3.77		3.61	
ANNUAL RUNOFF (INCHES)	68.46		51.19		49.11	
10 PERCENT EXCEEDS	193		112		121	
50 PERCENT EXCEEDS	34		32		23	
90 PERCENT EXCEEDS	9.8		17		9.9	

e Estimated

50049100 RIO PIEDRAS AT HATO REY, PR--Continued



RIO PUERTO NUEVO BASIN

50049100 RIO PIEDRAS AT HATO REY, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'34", long 66°04'10", at bridge on Avenida Piniero at Expreso Las Americas, and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA.--15.4 mi^2 (39.9 km^2).

PERIOD OF RECORD.--Water years 1971 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
15...	1430	37	407	7.7	28.5	1.4	6.4	82	<10	K160000	26000
MAR											
04...	1230	21	461	7.9	26.8	17	6.3	77	<10	K1200	K1200
JUN											
10...	1200	32	417	7.8	29.5	2.0	4.9	64	32	K130000	57000
SEP											
20...	1100	21	404	7.9	29.5	27	6.3	82	13	39000	54000

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
15...	160	45	12	26	.9	3.3	160	<1.0	15	34
MAR										
04...	--	--	--	--	--	--	162	--	--	--
JUN										
10...	140	40	10	26	.9	3.2	139	<1.0	18	30
SEP										
20...	140	40	10	25	.9	3.0	145	--	13	29

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
15...	.19	30	261	26.4	2	1.02	.180	1.20	1.10	.50
MAR										
04...	--	--	--	--	19	.918	.082	1.00	1.10	--
JUN										
10...	.14	23	233	20.3	34	.870	.070	.940	1.10	--
SEP										
20...	.12	29	235	13.6	39	.820	.110	.930	.550	.37

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
15...	1.6	2.8	12	.190	<1	<100	20	<1	<1	<10
MAR										
04...	E1.4	--	--	E.170	--	--	--	--	--	--
JUN										
10...	E1.9	--	--	E.240	1	100	60	<1	<1	E12
SEP										
20...	.92	1.9	8.2	.170	--	--	--	--	--	--

50049100 RIO PIEDRAS AT HATO REY, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
15...	270	<1	92	<.10	<1	<1	<10	<.010	<1	.26
MAR										
04...	--	--	--	--	--	--	--	--	--	--
JUN										
10...	850	<1	70	<.10	1	<1	40	<.010	<4	.12
SEP										
20...	--	--	--	--	--	--	--	--	--	--

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 Martin 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 1998 TO SEPTEMBER 1999

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616)	STREPTOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV									
20...	1105	9280	8.6	28.5	28.0	5.4	69	2600	K30
MAR									
15...	1030	17100	8.8	27.5	19.0	6.9	86	5300	710
JUN									
11...	0940	24100	7.2	30.3	36.0	1.9	21	2200	91

DATE	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
NOV									
20...	95	22	.010	<.020	.080	1.4	1.5	.160	9.3
MAR									
15...	110	38	<.010	<.020	.030	--	E2.3	E.320	14
JUN									
11...	95	19	<.010	<.020	.860	--	E2.1	E.190	14

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 Constitucion, and 0.5 mi (0.8 km) south from U.S. Naval Reservation.

DRAINAGE--Indeterminate.

PERIOD OF RECORD--Water years 1974 to present.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TRANS-PAR-ENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)
NOV											
20...	1240	28000	8.2	29.0	27.0	7.6	98	5400	610	130	21
MAR											
15...	1200	54200	8.0	27.0	30.0	5.6	70	K13000	670	150	9
JUN											
11...	1130	53300	7.7	29.6	18.0	2.2	24	>6000	K1500	120	27

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
NOV										
20...	.112	.038	.150	.500	1.1	1.6	1.8	7.7	.130	5.1
MAR										
15...	.061	.039	.100	1.40	--	E2.3	--	--	E.340	9.4
JUN										
11...	.140	.040	.180	.920	--	E1.3	--	--	E.190	5.2

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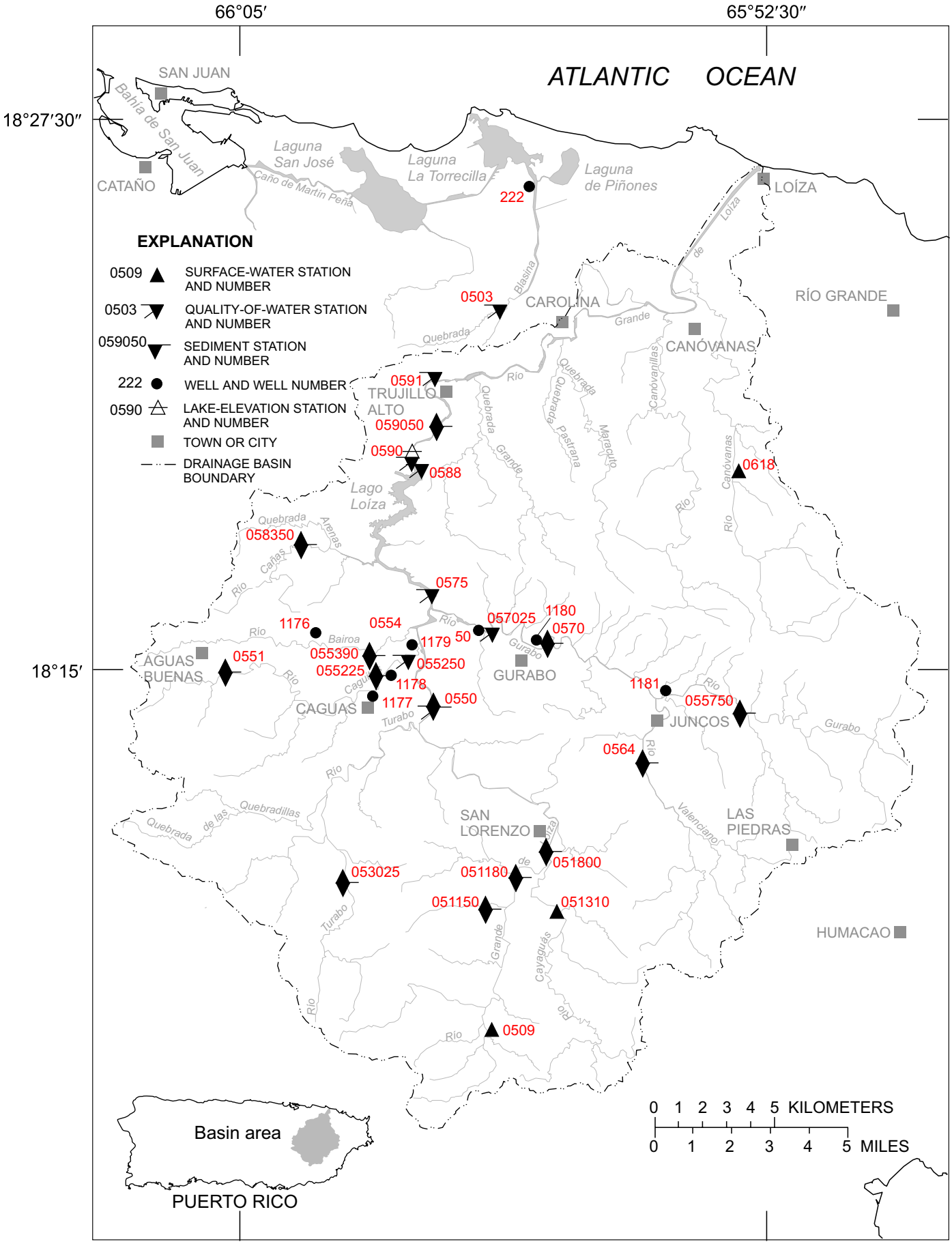


Figure 18. Río Grande de Loíza basin.

RIO GRANDE DE LOIZA 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 plaza.

DRAINAGE AREA.--2.96 mi^2 (7.67 km^2).

PERIOD OF RECORD.--Water years 1973 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
16...	1145	12	529	7.1	26.4	10	3.2	40	<10	220000	66000
MAR											
01...	1100	6.6	519	7.9	24.7	14	6.1	73	11	46000	23000
JUN											
10...	1500	21	505	7.8	28.4	2.0	5.8	65	17	22000	28000
SEP											
28...	1020	66	340	7.8	26.0	190	5.2	63	63	>600000	>1000000

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
16...	190	58	10	29	.9	3.5	221	E1.0	13	39
MAR										
01...	--	--	--	--	--	--	188	--	--	--
JUN										
10...	180	56	10	30	1	3.0	175	<1.0	18	41
SEP										
28...	110	36	5.7	17	.7	3.6	189	--	10	22

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
16...	.11	26	311	10.1	<1	.750	.150	.900	3.30	.50
MAR										
01...	--	--	--	--	15	1.18	.120	1.30	1.50	--
JUN										
10...	.14	26	289	16.4	5	1.04	.160	1.20	.440	--
SEP										
28...	<.10	16	224	40.0	358	.640	.090	.750	1.30	1.6

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
16...	3.8	4.7	21	.360	2	<100	30	<1	<1	<10
MAR										
01...	1.3	2.6	12	.120	--	--	--	--	--	--
JUN										
10...	E.86	--	--	.150	1	100	60	<1	<1	E12
SEP										
28...	2.9	3.6	16	.950	--	70	--	--	--	--

50050300 QUEBRADA BLASINA NEAR CAROLINA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
16...	700	1	410	<.10	<1	<1	10	<.010	4	.08
MAR										
01...	--	--	--	--	--	--	--	--	--	--
JUN										
10...	290	<1	78	<.10	<1	<1	E20	<.010	<4	.22
SEP										
28...	--	--	--	--	--	--	--	--	--	--

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 Lorenzo.

DRAINAGE AREA.--6.00 mi^2 (15.54 km^2).

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

GAGE.--Water-stage recorder. Elevation of gage is 640 ft (195 m), from topographic map.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	27	178	42	21	e12	e11	e5.3	e5.3	6.6	11	9.0
2	39	25	66	33	19	e11	e21	e5.2	e5.2	169	10	9.2
3	47	24	274	36	19	e11	e32	e5.2	5.4	16	12	9.0
4	32	24	162	30	e18	e11	e16	e5.2	9.3	11	15	8.5
5	30	30	117	26	e18	e11	e12	e5.3	7.5	9.4	14	8.1
6	26	24	45	25	e17	e11	e11	e5.8	6.0	8.6	11	8.3
7	25	24	39	23	e17	e10	e10	e11	5.4	22	15	8.1
8	23	22	32	23	e16	e11	e9.8	e28	9.9	38	19	8.4
9	22	22	30	24	e16	e11	e9.7	e12	7.3	78	12	8.2
10	22	21	28	40	e16	e10	e9.0	e7.6	5.9	22	11	7.6
11	21	88	31	31	e16	e9.9	e8.6	e7.2	5.5	17	10	7.7
12	29	119	25	24	e24	e9.7	e8.3	e7.3	12	17	10	7.9
13	62	149	24	22	e18	e9.5	e7.9	e7.5	9.7	35	11	379
14	e42	67	26	38	e16	e9.4	e7.4	e6.7	8.1	96	9.8	222
15	26	32	22	196	e15	e9.4	e7.2	e6.3	6.0	34	11	37
16	20	25	25	106	e15	e9.4	e6.8	e6.1	8.8	21	10	20
17	19	64	27	41	e14	e9.3	e6.5	e5.9	191	76	9.5	33
18	18	25	22	34	e14	e9.1	e6.4	e5.8	22	28	9.1	113
19	59	22	e21	46	e14	e9.0	e6.3	e5.8	15	20	14	42
20	357	21	e22	38	e13	e8.9	e6.3	e8.5	29	19	11	21
21	58	20	e21	30	e13	e9.0	e6.4	e6.2	15	17	9.6	17
22	927	19	e20	27	e13	e8.9	e6.0	e6.3	11	15	110	15
23	167	19	e20	34	e13	e11	e6.5	e6.2	10	17	23	14
24	83	22	e21	30	e13	e37	e12	e7.0	8.7	14	31	17
25	48	19	e21	26	e13	e15	e6.9	e6.6	7.6	14	14	30
26	39	18	e20	25	e13	e14	e5.9	e5.8	7.0	13	12	18
27	67	17	e21	23	e12	e12	e5.7	e5.6	6.9	12	13	45
28	41	23	e62	23	e12	e12	e5.6	e5.5	6.6	12	11	149
29	33	21	e260	21	---	e12	e5.9	e5.5	6.4	11	12	31
30	31	18	117	21	---	e13	e5.5	e5.5	6.6	12	11	21
31	28	---	47	20	---	e11	---	e5.4	---	13	9.6	---
TOTAL	2479	1051	1846	1158	438	357.5	279.6	223.3	460.1	893.6	491.6	1324.0
MEAN	80.0	35.0	59.5	37.4	15.6	11.5	9.32	7.20	15.3	28.8	15.9	44.1
MAX	927	149	274	196	24	37	32	28	191	169	110	379
MIN	18	17	20	20	12	8.9	5.5	5.2	5.2	6.6	9.1	7.6
AC-FT	4920	2080	3660	2300	869	709	555	443	913	1770	975	2630
CFSM	13.3	5.84	9.92	6.23	2.61	1.92	1.55	1.20	2.56	4.80	2.64	7.36
IN.	15.37	6.52	11.45	7.18	2.72	2.22	1.73	1.38	2.85	5.54	3.05	8.21

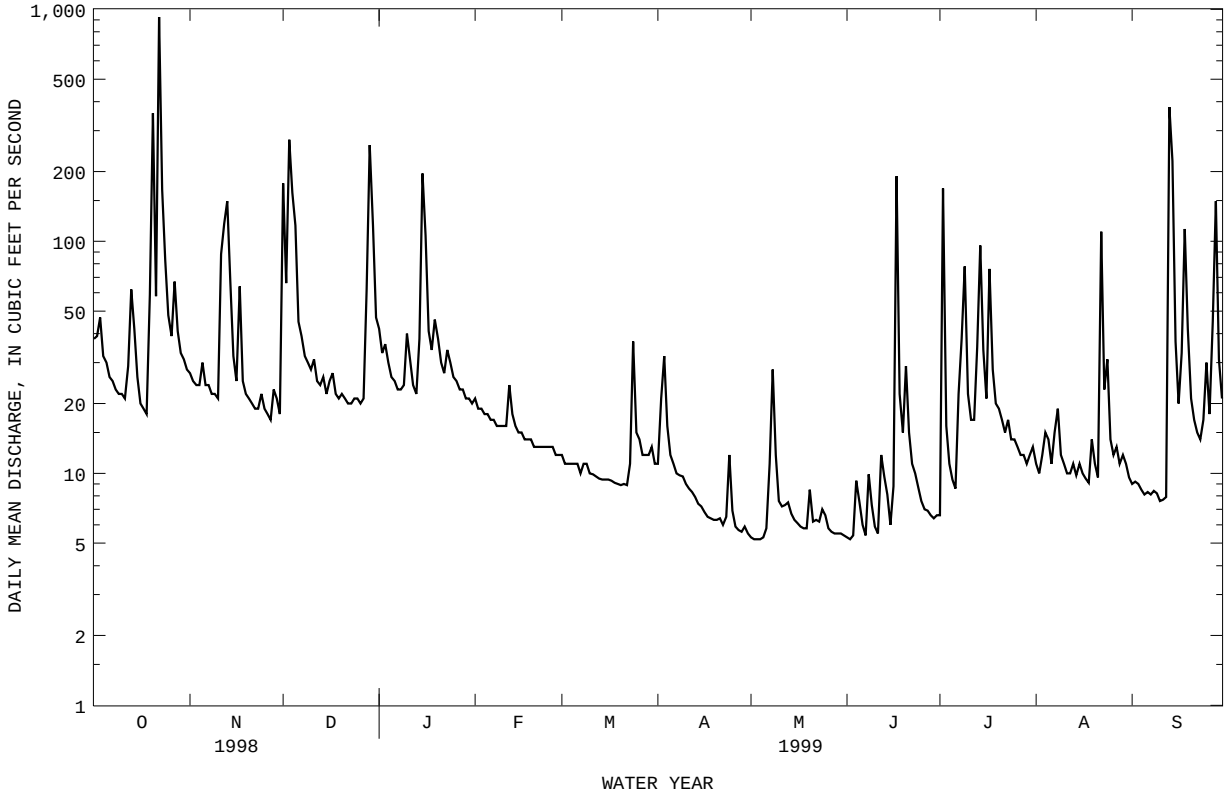
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1999, BY WATER YEAR (WY)

MEAN	43.0	43.6	26.1	21.6	19.4	15.5	14.3	28.8	36.6	36.2	34.2	60.6
MAX	123	122	59.5	56.1	38.0	53.6	31.5	77.5	122	92.3	90.0	351
(WY)	1986	1988	1999	1992	1982	1998	1998	1985	1979	1993	1979	1998
MIN	13.1	8.34	6.65	8.16	6.36	5.07	4.64	7.20	11.3	12.5	9.30	11.8
(WY)	1990	1990	1990	1990	1979	1979	1979	1999	1985	1986	1991	1981

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1978 - 1999	
ANNUAL TOTAL	24426.3		11001.7			
ANNUAL MEAN	66.9		30.1		31.7	
HIGHEST ANNUAL MEAN					62.7	1998
LOWEST ANNUAL MEAN					14.5	1990
HIGHEST DAILY MEAN	4690	Sep 22	927	Oct 22	4690	Sep 22 1998
LOWEST DAILY MEAN	8.7	Jul 1	5.2	May 2	3.1	May 7 1979
ANNUAL SEVEN-DAY MINIMUM	9.8	Jul 11	5.4	Apr 30	3.6	May 1 1979
INSTANTANEOUS PEAK FLOW			3690	Oct 22	45000	Sep 21 1998
INSTANTANEOUS PEAK STAGE			9.90	Oct 22	26.37	Sep 21 1998
INSTANTANEOUS LOW FLOW					2.8	May 5 1979
ANNUAL RUNOFF (AC-FT)	48450		21820		22950	
ANNUAL RUNOFF (CFSM)	11.2		5.02		5.28	
ANNUAL RUNOFF (INCHES)	151.44		68.21		71.73	
10 PERCENT EXCEEDS	79		46		51	
50 PERCENT EXCEEDS	21		16		15	
90 PERCENT EXCEEDS	12		6.4		7.2	

e Estimated

50050900 RIO GRANDE DE LOIZA AT QUEBRADA ARENAS, PR--Continued



50051150 QUEBRADA BLANCA AT EL JAGUAL, PR

LOCATION.--Lat 18°09'40", long 65°58'58", Hydrologic Unit 2l0l0005, 0.1 mi (0.2 km) upstream from bridge on Highway 181, and 2.8 mi (4.5 km) southwest of San Lorenzo.

DRAINAGE AREA.--3.25 mi^2 (8.42 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 459 ft (140 m), from topographic map.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	e7.1	34	18	6.5	3.4	e2.0	e1.3	e1.2	3.7	2.1	2.2
2	6.1	e7.8	64	17	5.4	3.4	e2.0	e1.3	e1.3	41	1.9	11
3	6.1	e5.0	71	18	5.2	3.3	e12	e1.3	e1.4	12	3.3	4.4
4	5.1	e4.7	36	13	5.0	3.2	e5.0	e1.4	e1.4	5.0	2.6	2.9
5	4.8	e4.4	20	11	4.8	e3.0	e2.8	e1.5	e2.3	3.5	4.7	2.4
6	4.7	e4.3	16	8.6	4.4	e2.9	e2.3	e1.4	e1.6	2.9	2.7	2.3
7	4.6	e4.6	14	7.1	4.2	e2.9	e2.0	e2.4	e1.5	3.2	13	2.2
8	4.6	e3.7	11	6.2	4.0	e2.9	e2.0	e25	1.6	5.9	4.9	2.6
9	4.5	e3.5	11	6.2	3.9	e2.8	e2.4	e9.3	1.9	4.8	2.7	2.4
10	4.4	e3.6	8.3	9.0	4.3	e2.8	e2.0	e2.8	2.5	2.9	2.2	2.1
11	4.2	28	10	14	3.8	e2.6	e2.7	e2.0	2.4	3.3	1.9	2.1
12	5.2	22	7.1	8.0	12	e2.5	e2.3	e1.7	4.3	7.1	1.8	1.9
13	4.3	46	5.9	6.0	6.5	e2.6	e1.9	e1.6	5.8	8.4	1.7	28
14	4.9	26	5.7	8.3	5.0	e2.5	e1.7	e2.2	2.5	44	1.6	24
15	4.3	16	4.5	33	4.3	e2.4	e1.7	e1.4	2.2	24	1.6	7.0
16	4.3	12	4.3	33	3.9	e2.5	e1.6	e1.3	11	15	1.6	4.3
17	4.5	12	5.0	24	3.6	e2.4	e1.6	e1.2	44	17	1.5	4.8
18	4.1	7.9	3.6	17	3.8	e2.3	e1.8	e1.2	14	11	1.5	12
19	9.2	6.3	3.3	15	3.8	e2.2	e1.8	e1.1	29	7.3	e2.7	36
20	29	8.6	3.7	13	3.6	e2.2	e1.7	e1.2	17	5.9	e2.3	17
21	25	6.4	3.1	11	3.5	e2.1	e1.6	e1.1	8.3	4.8	e2.0	8.3
22	94	5.1	2.8	9.7	3.6	e2.1	e1.5	e1.0	6.1	4.5	e14	4.7
23	23	8.7	2.6	8.7	3.6	e2.9	e1.7	e1.2	4.6	5.3	e8.9	3.5
24	8.5	12	2.4	8.2	3.5	e9.0	e2.2	e1.3	3.9	3.6	e13	3.2
25	7.5	5.4	2.9	7.4	3.5	e3.5	e1.9	e1.2	3.5	3.4	e5.3	3.5
26	e7.5	4.2	3.1	7.2	3.5	e6.8	e1.7	e1.1	3.2	2.7	e3.3	2.8
27	e24	4.1	6.1	6.5	3.6	e2.4	e1.8	e1.4	3.2	2.6	e3.1	5.5
28	e21	14	17	9.7	3.5	e2.4	e1.7	e1.2	3.3	2.3	e3.3	29
29	e13	6.6	43	6.2	---	e2.6	e1.6	e1.1	3.6	2.1	e2.5	9.2
30	e8.4	8.1	26	5.6	---	e2.3	e1.5	e1.2	3.2	2.6	e2.2	5.5
31	e6.1	---	22	5.5	---	e2.1	---	e1.2	---	2.8	e2.2	---
TOTAL	362.4	308.1	469.4	371.1	126.3	93.0	70.5	75.6	191.8	264.6	118.1	246.8
MEAN	11.7	10.3	15.1	12.0	4.51	3.00	2.35	2.44	6.39	8.54	3.81	8.23
MAX	94	46	71	33	12	9.0	12	25	44	44	14	36
MIN	4.1	3.5	2.4	5.5	3.5	2.1	1.5	1.0	1.2	2.1	1.5	1.9
AC-FT	719	611	931	736	251	184	140	150	380	525	234	490
CFSM	3.60	3.16	4.66	3.68	1.39	.92	.72	.75	1.97	2.63	1.17	2.53
IN.	4.15	3.53	5.37	4.25	1.45	1.06	.81	.87	2.20	3.03	1.35	2.82

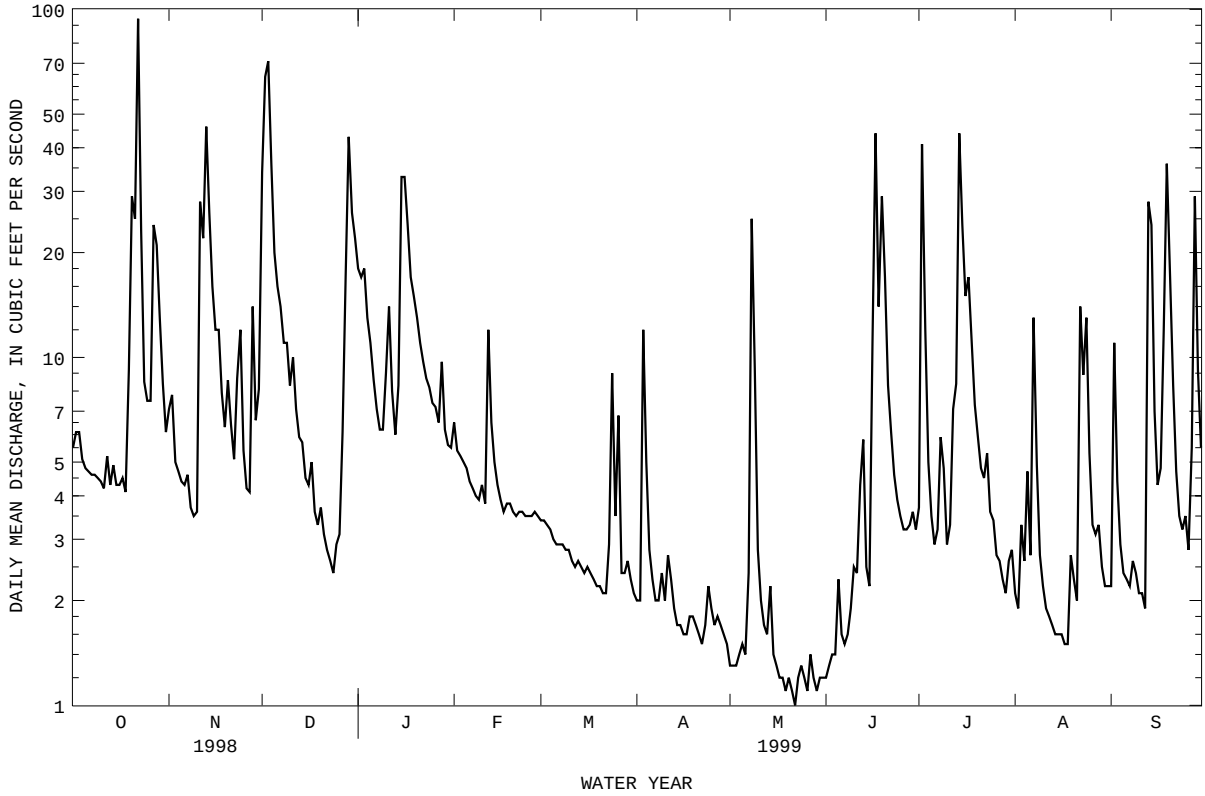
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1999, BY WATER YEAR (WY)

MEAN	10.3	14.0	7.09	5.42	4.33	4.36	2.53	6.24	6.00	6.22	7.00	10.3
MAX	47.8	36.9	30.1	12.0	8.21	20.7	5.47	31.5	21.3	15.0	20.2	27.7
(WY)	1986	1985	1988	1999	1989	1989	1998	1985	1987	1993	1988	1996
MIN	2.75	2.49	1.49	1.74	1.32	1.64	.75	.62	2.12	2.02	1.95	1.36
(WY)	1993	1990	1990	1995	1985	1993	1994	1994	1994	1986	1994	1990

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1984 - 1999	
ANNUAL TOTAL	3190.8		2697.7			
ANNUAL MEAN	8.74		7.39		6.99	
HIGHEST ANNUAL MEAN					12.3	1988
LOWEST ANNUAL MEAN					2.50	1990
HIGHEST DAILY MEAN	214	Sep 22	94	Oct 22	457	Dec 7 1987
LOWEST DAILY MEAN	1.3	Aug 5	1.0	May 22	.33	May 20 1994
ANNUAL SEVEN-DAY MINIMUM	1.4	Aug 1	1.1	May 17	.37	Apr 26 1994
INSTANTANEOUS PEAK FLOW			1080	Oct 22	7610	Sep 10 1996
INSTANTANEOUS PEAK STAGE			8.06	Oct 22	14.64	Sep 10 1996
INSTANTANEOUS LOW FLOW					.30	May 21 1994
ANNUAL RUNOFF (AC-FT)	6330		5350		5060	
ANNUAL RUNOFF (CFSM)	2.69		2.27		2.15	
ANNUAL RUNOFF (INCHES)	36.52		30.88		29.22	
10 PERCENT EXCEEDS	16		17		13	
50 PERCENT EXCEEDS	3.9		3.9		2.8	
90 PERCENT EXCEEDS	1.9		1.6		1.1	

e Estimated

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued



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 current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1989.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

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 in 1996.

SEDIMENT LOADS: Maximum daily mean, 4,940 tons (4,480 tonnes) May 17, 1985; Minimum daily mean, <0.01 ton (<0.01 tonne) several years.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, 742 mg/L October 22, 1998; Minimum daily mean, 1 mg/L severals days.

SEDIMENT LOADS: Maximum daily mean, 465 tons (422 tonnes) October 22, 1998; Minimum daily mean, 0.01 ton <.01 tonne) .

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	5.5	3	.04	e7.1	e10	e.27	34	91	11
2	6.1	2	.04	e7.8	e13	e.46	64	229	50
3	6.1	2	.04	e5.0	e5	e.06	71	251	56
4	5.1	3	.04	e4.7	e4	e.05	36	100	11
5	4.8	4	.05	e4.4	e4	e.05	20	42	2.3
6	4.7	3	.04	e4.3	e5	e.06	16	28	1.3
7	4.6	3	.04	e4.6	e5	e.09	14	17	.63
8	4.6	6	.07	e3.7	e3	e.03	11	13	.38
9	4.5	10	.12	e3.5	e3	e.03	11	10	.30
10	4.4	8	.09	e3.6	e4	e.04	8.3	9	.21
11	4.2	6	.06	28	91	13	10	13	.39
12	5.2	5	.06	22	54	5.7	7.1	7	.14
13	4.3	8	.09	46	421	111	5.9	6	.09
14	4.9	13	.17	26	62	4.8	5.7	6	.10
15	4.3	10	.12	16	29	1.3	4.5	3	.04
16	4.3	7	.09	12	21	.71	4.3	2	.03
17	4.5	9	.11	12	21	.79	5.0	6	.08
18	4.1	9	.10	7.9	5	.12	3.6	2	.02
19	9.2	22	1.2	6.3	4	.07	3.3	2	.02
20	29	72	6.8	8.6	14	.43	3.7	3	.04
21	25	60	5.8	6.4	8	.14	3.1	1	.01
22	94	742	465	5.1	5	.07	2.8	1	.01
23	23	36	3.4	8.7	19	1.6	2.6	1	.01
24	8.5	8	.19	12	26	1.2	2.4	2	.01
25	7.5	6	.12	5.4	4	.06	2.9	3	.02
26	e7.5	e4	e.09	4.2	4	.05	3.1	3	.03
27	e24	e63	e9.7	4.1	4	.04	6.1	11	.24
28	e21	e53	e6.2	14	36	3.3	17	58	13
29	e13	e23	e.91	6.6	9	.16	43	170	31
30	e8.4	e6	e.14	8.1	14	.44	26	60	4.4
31	e6.1	e5	e.09	---	---	---	22	47	2.7
TOTAL	362.4	---	501.01	308.1	---	146.12	469.4	---	185.50

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	18	19	.98	6.5	5	.10	3.4	1	.01
2	17	31	1.5	5.4	3	.04	3.4	1	.01
3	18	34	1.7	5.2	1	.02	3.3	1	.01
4	13	7	.25	5.0	1	.01	3.2	1	.01
5	11	6	.16	4.8	1	.01	e3.0	e1	e.01
6	8.6	6	.13	4.4	1	.01	e2.9	e2	e.01
7	7.1	4	.08	4.2	1	.01	e2.9	e3	e.02
8	6.2	3	.06	4.0	1	.01	e2.9	e5	e.04
9	6.2	8	.15	3.9	1	.01	e2.8	e8	e.06
10	9.0	14	.42	4.3	3	.04	e2.8	e11	e.09
11	14	34	1.8	3.8	5	.05	e2.6	10	e.07
12	8.0	7	.17	12	28	2.3	e2.5	e9	e.06
13	6.0	1	.02	6.5	12	.21	e2.6	e8	e.05
14	8.3	5	.39	5.0	6	.09	e2.5	e7	e.05
15	33	70	11	4.3	3	.04	e2.4	e6	e.04
16	33	116	17	3.9	2	.02	e2.5	e8	e.05
17	24	31	2.1	3.6	1	.01	e2.4	e9	e.06
18	17	7	.33	3.8	1	.01	e2.3	e7	e.04
19	15	6	.23	3.8	1	.01	e2.2	e5	e.03
20	13	5	.19	3.6	2	.01	e2.2	e4	e.02
21	11	5	.16	3.5	2	.02	e2.1	e3	e.01
22	9.7	5	.13	3.6	3	.03	e2.1	e2	e.01
23	8.7	5	.11	3.6	4	.04	e2.9	e3	e.03
24	8.2	4	.10	3.5	5	.05	e9.0	e16	e.80
25	7.4	4	.08	3.5	6	.06	e3.5	e4	e.04
26	7.2	3	.05	3.5	7	.07	e6.8	e46	e1.3
27	6.5	2	.04	3.6	4	.04	e2.4	e3	e.02
28	9.7	10	.34	3.5	2	.02	e2.4	e3	e.02
29	6.2	1	.02	---	---	---	e2.6	e5	e.03
30	5.6	1	.01	---	---	---	e2.3	e3	e.02
31	5.5	1	.01	---	---	---	e2.1	e2	e.01
TOTAL	371.1	---	39.71	126.3	---	3.34	93.0	---	3.03

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	e2.0	e2	e.01	e1.3	e1	e.01	e1.2	e1	e.01
2	e2.0	e1	e.01	e1.3	e1	e.01	e1.3	e1	e.01
3	e12	e30	e2.9	e1.3	e1	e.01	e1.4	e1	e.01
4	e5.0	e7	e.11	e1.4	e1	e.01	e1.4	e2	e.01
5	e2.8	e3	e.02	e1.5	e1	e.01	e2.3	e3	e.03
6	e2.3	e2	e.01	e1.4	e1	e.01	e1.6	e1	e.01
7	e2.0	e2	e.01	e2.4	e3	e.04	e1.5	e1	e.01
8	e2.0	e2	e.01	e25	e128	e44	1.6	2	.01
9	e2.4	e2	e.01	e9.3	e15	e.53	1.9	2	.01
10	e2.0	e2	e.01	e2.8	e1	e.01	2.5	3	.02
11	e2.7	e6	e.07	e2.0	e1	e.01	2.4	3	.02
12	e2.3	e8	e.05	e1.7	e1	e.01	4.3	10	.33
13	e1.9	e2	e.01	e1.6	e1	e.01	5.8	12	.24
14	e1.7	e1	e.01	e2.2	e1	e.01	2.5	1	.01
15	e1.7	e1	e.01	e1.4	e1	e.01	2.2	1	.01
16	e1.6	e1	e.01	e1.3	e1	e.01	11	24	1.7
17	e1.6	e1	e.01	e1.2	e1	e.01	44	134	19
18	e1.8	e1	e.01	e1.2	e1	e.01	14	29	1.2
19	e1.8	e1	e.01	e1.1	e1	e.01	29	46	4.3
20	e1.7	e1	e.01	e1.2	e1	e.01	17	36	1.8
21	e1.6	e1	e.01	e1.1	e1	e.01	8.3	11	.26
22	e1.5	e1	e.01	e1.0	e1	e.01	6.1	8	.14
23	e1.7	e1	e.01	e1.2	e2	e.01	4.6	5	.07
24	e2.2	e2	e.01	e1.3	e2	e.01	3.9	4	.05
25	e1.9	e2	e.01	e1.2	e1	e.01	3.5	3	.03
26	e1.7	e1	e.01	e1.1	e1	e.01	3.2	3	.03
27	e1.8	e1	e.01	e1.4	e1	e.01	3.2	3	.03
28	e1.7	e1	e.01	e1.2	e1	e.01	3.3	3	.03
29	e1.6	e1	e.01	e1.1	e1	e.01	3.6	3	.03
30	e1.5	e1	e.01	e1.2	e2	e.01	3.2	1	.01
31	---	---	---	e1.2	e2	e.01	---	---	---
TOTAL	70.5	---	3.40	75.6	---	44.85	191.8	---	29.42

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	3.7	5	.05	2.1	3	.02	2.2	4	.02
2	41	402	130	1.9	2	.01	11	27	1.6
3	12	22	.80	3.3	5	.06	4.4	4	.06
4	5.0	4	.06	2.6	3	.02	2.9	2	.02
5	3.5	1	.01	4.7	10	.22	2.4	2	.01
6	2.9	1	.01	2.7	2	.02	2.3	2	.01
7	3.2	3	.03	13	38	2.6	2.2	2	.01
8	5.9	8	.21	4.9	8	.12	2.6	4	.03
9	4.8	4	.06	2.7	4	.03	2.4	3	.02
10	2.9	2	.02	2.2	2	.01	2.1	2	.01
11	3.3	4	.04	1.9	1	.01	2.1	2	.01
12	7.1	11	.23	1.8	1	.01	1.9	2	.01
13	8.4	13	.41	1.7	2	.01	28	57	7.1
14	44	145	25	1.6	2	.01	24	74	6.3
15	24	58	3.9	1.6	2	.01	7.0	10	.20
16	15	25	1.1	1.6	2	.01	4.3	4	.05
17	17	36	2.8	1.5	2	.01	4.8	5	.08
18	11	20	.64	1.5	3	.01	12	29	2.8
19	7.3	9	.19	e2.7	e4	e.03	36	226	109
20	5.9	8	.13	e2.3	e3	e.02	17	12	.69
21	4.8	3	.04	e2.0	e2	e.01	8.3	4	.08
22	4.5	3	.03	e14	e42	e5.0	4.7	2	.03
23	5.3	8	.14	e8.9	e10	e.28	3.5	2	.02
24	3.6	4	.04	e13	e53	e3.2	3.2	2	.02
25	3.4	4	.04	e5.3	e22	e.34	3.5	2	.02
26	2.7	2	.02	e3.3	e4	e.04	2.8	2	.01
27	2.6	3	.02	e3.1	e3	e.03	5.5	6	.15
28	2.3	4	.02	e3.3	e5	e.05	29	79	13
29	2.1	3	.02	e2.5	e3	e.02	9.2	16	.41
30	2.6	3	.02	e2.2	e2	e.01	5.5	7	.11
31	2.8	4	.03	e2.2	e3	e.02	---	---	---
TOTAL	264.6	---	166.11	118.1	---	12.24	246.8	---	141.88
YEAR	2697.7		1276.61						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV					
13...	1030	68	226	41	96
DEC					
30...	1115	28	153	12	91
APR					
09...	1030	2.6	10	.07	100
SEP					
13...	1015	47	50	6.3	92

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
JUL							
02...	0915	226	13300	8130	20	25	32
SEP							
19...	1430	285	3300	2540	41	51	64

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
JUL							
02...	42	60	72	90	97	100	100
SEP							
19...	78	85	91	98	100	100	100

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR

LOCATION.--Lat 18°10'24", long 65°58'38", Hydrologic Unit 2l0l0005, on left downstream side of bridge on Highway 181, 0.2 mi (0.3 km) upstream from Río Grande de Loíza, and 1.5 mi (2.4 km) southwest of San Lorenzo.

DRAINAGE AREA.--3.74 mi^2 (9.69 km^2).

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e9.7	12	31	11	e3.3	2.7	2.0	1.2	1.1	1.0	1.4	13
2	e12	8.4	60	8.1	e3.1	2.6	2.0	1.1	1.1	128	1.3	25
3	e11	6.7	76	8.7	e3.0	2.6	18	1.1	.97	12	2.3	2.9
4	e8.7	6.0	46	6.8	e2.9	2.4	3.5	1.1	1.0	5.1	e1.5	1.4
5	e7.7	5.9	16	6.3	e3.0	2.3	2.7	1.1	1.5	3.0	2.1	1.3
6	e6.9	6.8	11	5.7	e2.6	2.3	2.4	1.0	.91	2.1	2.0	5.1
7	e6.3	7.8	8.4	5.3	e2.5	2.3	2.1	1.0	.86	1.8	3.1	2.0
8	e6.3	5.4	7.4	5.1	2.4	2.3	1.9	13	1.2	e26	2.4	1.4
9	e6.2	5.1	7.5	5.2	2.5	2.3	2.1	1.8	1.4	e12	1.7	1.2
10	e5.1	4.9	6.6	9.8	2.7	2.3	1.8	1.1	1.2	e3.9	1.5	1.2
11	e4.8	22	8.2	9.5	2.6	2.3	1.8	.96	1.1	e6.9	1.5	1.2
12	e6.1	33	6.4	6.8	12	2.3	1.8	.96	1.2	e44	1.2	1.1
13	e4.4	82	5.9	5.8	3.9	2.3	1.7	.91	1.8	5.9	1.3	15
14	e4.7	23	6.5	15	3.1	2.2	1.7	.89	1.0	37	1.3	15
15	e3.7	12	5.5	41	2.9	2.3	1.6	.88	.92	10	1.2	2.5
16	e4.6	9.4	5.4	38	2.8	2.2	1.5	.87	5.1	5.4	1.5	1.7
17	e3.9	9.2	5.7	9.5	2.6	2.2	1.5	.83	57	4.7	e1.3	2.0
18	e2.6	7.7	5.2	6.0	2.6	2.2	1.5	.84	3.8	3.6	e1.1	11
19	e7.5	7.0	5.0	5.5	2.7	2.2	1.5	.83	2.9	2.9	e3.1	70
20	14	7.1	5.0	4.7	2.7	2.2	1.5	1.0	2.8	2.5	e2.0	7.2
21	31	6.9	4.9	4.5	2.7	2.2	1.5	.90	1.7	2.2	e1.4	2.2
22	362	6.3	4.8	4.1	2.6	2.2	1.4	.83	1.5	e2.1	e76	1.6
23	27	7.2	4.9	3.9	2.6	2.5	1.4	.84	1.2	2.2	e88	1.3
24	4.7	7.4	4.7	3.8	2.6	5.1	1.4	.89	1.1	1.9	e94	1.3
25	2.8	5.7	5.0	3.6	2.6	2.6	1.3	.95	1.0	e2.1	e31	1.3
26	2.1	5.3	5.0	3.7	2.6	3.5	1.3	.84	.94	e1.8	e6.7	1.5
27	77	5.2	7.4	3.5	2.6	2.3	1.3	.83	.96	1.8	5.6	3.3
28	84	16	50	8.2	2.7	2.4	1.3	.88	.93	e1.6	7.5	74
29	36	5.7	76	3.5	---	2.3	1.2	.89	.96	1.4	3.1	4.6
30	13	5.6	21	3.2	---	2.2	1.2	.92	.96	1.6	2.0	2.5
31	9.4	---	14	3.2	---	2.1	---	.95	---	1.6	1.9	---
TOTAL	785.2	352.7	526.4	259.0	86.9	75.9	67.9	42.19	100.11	338.1	352.0	274.8
MEAN	25.3	11.8	17.0	8.35	3.10	2.45	2.26	1.36	3.34	10.9	11.4	9.16
MAX	362	82	76	41	12	5.1	18	13	57	128	94	74
MIN	2.1	4.9	4.7	3.2	2.4	2.1	1.2	.83	.86	1.0	1.1	1.1
AC-FT	1560	700	1040	514	172	151	135	84	199	671	698	545
CFSM	6.77	3.14	4.54	2.23	.83	.65	.61	.36	.89	2.92	3.04	2.45
IN.	7.81	3.51	5.24	2.58	.86	.75	.68	.42	1.00	3.36	3.50	2.73

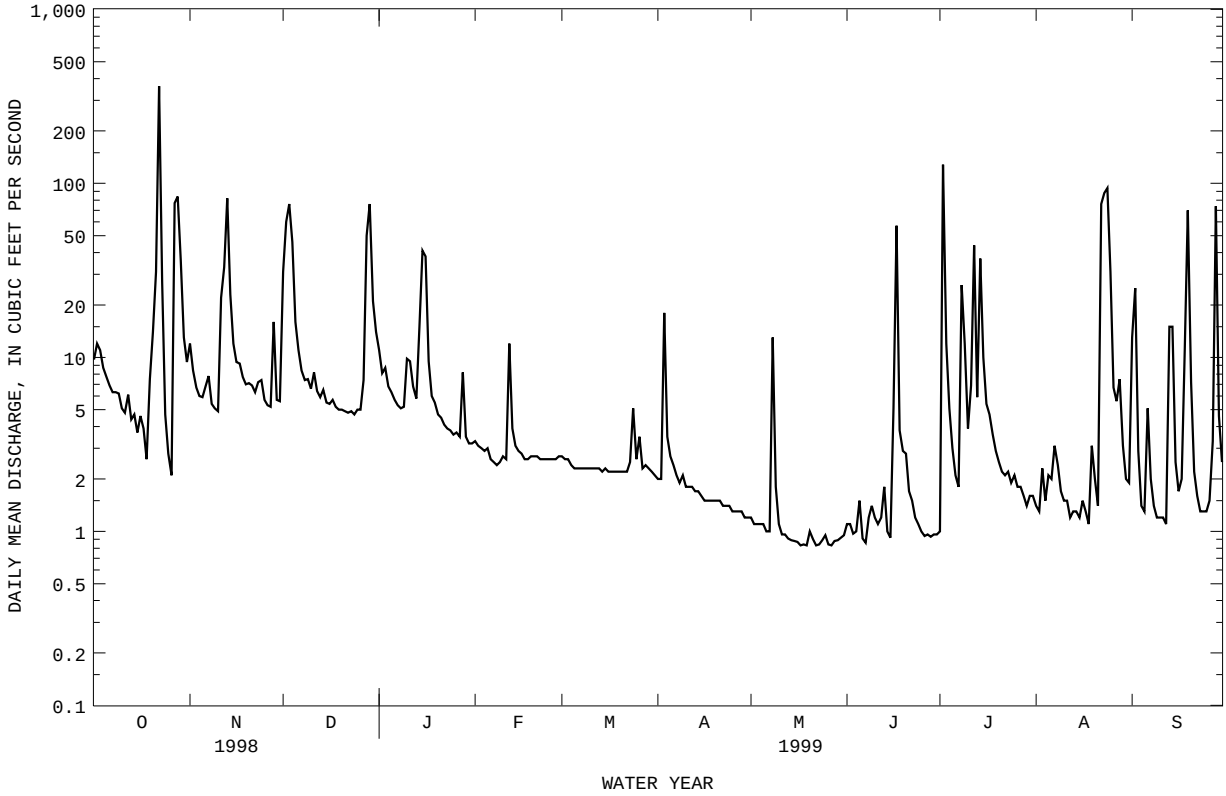
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1999, BY WATER YEAR (WY)

MEAN	10.4	11.5	5.68	5.26	3.60	3.61	2.36	5.64	6.01	5.78	6.63	17.5
MAX	36.2	33.4	22.8	23.4	10.3	17.4	6.60	35.8	17.5	20.5	14.5	76.5
(WY)	1986	1988	1988	1992	1984	1989	1985	1985	1996	1993	1996	1996
MIN	2.31	2.72	1.17	1.16	1.23	1.15	.66	.86	.92	1.45	1.51	1.88
(WY)	1987	1990	1990	1990	1990	1992	1995	1995	1997	1994	1994	1990

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1984 - 1999	
ANNUAL TOTAL	4450.32		3261.20			
ANNUAL MEAN	12.2		8.93		7.00	
HIGHEST ANNUAL MEAN					12.4	1996
LOWEST ANNUAL MEAN					3.19	1990
HIGHEST DAILY MEAN	810	Sep 22	362	Oct 22	1750	Sep 10 1996
LOWEST DAILY MEAN	.56	Aug 5	.83	May 17	.29	Sep 12 1990
ANNUAL SEVEN-DAY MINIMUM	.59	Jul 31	.86	May 13	.41	May 19 1990
INSTANTANEOUS PEAK FLOW			2790	Oct 22	15000	Sep 10 1996
INSTANTANEOUS PEAK STAGE			12.04	Oct 22	20.87	Sep 10 1996
INSTANTANEOUS LOW FLOW			.72	May 27	.26	May 30 1990
ANNUAL RUNOFF (AC-FT)	8830		6470		5070	
ANNUAL RUNOFF (CFSM)	3.26		2.39		1.87	
ANNUAL RUNOFF (INCHES)	44.27		32.44		25.43	
10 PERCENT EXCEEDS	12		15		10	
50 PERCENT EXCEEDS	2.1		2.7		2.0	
90 PERCENT EXCEEDS	1.1		1.1		.94	

e Estimated

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued



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 current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1989.

REMARKS.-- Sediment samples were collected by local observer on a weekly basis.During high flow sediment samples were collected by local observer and automatic sediment sampler.

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 years.

SEDIMENT LOADS: Maximum daily mean, 33,000 tons (29,900 tonnes) Sep. 10, 1996; Minimum daily mean, <0.01 ton (<0.01 tonne) several years.

EXTREMES FOR CURRENT YEAR 1999.-
SEDIMENT CONCENTRATION: Maximum daily mean, 1,840 mg/L October 22, 1998; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 3,570 tons (3,240 tonnes) October 22, 1998; Minimum daily mean, <0.01 ton (<0.01 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	e9.7	e9	e.24	12	34	2.7	31	124	22
2	e12	e18	e.62	8.4	26	.59	60	258	62
3	e11	e10	e.34	6.7	11	.20	76	423	372
4	e8.7	e2	e.04	6.0	4	.06	46	156	25
5	e7.7	e1	e.02	5.9	3	.05	16	28	1.3
6	e6.9	e2	e.03	6.8	35	.67	11	7	.21
7	e6.3	e2	e.04	7.8	37	.92	8.4	3	.07
8	e6.3	e4	e.06	5.4	16	.23	7.4	5	.10
9	e6.2	e5	e.09	5.1	15	.20	7.5	7	.15
10	e5.1	e5	e.06	4.9	7	.10	6.6	7	.12
11	e4.8	e5	e.06	22	107	24	8.2	27	.63
12	e6.1	e10	e.18	33	147	42	6.4	16	.29
13	e4.4	e6	e.07	82	595	418	5.9	15	.23
14	e4.7	e6	e.07	23	77	5.2	6.5	14	.25
15	e3.7	e5	e.05	12	36	1.2	5.5	7	.11
16	e4.6	e6	e.09	9.4	23	.58	5.4	6	.09
17	e3.9	e10	e.12	9.2	20	.51	5.7	3	.04
18	e2.6	e11	e.08	7.7	18	.37	5.2	1	.02
19	e7.5	e32	e2.4	7.0	12	.23	5.0	1	.01
20	14	50	3.5	7.1	8	.15	5.0	1	.01
21	31	178	84	6.9	6	.10	4.9	1	.01
22	362	1840	3570	6.3	4	.07	4.8	1	.01
23	27	63	9.3	7.2	9	.39	4.9	1	.01
24	4.7	8	.11	7.4	12	.30	4.7	1	.01
25	2.8	5	.04	5.7	6	.09	5.0	1	.01
26	2.1	4	.02	5.3	4	.05	5.0	1	.01
27	77	378	342	5.2	3	.04	7.4	15	.38
28	84	483	454	16	51	10	50	229	190
29	36	127	21	5.7	4	.05	76	251	133
30	13	21	.77	5.6	66	1.0	21	88	6.9
31	9.4	16	.41	---	---	---	14	44	1.7
TOTAL	785.2	---	4489.81	352.7	---	510.05	526.4	---	816.67

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	11	35	1.1	e3.3	e8	e.07	2.7	1	.01
2	8.1	26	.57	e3.1	e6	e.05	2.6	4	.03
3	8.7	20	.47	e3.0	e6	e.05	2.6	9	.06
4	6.8	15	.28	e2.9	e9	e.07	2.4	12	.08
5	6.3	14	.23	e3.0	e13	e.10	2.3	12	.08
6	5.7	11	.17	e2.6	e15	e.10	2.3	7	.04
7	5.3	5	.07	e2.5	e16	e.11	2.3	4	.02
8	5.1	2	.03	2.4	16	.10	2.3	2	.01
9	5.2	2	.03	2.5	8	.05	2.3	2	.01
10	9.8	25	1.5	2.7	4	.03	2.3	2	.01
11	9.5	29	.83	2.6	2	.01	2.3	4	.03
12	6.8	7	.13	12	68	17	2.3	7	.04
13	5.8	2	.03	3.9	9	.10	2.3	9	.05
14	15	59	21	3.1	7	.05	2.2	11	.06
15	41	202	64	2.9	5	.04	2.3	12	.07
16	38	149	60	2.8	4	.03	2.2	9	.05
17	9.5	27	.75	2.6	3	.02	2.2	7	.04
18	6.0	6	.10	2.6	4	.03	2.2	5	.03
19	5.5	3	.05	2.7	6	.05	2.2	3	.02
20	4.7	2	.03	2.7	8	.06	2.2	2	.01
21	4.5	2	.03	2.7	10	.08	2.2	1	.01
22	4.1	3	.03	2.6	11	.08	2.2	1	.01
23	3.9	3	.03	2.6	5	.03	2.5	2	.01
24	3.8	3	.03	2.6	2	.01	5.1	15	.44
25	3.6	3	.03	2.6	1	.01	2.6	6	.04
26	3.7	3	.03	2.6	1	.01	3.5	5	.05
27	3.5	3	.03	2.6	1	.01	2.3	4	.02
28	8.2	23	1.2	2.7	1	.01	2.4	3	.02
29	3.5	6	.05	---	---	---	2.3	3	.02
30	3.2	6	.05	---	---	---	2.2	2	.01
31	3.2	7	.06	---	---	---	2.1	1	.01
TOTAL	259.0	---	152.94	86.9	---	18.36	75.9	---	1.39

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	2.0	2	.01	1.2	1	<.01	1.1	3	.01
2	2.0	3	.02	1.1	2	<.01	1.1	5	.01
3	18	185	92	1.1	2	.01	.97	4	.01
4	3.5	10	.10	1.1	3	.01	1.0	4	.01
5	2.7	6	.05	1.1	4	.01	1.5	7	.03
6	2.4	5	.04	1.0	5	.01	.91	4	.01
7	2.1	5	.03	1.0	6	.02	.86	3	.01
8	1.9	4	.02	13	95	30	1.2	2	<.01
9	2.1	3	.02	1.8	4	.02	1.4	1	<.01
10	1.8	3	.01	1.1	2	.01	1.2	3	.01
11	1.8	3	.01	.96	1	<.01	1.1	6	.02
12	1.8	3	.01	.96	1	<.01	1.2	4	.01
13	1.7	2	.01	.91	1	<.01	1.8	3	.01
14	1.7	2	.01	.89	2	<.01	1.0	2	.01
15	1.6	2	.01	.88	2	<.01	.92	2	<.01
16	1.5	2	.01	.87	2	<.01	5.1	18	.92
17	1.5	3	.01	.83	2	<.01	57	302	109
18	1.5	3	.01	.84	3	.01	3.8	21	.26
19	1.5	3	.01	.83	4	.01	2.9	12	.10
20	1.5	3	.01	1.0	3	.01	2.8	8	.06
21	1.5	3	.01	.90	2	<.01	1.7	6	.03
22	1.4	2	.01	.83	2	<.01	1.5	4	.02
23	1.4	2	.01	.84	3	.01	1.2	3	.01
24	1.4	2	.01	.89	3	.01	1.1	2	.01
25	1.3	2	.01	.95	2	.01	1.0	2	<.01
26	1.3	3	.01	.84	2	<.01	.94	2	<.01
27	1.3	3	.01	.83	1	<.01	.96	1	<.01
28	1.3	3	.01	.88	1	<.01	.93	1	<.01
29	1.2	2	.01	.89	1	<.01	.96	1	<.01
30	1.2	1	<.01	.92	1	<.01	.96	1	<.01
31	---	---	---	.95	1	<.01	---	---	---
TOTAL	67.9	---	92.49	42.19	---	30.15	100.11	---	110.56

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	1.0	1	<.01	1.4	3	.01	13	51	13
2	128	1090	1420	1.3	3	.01	25	113	32
3	12	35	1.3	2.3	6	.05	2.9	18	.19
4	5.1	14	.19	e1.5	3	.01	1.4	3	.01
5	3.0	8	.07	2.1	2	.01	1.3	3	.01
6	2.1	3	.02	2.0	2	.01	5.1	20	1.6
7	1.8	1	<.01	3.1	1	.01	2.0	17	.09
8	e26	e97	e20	2.4	1	.01	1.4	12	.05
9	e12	e6	e.31	1.7	1	<.01	1.2	5	.02
10	e3.9	e1	e.01	1.5	1	<.01	1.2	2	.01
11	e6.9	e19	e.55	1.5	1	<.01	1.2	2	.01
12	e44	e176	e31	1.2	3	.01	1.1	2	.01
13	5.9	14	.32	1.3	7	.02	15	27	2.0
14	37	184	48	1.3	7	.02	15	48	5.1
15	10	30	.94	1.2	6	.02	2.5	4	.03
16	5.4	8	.12	1.5	5	.02	1.7	4	.02
17	4.7	3	.04	e1.3	e2	e.01	2.0	5	.03
18	3.6	2	.02	e1.1	e1	e<.01	11	48	7.2
19	2.9	1	.01	e3.1	e7	e.10	70	412	302
20	2.5	1	.01	e2.0	e1	e.01	7.2	38	1.2
21	2.2	2	.01	e1.4	e1	e.01	2.2	5	.03
22	e2.1	e1	e.01	e76	e565	e482	1.6	1	<.01
23	2.2	1	.01	e88	e332	e105	1.3	2	.01
24	1.9	1	<.01	e94	e550	e333	1.3	3	.01
25	e2.1	e1	e.01	e31	e117	e14	1.3	2	.01
26	e1.8	e1	e.01	e6.7	e17	e.34	1.5	1	.01
27	1.8	2	.01	5.6	10	.29	3.3	5	.11
28	e1.6	e4	e.02	7.5	33	1.9	74	207	95
29	1.4	4	.01	3.1	5	.04	4.6	5	.07
30	1.6	4	.01	2.0	1	.01	2.5	1	.01
31	1.6	3	.01	1.9	1	<.01	---	---	---
TOTAL	338.1	---	1523.02	352.0	---	936.92	274.8	---	459.84
YEAR	3261.20		9142.20						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
22...	2000	861	1980	4610	72
NOV					
13...	1030	72	134	26	94
13...	1111	409	3240	3580	86
JAN					
15...	1000	20	107	5.8	76
JUL					
02...	0908	564	16600	25300	25
05...	0900	E3.2	9	--	21
SEP					
13...	1000	59	54	8.6	99
19...	1520	337	1700	1550	97

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
OCT							
22...	0830	532	10400	14900	39	52	68
DEC							
28...	2133	537	1790	2600	52	64	77
SEP							
19...	1421	381	4160	4280	38	49	64

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
OCT							
22...	82	92	95	98	99	100	100
DEC							
28...	86	89	92	98	100	100	100
SEP							
19...	78	85	88	93	96	97	99

50051310 RIO CAYAGUAS AT CERRO GORDO, PR

LOCATION.--Lat 18°09'13", long 65°57'24", 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 km^2).

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	e62	288	e51	43	26	23	13	15	71	20	19
2	48	e58	129	e53	39	26	28	12	11	483	15	18
3	59	e54	147	e78	41	25	68	14	11	84	31	17
4	44	e52	408	e54	34	26	48	12	40	33	24	17
5	42	e54	e225	e52	41	21	24	12	23	28	25	17
6	e40	e54	e142	e49	36	23	20	13	13	19	19	22
7	39	e53	e138	e46	33	21	17	51	12	49	63	23
8	36	47	e82	e46	e32	22	17	144	152	98	22	42
9	34	46	e70	e46	e31	19	18	67	59	66	17	25
10	35	46	e50	e54	e30	17	17	25	26	31	13	22
11	30	343	e81	e58	28	17	16	19	15	21	16	45
12	60	166	e58	e48	59	19	18	17	37	30	15	30
13	38	441	e54	47	41	19	16	14	76	75	16	423
14	78	172	e78	e52	33	17	15	14	22	358	16	471
15	41	79	e43	e300	34	18	14	11	23	139	27	105
16	31	57	e38	214	32	18	14	11	68	67	24	53
17	39	109	e81	89	31	19	13	9.4	353	152	17	69
18	38	49	e42	64	32	20	15	9.6	175	90	14	212
19	92	45	e50	52	27	18	16	8.4	241	48	29	265
20	381	52	e57	54	31	16	16	14	74	46	34	104
21	143	59	e51	50	23	17	16	9.7	38	45	20	49
22	1920	50	e61	47	29	18	20	9.1	26	35	352	37
23	225	78	e65	64	23	22	30	14	25	45	266	30
24	75	68	e53	73	23	214	36	15	13	28	249	32
25	65	49	e77	53	28	54	21	16	10	28	103	47
26	e60	43	e40	61	25	44	15	13	11	17	49	40
27	e106	39	e38	43	25	28	15	10	12	20	39	58
28	e109	54	e128	51	24	34	17	12	11	27	47	250
29	e86	54	e377	41	---	27	16	12	14	23	33	54
30	e70	48	e122	38	---	38	16	12	12	17	24	28
31	e63	---	e52	41	---	30	---	11	---	21	20	---
TOTAL	4185	2581	3325	2069	908	933	635	624.2	1618	2294	1659	2624
MEAN	135	86.0	107	66.7	32.4	30.1	21.2	20.1	53.9	74.0	53.5	87.5
MAX	1920	441	408	300	59	214	68	144	353	483	352	471
MIN	30	39	38	38	23	16	13	8.4	10	17	13	17
AC-FT	8300	5120	6600	4100	1800	1850	1260	1240	3210	4550	3290	5200
CFSM	13.2	8.43	10.5	6.54	3.18	2.95	2.08	1.97	5.29	7.25	5.25	8.58
IN.	15.26	9.41	12.13	7.55	3.31	3.40	2.32	2.28	5.90	8.37	6.05	9.57

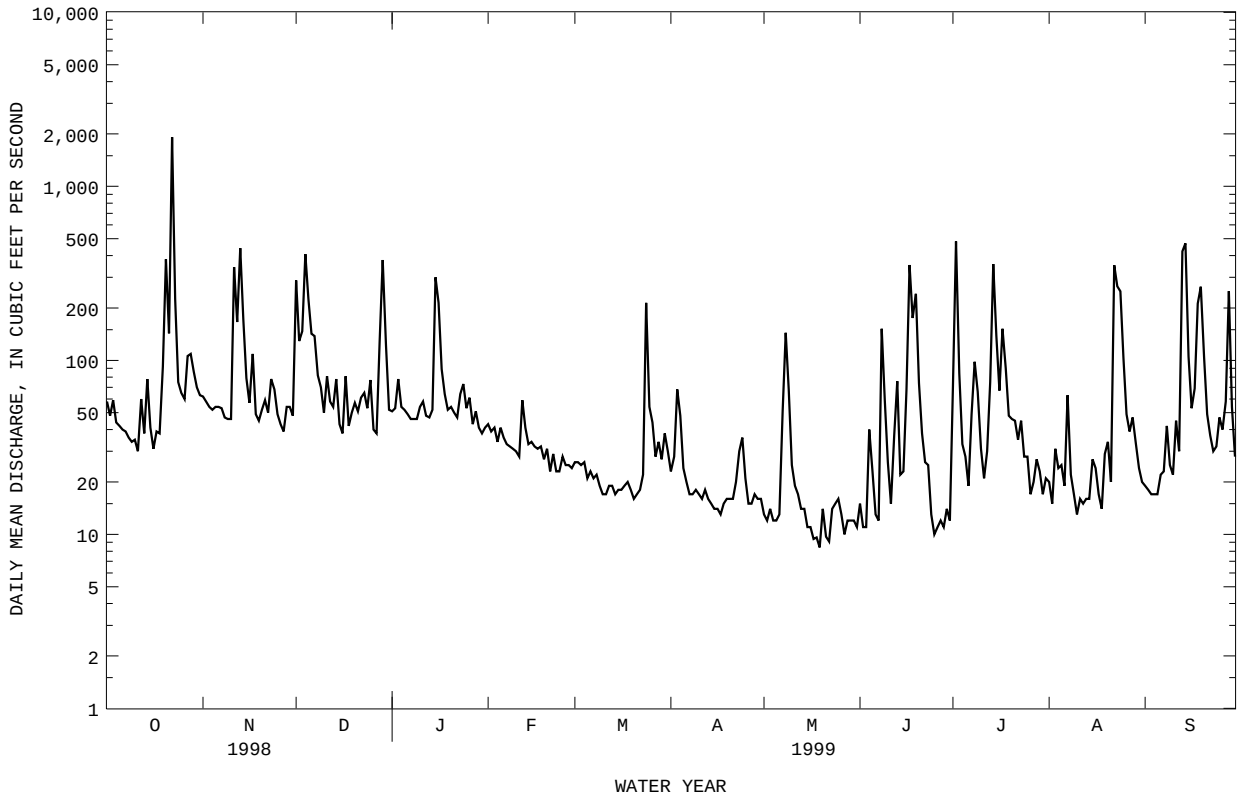
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1999, BY WATER YEAR (WY)

MEAN	65.6	69.1	47.1	34.8	30.9	24.5	21.0	41.9	45.0	44.9	52.0	81.4
MAX	176	196	163	99.5	74.1	64.1	46.0	155	140	118	202	330
(WY)	1986	1988	1988	1998	1997	1998	1985	1985	1979	1979	1979	1998
MIN	14.4	19.2	12.5	14.6	11.0	11.3	10.7	9.68	10.9	15.4	14.5	16.9
(WY)	1992	1982	1992	1990	1992	1992	1980	1990	1994	1994	1991	1980

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1977 - 1999	
ANNUAL TOTAL	34231		23455.2			
ANNUAL MEAN	93.8		64.3		46.5	
HIGHEST ANNUAL MEAN					89.7	1979
LOWEST ANNUAL MEAN					18.6	1990
HIGHEST DAILY MEAN	4100	Sep 22	1920	Oct 22	5120	Sep 10 1996
LOWEST DAILY MEAN	14	Jul 1	8.4	May 19	7.1	Feb 4 1981
ANNUAL SEVEN-DAY MINIMUM	16	Jul 11	10	May 16	8.5	Jun 19 1994
INSTANTANEOUS PEAK FLOW			11200	Oct 22	13200	Aug 31 1979
INSTANTANEOUS PEAK STAGE			22.24	Oct 22	9.44	Aug 31 1979
ANNUAL RUNOFF (AC-FT)	67900		46520		33710	
ANNUAL RUNOFF (CFSM)	9.19		6.30		4.56	
ANNUAL RUNOFF (INCHES)	124.84		85.54		61.99	
10 PERCENT EXCEEDS	134		128		72	
50 PERCENT EXCEEDS	39		38		25	
90 PERCENT EXCEEDS	21		14		13	

e Estimated

50051310 RIO CAYAGUAS AT CERRO GORDO, PR--Continued



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 García and 2.0 mi (3.2 km) northwest from Escuela Segunda Unidad de Carlos Zayas.

DRAINAGE AREA.--25.0 mi^2 (64.8 km^2).

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 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	231	225	478	211	104	56	38	27	19	49	46	47
2	226	212	459	180	103	56	43	29	19	456	45	60
3	235	199	498	188	98	53	113	28	20	90	56	47
4	213	191	674	168	97	53	62	29	30	59	56	44
5	206	195	382	160	96	51	44	29	34	50	61	42
6	198	196	272	150	92	e50	39	25	24	45	54	42
7	192	193	276	143	91	e50	38	41	21	58	91	41
8	186	177	210	140	88	50	36	192	34	88	72	42
9	189	173	201	142	87	51	38	80	41	118	53	40
10	184	169	184	171	90	49	36	47	29	74	47	37
11	178	461	193	177	85	48	36	39	24	60	45	42
12	191	405	171	145	119	46	35	40	34	69	44	37
13	193	738	167	138	102	46	34	38	52	90	43	401
14	e203	396	169	153	85	49	33	35	29	309	41	333
15	174	256	158	433	80	48	32	32	25	129	45	92
16	170	211	156	316	78	49	31	30	48	93	46	69
17	175	260	171	184	74	47	31	28	375	135	42	86
18	156	191	152	151	73	45	31	27	103	98	40	192
19	214	180	147	148	72	46	31	27	122	76	55	291
20	614	183	152	139	70	46	30	31	78	70	52	101
21	326	184	145	132	69	47	31	29	60	67	44	76
22	2630	170	139	124	67	47	30	26	47	63	164	67
23	740	182	138	125	65	50	32	27	45	68	123	62
24	389	205	145	127	63	111	38	26	39	60	131	63
25	293	167	145	118	62	61	37	27	35	59	79	74
26	249	158	135	120	61	60	29	24	34	53	58	68
27	385	157	145	113	59	45	29	22	33	52	55	82
28	395	210	408	118	59	43	30	21	31	48	57	261
29	325	166	620	107	---	45	30	20	32	48	56	105
30	253	165	319	103	---	45	29	20	32	49	49	83
31	233	---	231	101	---	40	---	19	---	52	47	---
TOTAL	10546	6975	7840	4925	2289	1583	1126	1115	1549	2835	1897	3027
MEAN	340	232	253	159	81.8	51.1	37.5	36.0	51.6	91.5	61.2	101
MAX	2630	738	674	433	119	111	113	192	375	456	164	401
MIN	156	157	135	101	59	40	29	19	19	45	40	37
AC-FT	20920	13830	15550	9770	4540	3140	2230	2210	3070	5620	3760	6000
CFSM	13.6	9.30	10.1	6.35	3.27	2.04	1.50	1.44	2.07	3.66	2.45	4.04
IN.	15.69	10.38	11.67	7.33	3.41	2.36	1.68	1.66	2.30	4.22	2.82	4.50

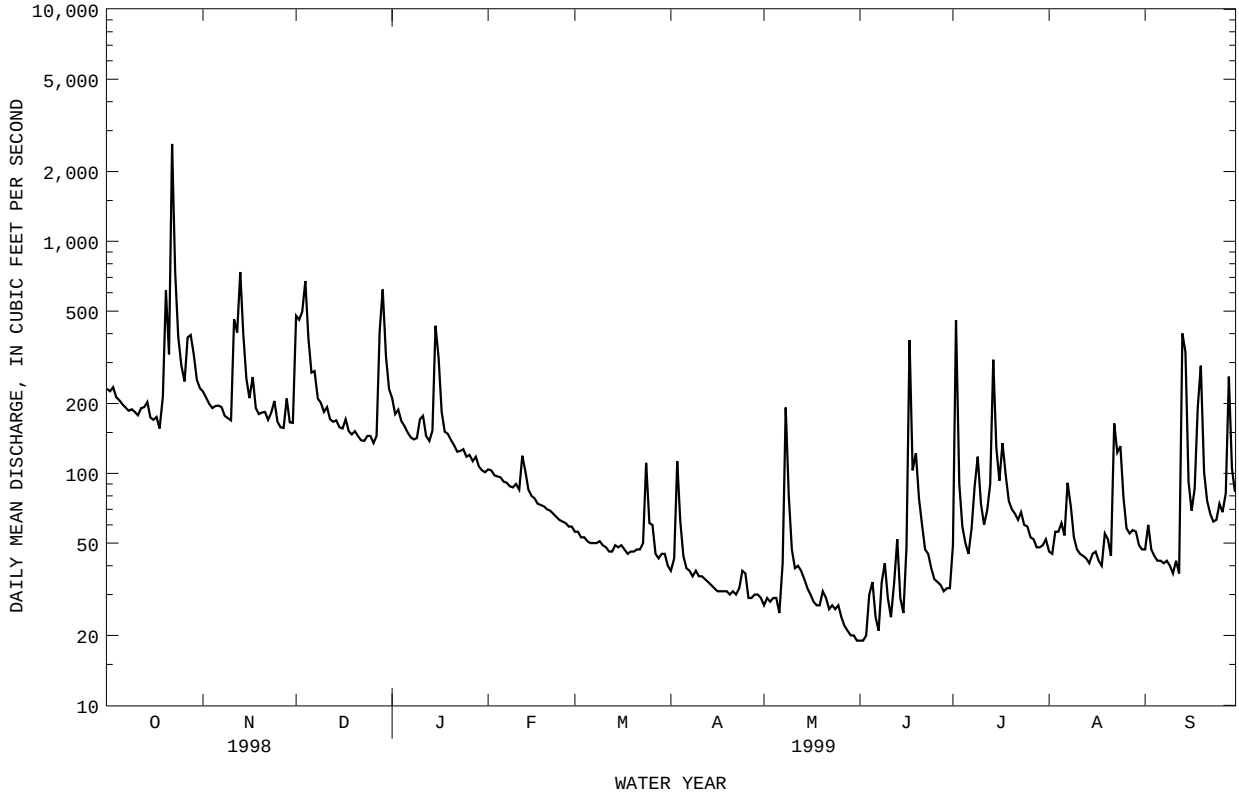
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1999, BY WATER YEAR (WY)

MEAN	160	140	104	115	82.0	60.8	43.3	61.6	104	95.8	107	217
MAX	340	232	253	192	160	158	104	186	290	208	196	631
(WY)	1999	1999	1999	1992	1998	1998	1998	1992	1992	1993	1996	1996
MIN	77.6	69.2	59.2	50.1	21.0	17.4	16.8	25.2	42.3	42.3	39.3	59.7
(WY)	1993	1996	1998	1995	1992	1992	1992	1995	1994	1994	1994	1990

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1990 - 1999	
ANNUAL TOTAL	67315		45707			
ANNUAL MEAN	184		125		110	
HIGHEST ANNUAL MEAN					154	1996
LOWEST ANNUAL MEAN					67.8	1994
HIGHEST DAILY MEAN	5020	Sep 22	2630	Oct 22	10000	Sep 10 1996
LOWEST DAILY MEAN	31	Aug 4	19	May 31	6.3	Apr 29 1992
ANNUAL SEVEN-DAY MINIMUM	36	Jul 30	20	May 28	7.4	Apr 25 1992
INSTANTANEOUS PEAK FLOW			9990	Oct 22	56800	Sep 10 1996
INSTANTANEOUS PEAK STAGE			18.48	Oct 22	35.62	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	133500		90660		79870	
ANNUAL RUNOFF (CFSM)	7.38		5.01		4.41	
ANNUAL RUNOFF (INCHES)	100.16		68.01		59.92	
10 PERCENT EXCEEDS	325		241		188	
50 PERCENT EXCEEDS	99		70		64	
90 PERCENT EXCEEDS	48		30		26	

e Estimated

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued



50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: February 1990 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1990.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected by a local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 3,080 mg/L November 10, 1997; Minimum daily mean, 5 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 80,600 tons (73,100 tonnes) September 10, 1996; Minimum daily mean, 0.20 ton (0.18 tonne) May 05, 1992.

EXTREMES FOR CURRENT YEAR 1999--
SEDIMENT CONCENTRATION: Maximum daily mean, 2,380 mg/L October 22, 1998; Minimum daily mean, 20 mg/L July 5, 1999.

SEDIMENT LOADS: Maximum daily mean, 27,200 tons (24,700 tonnes) October 22, 1998; Minimum daily mean, tons 2 (1.8 tonnes) May 31, 1999.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	231	48	30	225	51	31	478	541	1200
2	226	48	29	212	42	24	459	739	950
3	235	50	32	199	51	27	498	812	1740
4	213	51	29	191	62	32	674	824	1620
5	206	51	29	195	67	35	382	542	576
6	198	44	24	196	68	36	272	297	220
7	192	37	19	193	56	29	276	155	118
8	186	30	15	177	46	22	210	117	66
9	189	24	12	173	44	21	201	94	51
10	184	29	14	169	74	34	184	85	42
11	178	36	17	461	655	984	193	81	42
12	191	46	24	405	613	874	171	89	41
13	193	138	84	738	1080	2820	167	99	45
14	e203	e126	e68	396	173	187	169	96	44
15	174	110	52	256	126	88	158	48	20
16	170	119	55	211	94	53	156	26	11
17	175	95	45	260	300	229	171	35	16
18	156	72	31	191	182	94	152	48	20
19	214	162	179	180	139	68	147	44	18
20	614	1080	2100	183	113	56	152	39	16
21	326	736	726	184	91	45	145	37	15
22	2630	2380	27200	170	73	34	139	50	19
23	740	338	822	182	150	82	138	66	25
24	389	153	161	205	220	132	145	74	29
25	293	106	84	167	90	41	145	81	32
26	249	75	51	158	75	32	135	76	28
27	385	356	581	157	66	28	145	70	28
28	395	330	436	210	208	152	408	686	4030
29	325	461	412	166	94	42	620	790	1900
30	253	108	75	165	59	26	319	442	391
31	233	66	42	---	---	---	231	341	212
TOTAL	10546	---	33478	6975	---	6358	7840	---	13565

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	211	274	157	104	84	24	56	105	16
2	180	228	111	103	88	24	56	147	22
3	188	190	97	98	89	23	53	199	29
4	168	158	72	97	74	20	53	222	32
5	160	132	57	96	60	16	51	223	31
6	150	110	44	92	47	12	e50	e153	e21
7	143	99	38	91	36	8.9	e50	e102	e14
8	140	96	36	88	32	7.6	50	77	10
9	142	93	36	87	45	10	51	96	13
10	171	91	42	90	59	14	49	120	16
11	177	88	42	85	63	14	48	130	17
12	145	86	34	119	134	55	46	126	16
13	138	83	31	102	131	37	46	88	11
14	153	104	60	85	50	12	49	59	7.9
15	433	738	1430	80	24	5.2	48	49	6.4
16	316	493	572	78	30	6.2	49	82	11
17	184	282	142	74	41	8.1	47	117	15
18	151	289	118	73	58	11	45	88	11
19	148	310	124	72	72	14	46	65	8.1
20	139	280	105	70	60	11	46	55	6.8
21	132	176	63	69	49	9.1	47	48	6.1
22	124	85	28	67	48	8.6	47	47	5.9
23	125	60	20	65	83	15	50	73	10
24	127	65	22	63	134	23	111	175	74
25	118	74	23	62	145	24	61	115	19
26	120	99	32	61	145	24	60	184	31
27	113	125	38	59	127	20	45	72	8.7
28	118	120	38	59	109	18	43	56	6.6
29	107	111	32	---	---	---	45	60	7.1
30	103	100	28	---	---	---	45	132	16
31	101	91	25	---	---	---	40	86	9.4
TOTAL	4925	---	3697	2289	---	474.7	1583	---	508.0

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	38	51	5.3	27	91	6.7	19	62	3.2
2	43	49	6.1	29	88	6.9	19	93	4.7
3	113	157	73	28	95	7.2	20	101	5.5
4	62	112	19	29	146	11	30	105	8.6
5	44	85	10	29	177	14	34	100	9.1
6	39	107	11	25	93	6.4	24	94	6.0
7	38	130	13	41	73	15	21	97	5.4
8	36	118	12	192	245	269	34	142	14
9	38	110	11	80	143	33	41	197	21
10	36	124	12	47	63	8.0	29	202	16
11	36	142	14	39	72	7.6	24	191	13
12	35	159	15	40	91	9.9	34	149	13
13	34	165	15	38	122	13	52	113	16
14	33	175	15	35	138	13	29	88	6.9
15	32	203	17	32	89	7.6	25	74	4.9
16	31	215	18	30	54	4.4	48	85	13
17	31	162	13	28	39	3.0	375	490	637
18	31	119	9.8	27	55	4.0	103	118	42
19	31	100	8.4	27	81	6.0	122	182	72
20	30	143	12	31	119	10	78	88	19
21	31	202	17	29	153	12	60	50	8.1
22	30	238	19	26	119	8.3	47	44	5.6
23	32	247	21	27	89	6.4	45	44	5.4
24	38	158	16	26	79	5.5	39	63	6.7
25	37	94	9.5	27	126	9.3	35	85	7.9
26	29	69	5.4	24	184	12	34	89	8.1
27	29	105	8.1	22	187	11	33	92	8.1
28	30	147	12	21	163	9.4	31	93	7.9
29	30	119	9.5	20	96	5.2	32	88	7.6
30	29	95	7.4	20	55	3.0	32	82	7.2
31	---	---	---	19	39	2.0	---	---	---
TOTAL	1126	---	434.5	1115	---	539.8	1549	---	1002.9

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	49	74	9.8	46	67	8.2	47	79	10
2	456	1010	3100	45	70	8.4	60	129	21
3	90	120	32	56	74	11	47	172	22
4	59	31	4.9	56	78	12	44	102	12
5	50	20	2.7	61	82	13	42	55	6.2
6	45	30	3.6	54	86	12	42	35	4.0
7	58	70	14	91	147	47	41	48	5.3
8	88	96	31	72	84	17	42	72	8.2
9	118	162	65	53	32	4.5	40	107	12
10	74	110	23	47	35	4.4	37	144	15
11	60	63	10	45	43	5.2	42	133	15
12	69	53	9.8	44	52	6.2	37	118	12
13	90	111	39	43	61	7.1	401	527	834
14	309	475	533	41	61	6.8	333	475	606
15	129	169	60	45	61	7.4	92	37	9.6
16	93	85	22	46	63	7.8	69	35	6.4
17	135	150	84	42	82	9.2	86	95	31
18	98	145	39	40	107	11	192	294	346
19	76	69	14	55	141	21	291	463	574
20	70	52	9.7	52	164	23	101	117	33
21	67	45	8.2	44	116	14	76	104	21
22	63	47	7.9	164	245	262	67	106	19
23	68	48	8.8	123	129	49	62	95	16
24	60	41	6.6	131	169	78	63	79	13
25	59	33	5.3	79	124	27	74	48	9.5
26	53	30	4.3	58	137	22	68	28	5.2
27	52	41	5.7	55	151	22	82	17	3.7
28	48	53	6.9	57	97	15	261	405	399
29	48	57	7.4	56	58	8.8	105	133	39
30	49	60	7.9	49	41	5.4	83	53	12
31	52	63	8.9	47	54	6.9	---	---	---
TOTAL	2835	---	4184.4	1897	---	752.3	3027	---	3120.1
YEAR	45707		68114.7						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
23...	0900	718	230	446	81
NOV					
13...	1150	1960	3590	19000	64
DEC					
30...	1030	307	359	298	91
MAR					
03...	0800	52	198	28	94
JUL					
02...	1140	1870	2140	10800	76

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
DEC							
28...	2300	1690	4200	19200	40	49	63
JUL							
02...	1040	1660	5640	25200	24	29	35

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
DEC							
28...	73	76	81	93	99	100	100
JUL							
02...	45	52	62	85	99	100	100

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 Borinquén, 8.1 mi (13.0 km) upstream from Río Grande de Loíza.

DRAINAGE AREA.--7.14 mi^2 (18.49 km^2).

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	37	59	e32	21	14	11	8.5	6.1	13	9.4	16
2	31	32	88	e28	20	14	16	8.2	6.2	71	9.0	14
3	32	29	95	31	19	13	21	8.5	5.6	23	9.9	11
4	29	28	126	26	19	13	14	8.5	6.3	16	11	9.4
5	28	29	77	27	18	13	13	8.1	6.2	15	11	9.2
6	26	27	58	26	18	13	12	7.7	6.3	14	9.6	9.0
7	25	26	50	25	18	13	12	11	5.5	18	21	9.0
8	24	24	41	25	17	13	12	32	10	22	13	8.3
9	22	23	38	27	16	13	15	12	9.5	37	10	8.3
10	22	25	31	36	17	13	13	8.9	8.2	20	9.3	8.4
11	21	36	34	33	16	12	13	8.5	7.4	17	9.0	9.3
12	22	45	28	31	29	12	12	8.4	10	21	8.7	8.7
13	22	89	26	30	19	12	12	7.8	12	34	8.5	207
14	26	52	26	34	17	12	12	7.5	9.1	77	8.2	70
15	21	38	25	86	16	12	11	7.0	9.2	36	8.4	22
16	21	33	24	63	16	12	11	6.5	14	23	8.4	15
17	20	37	24	44	15	12	11	6.3	127	25	8.1	13
18	19	30	22	38	15	11	11	6.3	28	21	8.0	48
19	39	27	22	35	15	11	11	6.2	30	18	9.9	69
20	88	28	22	34	15	11	10	6.3	24	16	9.5	26
21	51	27	21	30	14	11	10	6.2	18	15	8.7	17
22	262	25	20	28	15	11	10	6.2	16	14	75	14
23	67	24	20	26	15	12	10	6.1	15	15	18	13
24	28	25	20	25	15	16	10	6.5	14	16	17	13
25	22	23	21	24	15	12	9.9	6.4	13	16	11	13
26	21	22	20	23	15	13	9.7	5.9	12	e11	10	14
27	71	23	21	22	14	12	9.2	6.0	12	e10	11	15
28	52	26	e97	27	14	12	9.2	5.8	12	10	11	30
29	35	26	e88	21	---	13	8.9	5.5	12	10	11	25
30	30	30	e47	20	---	12	8.8	5.7	12	11	9.2	16
31	28	---	e34	20	---	12	---	5.4	---	10	8.6	---
TOTAL	1237	946	1325	977	473	385	348.7	249.9	476.6	675	390.4	760.6
MEAN	39.9	31.5	42.7	31.5	16.9	12.4	11.6	8.06	15.9	21.8	12.6	25.4
MAX	262	89	126	86	29	16	21	32	127	77	75	207
MIN	19	22	20	20	14	11	8.8	5.4	5.5	10	8.0	8.3
MED	28	28	28	28	16	12	11	6.5	12	16	9.6	14
AC-FT	2450	1880	2630	1940	938	764	692	496	945	1340	774	1510
CFSM	5.59	4.42	5.99	4.41	2.37	1.74	1.63	1.13	2.23	3.05	1.76	3.55
IN.	6.44	4.93	6.90	5.09	2.46	2.01	1.82	1.30	2.48	3.52	2.03	3.96

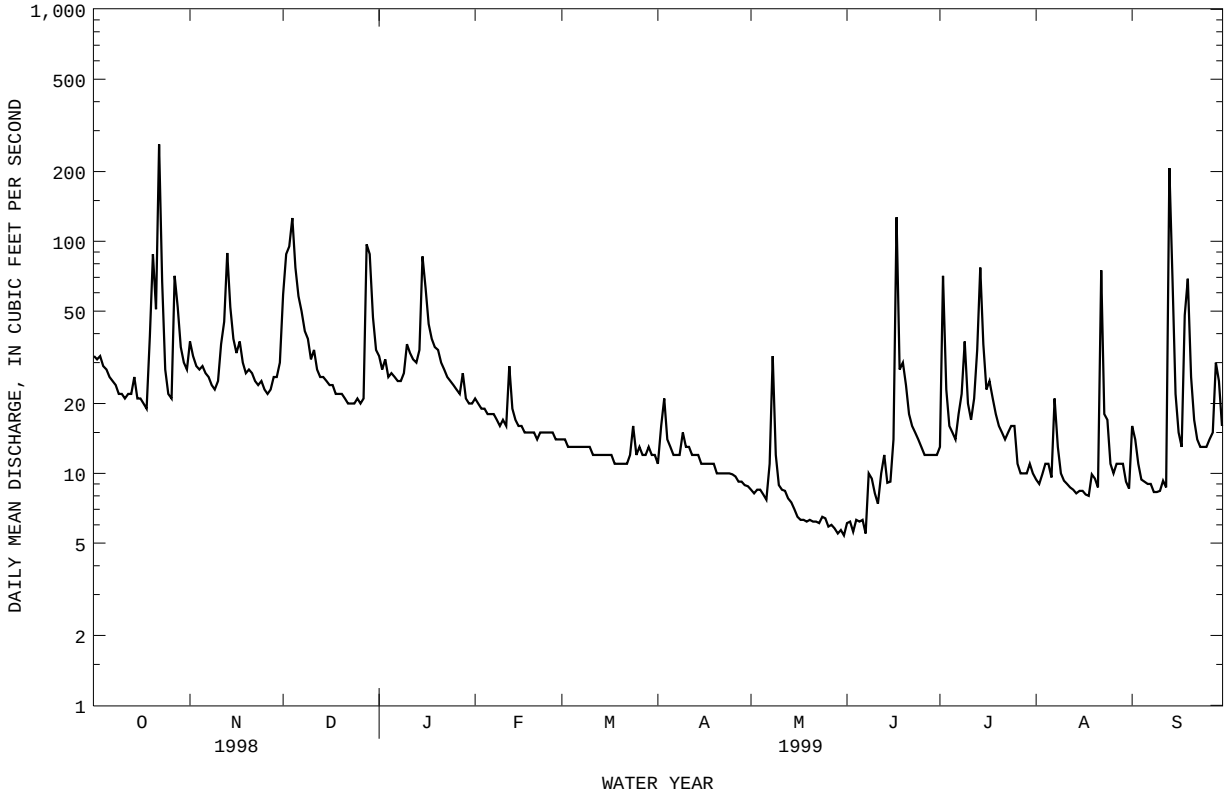
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1999, BY WATER YEAR (WY)

MEAN	28.7	24.1	19.8	23.9	17.6	13.5	10.2	14.4	24.5	22.4	21.8	47.9
MAX	51.3	37.9	42.7	47.5	25.0	26.9	20.2	31.9	67.9	54.6	41.4	123
(WY)	1998	1992	1999	1992	1997	1998	1998	1993	1996	1993	1996	1996
MIN	10.3	18.6	10.6	7.85	8.93	7.35	6.18	6.11	9.59	8.42	6.98	14.1
(WY)	1994	1996	1994	1990	1990	1993	1990	1994	1991	1995	1994	1990

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1990 - 1999	
ANNUAL TOTAL	11846.8		8244.2			
ANNUAL MEAN	32.5		22.6		23.1	
HIGHEST ANNUAL MEAN					38.1	1996
LOWEST ANNUAL MEAN					12.1	1994
HIGHEST DAILY MEAN	1190	Sep 22	262	Oct 22	1940	Sep 10 1996
LOWEST DAILY MEAN	8.8	Jul 2	5.4	May 31	3.3	Aug 17 1994
ANNUAL SEVEN-DAY MINIMUM	9.6	Jul 11	5.8	May 28	3.8	Aug 11 1994
INSTANTANEOUS PEAK FLOW			3280	Sep 13	15200	Sep 10 1996
INSTANTANEOUS PEAK STAGE			11.06	Sep 13	22.60	Sep 10 1996
INSTANTANEOUS LOW FLOW			4.2	Aug 1	2.6	Jul 17 1997
ANNUAL RUNOFF (AC-FT)	23500		16350		16740	
ANNUAL RUNOFF (CFSM)	4.55		3.16		3.24	
ANNUAL RUNOFF (INCHES)	61.72		42.95		43.97	
10 PERCENT EXCEEDS	54		37		36	
50 PERCENT EXCEEDS	19		16		12	
90 PERCENT EXCEEDS	11		8.4		6.2	

e Estimated

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued



50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: January 1990 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1990.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediments samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 9,230 mg/L September 10, 1996; Minimum daily mean, 1 mg/L Several years.

SEDIMENT LOADS: Maximum daily mean, 80,900 tons (73,400 tonnes) September 10, 1996; Minimum daily mean, 0.01 ton (0.01 tonne) Several days.

EXTREMES FOR CURRENT YEAR 1999.
SEDIMENT CONCENTRATION: Maximum daily mean, 3,180 mg/l September 13, 1999; Minimum daily mean, 1 mg/l. July 29, 1999.

SEDIMENT LOADS: Maximum daily mean, 7,440 tons (6,750 tonnes) September 13, 1999; Minimum daily mean, 0.03 tons (0.02 tonnes) July 29, 1999.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	32	7	.64	37	74	17	59	231	42
2	31	11	.89	32	50	5.1	88	406	108
3	32	15	1.3	29	11	.83	95	329	156
4	29	15	1.2	28	6	.44	126	334	125
5	28	15	1.1	29	4	.33	77	44	9.4
6	26	14	.99	27	4	.30	58	24	3.8
7	25	11	.71	26	4	.28	50	19	2.6
8	24	8	.49	24	4	.26	41	15	1.6
9	22	7	.40	23	4	.25	38	12	1.2
10	22	6	.36	25	26	2.1	31	10	.80
11	21	7	.38	36	117	13	34	79	7.8
12	22	8	.46	45	146	32	28	15	1.1
13	22	34	2.5	89	360	133	26	8	.59
14	26	72	5.7	52	116	17	26	8	.54
15	21	20	1.1	38	39	4.0	25	7	.49
16	21	18	1.0	33	16	1.4	24	10	.63
17	20	20	1.1	37	39	5.0	24	12	.78
18	19	20	1.0	30	10	.84	22	10	.62
19	39	120	34	27	10	.71	22	8	.49
20	88	355	131	28	7	.56	22	8	.50
21	51	244	43	27	6	.44	21	9	.50
22	262	1790	2650	25	6	.38	20	9	.50
23	67	700	127	24	5	.35	20	10	.51
24	28	600	46	25	5	.35	20	10	.56
25	22	488	30	23	7	.44	21	12	.65
26	21	207	11	22	10	.61	20	13	.71
27	71	379	151	23	30	2.1	21	17	.97
28	52	222	34	26	24	2.2	e97	e445	e401
29	35	25	2.5	26	36	2.9	e88	e310	e310
30	30	6	.48	30	60	6.3	e47	e116	e116
31	28	5	.39	---	---	---	e34	e24	e43
TOTAL	1237	---	3281.69	946	---	250.47	1325	---	1338.34

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	e32	e45	e4.0	21	8	.45	14	7	.25
2	e28	e33	e2.5	20	13	.68	14	7	.26
3	31	85	8.5	19	22	1.1	13	9	.31
4	26	31	2.2	19	36	1.8	13	11	.41
5	27	48	4.0	18	26	1.3	13	16	.55
6	26	31	2.2	18	14	.69	13	20	.70
7	25	10	.69	18	9	.44	13	14	.50
8	25	7	.47	17	6	.29	13	9	.30
9	27	8	.56	16	4	.20	13	6	.22
10	36	89	11	17	5	.25	13	7	.24
11	33	89	7.9	16	7	.32	12	8	.26
12	31	46	3.8	29	91	13	12	9	.30
13	30	27	2.1	19	23	1.2	12	10	.34
14	34	24	4.3	17	13	.57	12	8	.27
15	86	308	105	16	7	.28	12	6	.20
16	63	146	30	16	4	.16	12	6	.17
17	44	116	14	15	9	.38	12	8	.24
18	38	34	3.6	15	18	.72	11	11	.35
19	35	21	2.0	15	8	.33	11	17	.52
20	34	17	1.5	15	4	.15	11	23	.70
21	30	11	.87	14	4	.17	11	22	.66
22	28	10	.78	15	7	.27	11	20	.60
23	26	11	.75	15	10	.39	12	17	.56
24	25	8	.56	15	7	.28	16	36	1.9
25	24	6	.38	15	5	.18	12	12	.41
26	23	4	.27	15	5	.19	13	6	.19
27	22	4	.23	14	6	.23	12	7	.21
28	27	15	1.8	14	6	.24	12	5	.16
29	21	5	.26	---	---	---	13	3	.11
30	20	3	.18	---	---	---	12	2	.08
31	20	5	.26	---	---	---	12	7	.21
TOTAL	977	---	216.66	473	---	26.26	385	---	12.18

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	11	9	.28	8.5	8	.18	6.1	8	.13
2	16	23	1.1	8.2	8	.18	6.2	7	.11
3	21	56	4.3	8.5	8	.18	5.6	5	.08
4	14	36	1.4	8.5	8	.19	6.3	5	.09
5	13	16	.58	8.1	9	.19	6.2	5	.08
6	12	12	.39	7.7	9	.19	6.3	4	.07
7	12	10	.33	11	22	1.0	5.5	3	.05
8	12	9	.30	32	419	101	10	23	1.0
9	15	8	.34	12	39	1.4	9.5	24	.61
10	13	8	.28	8.9	18	.44	8.2	22	.49
11	13	8	.28	8.5	16	.36	7.4	21	.42
12	12	9	.28	8.4	13	.29	10	24	.78
13	12	10	.33	7.8	11	.22	12	20	.64
14	12	16	.50	7.5	9	.19	9.1	19	.47
15	11	25	.75	7.0	9	.17	9.2	18	.46
16	11	25	.74	6.5	8	.14	14	37	1.5
17	11	22	.63	6.3	8	.13	127	639	281
18	11	18	.52	6.3	7	.12	28	28	2.2
19	11	14	.42	6.2	6	.10	30	77	6.7
20	10	11	.32	6.3	6	.09	24	23	1.5
21	10	7	.19	6.2	8	.13	18	20	1.0
22	10	4	.12	6.2	11	.18	16	17	.73
23	10	5	.14	6.1	9	.15	15	14	.56
24	10	6	.18	6.5	7	.11	14	11	.41
25	9.9	8	.21	6.4	5	.09	13	8	.26
26	9.7	9	.24	5.9	7	.11	12	8	.26
27	9.2	7	.18	6.0	9	.15	12	7	.25
28	9.2	5	.13	5.8	9	.14	12	8	.25
29	8.9	6	.15	5.5	9	.13	12	10	.32
30	8.8	8	.18	5.7	9	.13	12	12	.40
31	---	---	---	5.4	8	.12	---	---	---
TOTAL	348.7	---	15.79	249.9	---	108.20	476.6	---	302.82

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	13	14	.46	9.4	3	.08	16	44	4.2
2	71	292	129	9.0	5	.11	14	52	2.0
3	23	15	.99	9.9	6	.17	11	29	.82
4	16	7	.30	11	9	.25	9.4	20	.52
5	15	5	.20	11	18	.52	9.2	14	.36
6	14	4	.15	9.6	32	.84	9.0	10	.25
7	18	27	1.6	21	20	1.3	9.0	7	.18
8	22	89	8.3	13	12	.44	8.3	8	.18
9	37	93	17	10	7	.20	8.3	11	.24
10	20	26	1.4	9.3	5	.12	8.4	24	.55
11	17	20	.89	9.0	4	.10	9.3	54	1.4
12	21	16	.87	8.7	4	.09	8.7	63	1.5
13	34	85	15	8.5	5	.12	207	3180	7440
14	77	347	108	8.2	8	.17	70	300	71
15	36	53	5.5	8.4	9	.19	22	56	3.4
16	23	23	1.4	8.4	9	.21	15	29	1.2
17	25	29	2.2	8.1	11	.24	13	24	.82
18	21	16	.89	8.0	18	.39	48	220	137
19	18	9	.45	9.9	25	.66	69	345	108
20	16	6	.26	9.5	23	.59	26	64	5.0
21	15	7	.29	8.7	23	.54	17	10	.48
22	14	11	.43	75	356	420	14	8	.32
23	15	8	.32	18	61	3.3	13	10	.37
24	16	4	.19	17	52	2.8	13	5	.18
25	16	4	.17	11	33	1.0	13	2	.09
26	e11	e4	e.21	10	31	.84	14	2	.07
27	e10	e4	e.12	11	26	.75	15	2	.08
28	10	2	.05	11	21	.63	30	53	5.6
29	10	1	.03	11	17	.49	25	90	6.8
30	11	2	.04	9.2	14	.34	16	14	.63
31	10	2	.06	8.6	10	.23	---	---	---
TOTAL	675	---	296.77	390.4	---	437.71	760.6	---	7793.24
YEAR	8244.2		14080.13						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
20...	1056	158	592	253	98
DEC					
01...	1520	79	187	40	92
FEB					
16...	1600	15	3	.12	75
MAY					
08...	1646	60	1490	241	96
JUL					
08...	1747	45	452	55	99
SEP					
11...	1530	11	63	1.9	99

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
SEP							
13...	1215	193	7580	3950	21	28	36

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
SEP							
13...	45	54	61	74	89	97	99

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 mi^2 (232.6 km^2).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	262	570	1310	406	165	93	74	45	35	70	81	224
2	275	364	1690	325	174	111	77	45	37	1740	66	217
3	277	289	1180	350	154	90	269	41	32	256	90	118
4	232	262	1370	283	154	87	175	41	36	117	75	87
5	217	254	686	265	152	86	95	41	84	88	88	69
6	278	325	543	249	143	84	80	41	45	72	92	66
7	218	257	493	225	139	85	76	43	35	71	131	68
8	197	222	372	212	133	81	75	435	91	130	129	72
9	188	e235	345	215	133	90	91	216	144	325	73	76
10	182	229	e310	347	136	82	73	83	82	163	69	69
11	173	e630	e332	337	132	79	73	63	53	127	75	80
12	210	917	e274	235	259	75	69	58	55	118	58	69
13	177	1800	e251	206	204	74	e68	58	129	135	53	1090
14	244	656	e252	208	140	73	e65	55	59	684	51	724
15	188	430	220	1260	129	69	e61	47	47	435	52	223
16	188	337	210	686	126	70	60	43	81	203	56	141
17	182	390	228	424	117	69	e60	38	1170	249	51	134
18	165	297	192	310	116	e66	e61	37	329	214	45	337
19	182	287	184	290	116	66	60	37	249	132	79	942
20	854	290	205	266	111	64	58	38	231	122	170	297
21	426	279	181	256	110	65	57	43	137	107	82	159
22	2210	245	173	222	106	62	58	34	95	93	442	124
23	1120	253	174	212	107	73	57	37	83	96	332	110
24	588	468	189	233	102	193	e64	35	69	95	232	111
25	421	275	186	218	100	e151	81	43	59	88	158	121
26	338	233	170	224	100	117	54	e34	50	74	96	154
27	e868	246	199	199	98	85	52	e30	50	71	82	183
28	1200	332	1090	288	99	80	53	30	46	65	88	707
29	1190	266	1840	184	---	85	51	28	47	148	86	251
30	519	259	666	170	---	97	51	41	48	90	69	155
31	375	---	480	164	---	83	---	33	---	81	65	---
TOTAL	14144	11897	15995	9469	3755	2685	2298	1893	3708	6459	3316	7178
MEAN	456	397	516	305	134	86.6	76.6	61.1	124	208	107	239
MAX	2210	1800	1840	1260	259	193	269	435	1170	1740	442	1090
MIN	165	222	170	164	98	62	51	28	32	65	45	66
AC-FT	28050	23600	31730	18780	7450	5330	4560	3750	7350	12810	6580	14240
CFSM	5.08	4.42	5.75	3.40	1.49	.96	.85	.68	1.38	2.32	1.19	2.66
IN.	5.86	4.93	6.63	3.92	1.56	1.11	.95	.78	1.54	2.68	1.37	2.97

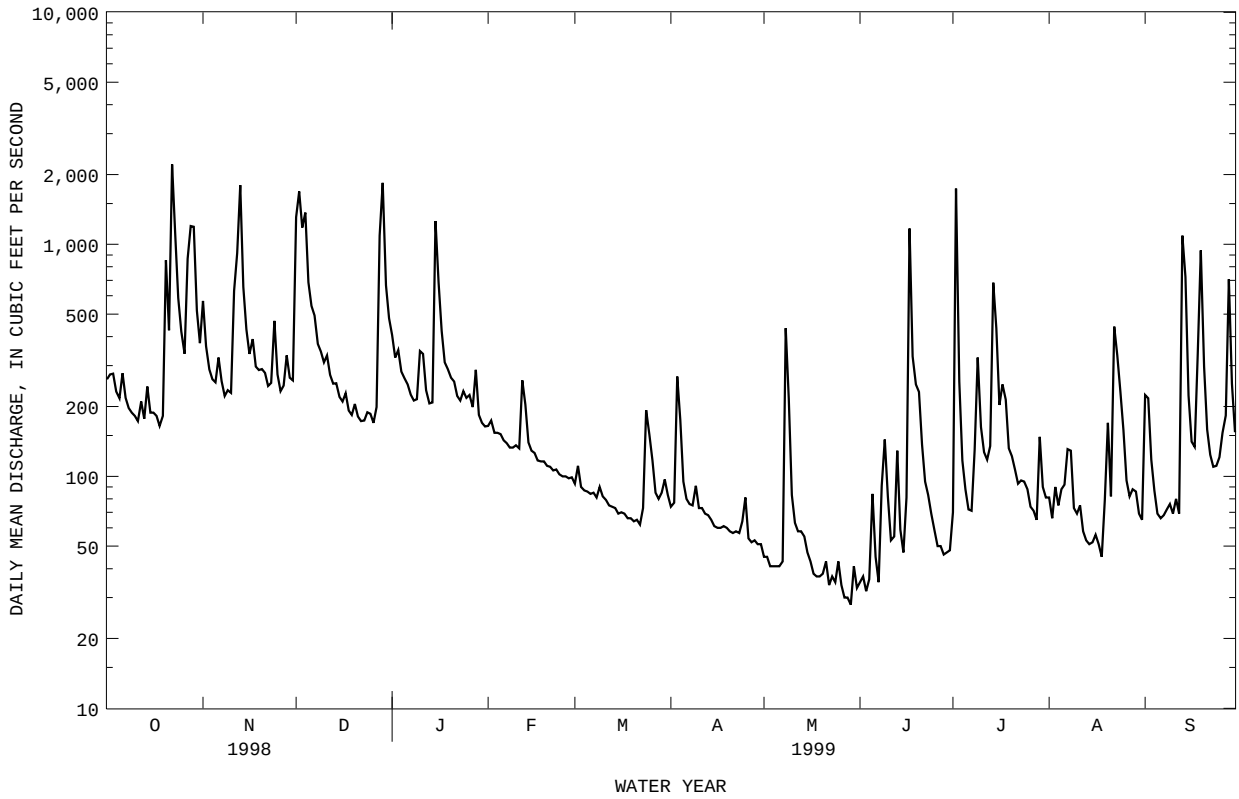
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1999, BY WATER YEAR (WY)

MEAN	360	313	224	152	113	95.2	90.9	219	240	225	262	326
MAX	1910	1131	714	559	291	306	355	863	1283	660	949	1438
(WY)	1971	1988	1988	1992	1984	1989	1978	1985	1979	1961	1979	1960
MIN	44.2	64.9	33.6	45.3	35.6	23.2	30.6	33.7	34.1	21.8	51.4	37.4
(WY)	1968	1968	1968	1968	1968	1968	1995	1974	1975	1974	1994	1967

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1960 - 1999	
ANNUAL TOTAL	108279		82797			
ANNUAL MEAN	297		227		216	
HIGHEST ANNUAL MEAN					526	1979
LOWEST ANNUAL MEAN					82.3	1967
HIGHEST DAILY MEAN	8930	Sep 22	2210	Oct 22	25300	Sep 6 1960
LOWEST DAILY MEAN	37	Aug 5	28	May 29	11	Apr 8 1968
ANNUAL SEVEN-DAY MINIMUM	44	Jul 11	33	May 26	11	Apr 8 1968
INSTANTANEOUS PEAK FLOW			13500	Dec 28	83000	Sep 10 1996
INSTANTANEOUS PEAK STAGE			15.50	Dec 28	32.32	Sep 10 1996
INSTANTANEOUS LOW FLOW			25	May 29	17	Aug 18 1994
ANNUAL RUNOFF (AC-FT)	214800		164200		156700	
ANNUAL RUNOFF (CFSM)	3.30		2.53		2.41	
ANNUAL RUNOFF (INCHES)	44.85		34.30		32.73	
10 PERCENT EXCEEDS	572		435		362	
50 PERCENT EXCEEDS	146		131		106	
90 PERCENT EXCEEDS	61		50		40	

e Estimated

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued



50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1983 to current year.

INSTRUMENTATION.-- USD-49 sediment sampler since October 1983. Automatic sediment sampler since 1984.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 14,500 mg/L November 27, 1987; Minimum daily mean, 8 mg/L January 23, 1992.
SEDIMENT LOADS: Maximum daily mean, 396,000tons (359,000 tonnes) September 10, 1996; Minimum daily mean, 0.65 ton (0.59 tonne) May 25,1995.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1,970 mg/L October 22, 1998; minimum daily mean, 14 mg/L December 21,1998.
SEDIMENT LOADS: Maximum daily mean, 23,200 tons (21,00 tonnes) December 28, 1998; minimum daily 4 ton (3.6 tonnes) May 27,1999.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
18...	1430	189	265	7.6	27.0	17	8.0	100	<10	25000	3400
MAR											
18...	1610	67	314	8.0	27.4	120	7.2	89	<10	23000	310
MAY											
26...	1515	33	333	8.0	32.4	32	8.2	113	<10	K1300	80
SEP											
30...	1125	157	225	7.7	28.0	260	6.8	88	<10	26000	2300

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
18...	88	22	8.1	20	.9	2.1	82	<1.0	13	20
MAR										
18...	--	--	--	--	--	--	103	--	--	--
MAY										
26...	100	26	8.7	28	1	2.0	107	<1.0	18	27
SEP										
30...	65	16	6.0	17	.9	1.9	75	--	11	16

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
18...	<.10	31	165	84.2	8	.653	.027	.680	.200	.25
MAR										
18...	--	--	--	--	140	.480	.030	.510	.080	--
MAY										
26...	.14	33	207	18.2	50	.480	.050	.530	.080	--
SEP										
30...	<.10	30	143	60.9	334	.370	.050	.420	.150	.32

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOVERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
DEC										
18...	.45	1.1	5.0	.080	<1	<100	20	<1	<1	<10
MAR										
18...	E.31	--	--	E.190	--	--	--	--	--	--
MAY										
26...	E.40	--	--	E.160	<1	60	50	<1	<1	E9
SEP										
30...	.47	.89	3.9	.250	--	--	--	--	--	--

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	CYANIDE TOTAL (MG/L AS CN) (00720)	PHENOLS TOTAL (UG/L) (32730)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L) (38260)
DEC										
18...	820	1	110	<.10	<1	<1	10	<.010	<4	<.02
MAR										
18...	--	--	--	--	--	--	--	--	--	--
MAY										
26...	1400	<1	260	<.10	<1	<1	E20	<.010	4	.03
SEP										
30...	--	--	--	--	--	--	--	--	--	--

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	262	88	62	570	550	1420	1310	744	4700
2	275	129	99	364	162	169	1690	1080	6750
3	277	128	95	289	118	92	1180	728	4010
4	232	106	67	262	115	81	1370	848	3540
5	217	90	53	254	112	77	686	550	1340
6	278	178	168	325	202	192	543	480	890
7	218	194	114	257	98	68	493	253	360
8	197	172	91	222	64	38	372	119	120
9	188	152	77	e235	e37	e23	345	95	89
10	182	139	68	229	31	19	e310	e90	e76
11	173	127	59	e630	e512	e1030	e332	e138	e129
12	210	172	99.9	917	627	3230	e274	e78	e58
13	177	151	73	1800	1140	7350	e251	e56	e38
14	244	171	114	656	567	1040	e252	e40	e27
15	188	130	66	430	226	270	220	36	21
16	188	159	80	337	94	86	210	34	20
17	182	123	60	390	300	493	228	36	23
18	165	83	37	297	137	112	192	38	20
19	182	81	63	287	76	59	184	29	14
20	854	538	2370	290	113	96	205	20	11
21	426	256	363	279	187	142	181	14	6.9
22	2210	1970	14400	245	96	64	173	15	7.0
23	1120	1600	6570	253	101	78	174	17	8.2
24	588	79	128	468	470	700	189	18	9.2
25	421	36	42	275	151	115	186	18	9.0
26	338	18	16	233	81	51	170	18	8.2
27	e868	e750	e3290	246	120	90	199	17	8.9
28	1200	713	3150	332	275	411	1090	1000	23200
29	1190	708	4280	266	190	137	1840	869	7440
30	519	212	322	259	104	72	666	455	829
31	375	164	165	---	---	---	480	406	701
TOTAL	14144	---	36641.9	11897	---	17805	15995	---	54463.4

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR.--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	406	350	517	165	58	26	93	97	24
2	325	51	45	174	166	76	111	180	49
3	350	142	143	154	399	165	90	300	73
4	283	38	29	154	423	176	87	174	41
5	265	31	22	152	404	166	86	122	28
6	249	37	25	143	364	140	84	115	26
7	225	32	19	139	326	123	85	109	25
8	212	27	15	133	292	105	81	114	25
9	215	22	13	133	262	94	90	192	47
10	347	325	456	136	235	86	82	314	69
11	337	210	200	132	210	75	79	281	60
12	235	163	104	259	258	236	75	219	45
13	206	116	65	204	277	156	74	171	34
14	208	113	70	140	197	75	73	133	26
15	1260	824	4980	129	140	49	69	119	22
16	686	529	1200	126	103	35	70	207	39
17	424	229	286	117	118	37	69	362	67
18	310	46	39	116	158	49	e66	e390	e70
19	290	50	39	116	256	80	66	367	65
20	266	81	58	111	366	110	64	270	47
21	256	64	45	110	183	55	65	186	33
22	222	41	25	106	94	27	62	136	23
23	212	33	19	107	138	40	73	135	27
24	233	28	18	102	205	57	193	202	147
25	218	27	16	100	233	63	e151	e148	e67
26	224	36	21	100	252	68	117	215	75
27	199	48	25	98	193	51	85	90	21
28	288	240	301	99	134	36	80	87	19
29	184	110	55	---	---	---	85	108	25
30	170	83	38	---	---	---	97	117	34
31	164	60	27	---	---	---	83	143	32
TOTAL	9469	---	8915	3755	---	2456	2685	---	1385

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	74	126	25	45	101	12	35	90	8.6
2	77	111	23	45	100	12	37	95	9.6
3	269	440	385	41	99	11	32	90	7.7
4	175	166	87	41	107	12	36	83	8.1
5	95	104	27	41	115	13	84	165	30
6	80	160	35	41	109	12	45	77	9.4
7	76	230	47	43	103	12	35	72	6.8
8	75	122	25	435	885	2800	91	150	49
9	91	280	70	216	195	134	144	200	82
10	73	145	28	83	112	25	82	160	29
11	73	135	26	63	136	23	53	91	13
12	69	130	24	58	159	25	55	98	14
13	e68	e144	e26	58	141	22	129	152	53
14	e65	e159	e28	55	121	18	59	151	24
15	e61	e149	e25	47	104	13	47	142	18
16	60	134	22	43	89	10	81	143	36
17	e60	e121	e19	38	80	8.2	1170	1300	5510
18	e61	e109	e18	37	97	9.6	329	468	403
19	60	94	15	37	117	12	249	350	233
20	58	90	14	38	118	12	231	175	119
21	57	94	14	43	116	14	137	52	20
22	58	91	14	34	114	11	95	45	12
23	57	87	13	37	112	11	83	56	12
24	e64	e84	e15	35	108	10	69	114	21
25	81	99	22	43	99	11	59	112	18
26	54	114	17	e34	e88	e8.2	50	93	13
27	52	115	16	e30	e75	e6.1	50	77	10
28	53	110	16	30	64	5.1	46	79	9.9
29	51	104	14	28	54	4.0	47	68	8.6
30	51	103	14	41	87	12	48	52	6.7
31	---	---	---	33	108	9.8	---	---	---
TOTAL	2298	---	1124	1893	---	3298.0	3708	---	6794.4

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR.--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	70	114	22	81	83	19	224	225	204
2	1740	1190	15500	66	62	11	217	196	144
3	256	270	216	90	109	30	118	126	42
4	117	105	34	75	109	22	87	89	21
5	88	30	7.3	88	130	33	69	63	12
6	72	23	4.5	92	131	34	66	47	8.4
7	71	26	6.0	131	150	91	68	44	8.0
8	130	172	72	129	138	49	72	42	8.1
9	325	350	376	73	89	18	76	130	25
10	163	162	103	69	83	16	69	120	20
11	127	150	63	75	174	35	80	125	27
12	118	43	13	58	162	25	69	120	20
13	135	172	72	53	131	19	1090	1290	10000
14	684	505	1340	51	107	15	724	525	1190
15	435	500	621	52	87	12	223	133	85
16	203	168	148	56	72	11	141	108	41
17	249	300	265	51	63	8.7	134	116	47
18	214	162	103	45	55	6.7	337	252	483
19	132	46	17	79	52	11	942	788	2740
20	122	66	24	170	57	27	297	237	202
21	107	42	12	82	63	14	159	262	111
22	93	39	9.8	442	1130	4250	124	302	101
23	96	41	11	332	405	470	110	210	62
24	95	44	11	232	301	203	111	138	41
25	88	47	11	158	382	166	121	200	57
26	74	49	9.8	96	296	77	154	190	96
27	71	48	9.3	82	231	51	183	179	91
28	65	47	8.1	88	181	43	707	517	1310
29	148	180	134	86	142	33	251	165	117
30	90	92	23	69	131	24	155	113	47
31	81	76	17	65	184	32	---	---	---
TOTAL	6459	---	19262.8	3316	---	5856.4	7178	---	17360.5
YEAR	82797		175362.5						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
22...	1010	3600	1980	19300	97
22...	2210	2050	9690	53600	57
DEC					
01...	1745	3260	1840	16200	94
JAN					
15...	1715	517	273	381	94
16...	1825	1680	1110	5030	92
FEB					
20...	1230	112	435	132	99
MAY					
26...	0935	36	90	8.7	94
JUN					
17...	1820	1940	2830	14800	99
JUL					
02...	1630	1680	1080	4890	98
14...	1128	109	343	101	97
AUG					
22...	1730	1950	8120	42700	99

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
OCT							
22...	2210	2050	9690	53600	18	23	30
NOV							
11...	1515	952	667	1710	65	79	92
DEC							
02...	1515	4780	4480	57900	38	49	60
29...	0030	4950	3600	48100	43	53	69
JUL							
02...	1030	7240	5290	103000	34	46	63
AUG							
22...	1730	1950	8120	42700	44	59	75
SEP							
13...	0855	1400	6980	26400	27	40	61

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
OCT							
22...	40	49	57	79	96	100	100
NOV							
11...	97	98	99	99	100	100	100
DEC							
02...	72	83	89	98	100	100	100
29...	79	87	93	99	100	100	100
JUL							
02...	78	90	93	98	100	100	100
AUG							
22...	90	97	99	100	100	100	100
SEP							
13...	83	96	99	100	100	100	100

50055100 RIO CAGÜITAS 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 km^2).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	23	144	21	13	13	5.7	5.5	11	7.4	18	7.7
2	11	e13	160	18	12	11	5.6	5.5	5.7	99	19	8.6
3	9.1	e11	78	17	11	8.9	5.8	5.2	4.7	15	11	9.5
4	8.6	11	52	15	12	8.8	5.6	5.2	4.7	9.6	8.1	8.1
5	8.3	11	41	15	11	8.6	5.5	5.2	4.9	8.3	7.3	7.8
6	32	10	55	14	11	8.7	5.3	8.6	4.3	7.1	10	7.9
7	18	10	33	13	11	8.7	5.4	6.6	5.6	6.3	7.5	10
8	11	9.3	28	13	11	8.6	5.2	9.6	46	8.0	7.1	8.0
9	10	20	28	13	10	9.4	6.1	6.2	16	21	6.7	7.2
10	9.5	23	24	28	10	8.7	15	5.3	12	9.1	6.8	7.3
11	8.4	21	25	18	9.8	7.9	8.1	5.1	7.8	9.2	6.6	11
12	8.8	87	22	14	18	7.6	6.6	5.2	6.9	8.8	6.4	9.0
13	8.2	73	23	13	11	7.6	6.8	4.8	6.8	9.1	6.3	18
14	e8.1	31	20	14	9.7	7.4	6.9	4.7	6.7	10	6.5	10
15	7.4	29	20	33	9.4	7.3	6.5	4.5	17	31	6.2	7.8
16	7.6	23	21	19	9.7	7.2	6.1	4.7	8.4	11	6.3	7.6
17	7.2	21	21	15	9.4	7.2	6.1	4.5	68	7.9	6.1	7.5
18	7.2	20	20	14	9.3	7.2	6.1	4.5	16	6.8	5.9	7.9
19	e7.8	19	22	13	9.2	7.1	6.0	4.6	12	6.6	6.0	60
20	9.2	23	27	13	9.1	6.9	5.9	4.2	17	62	9.5	17
21	12	19	22	12	8.9	6.6	5.9	4.2	11	19	6.7	11
22	93	16	20	13	9.0	6.5	5.8	4.2	8.7	11	19	8.4
23	28	18	20	12	9.0	6.5	5.8	4.2	7.5	9.2	10	10
24	14	36	20	12	8.3	7.0	7.2	5.1	6.6	8.4	8.7	8.1
25	10	23	20	13	8.1	6.3	6.5	4.8	6.3	7.7	7.1	7.2
26	23	19	31	12	8.0	6.0	6.0	4.5	6.1	7.4	7.0	8.1
27	e62	19	20	12	8.2	5.8	5.8	4.3	5.9	6.9	7.1	12
28	55	18	69	27	8.0	6.0	6.1	4.3	5.6	6.4	6.7	16
29	37	19	74	13	---	5.6	6.0	5.2	16	9.0	7.7	12
30	22	24	32	12	---	21	5.8	5.4	7.8	7.1	6.7	8.7
31	14	---	23	11	---	6.9	---	9.7	---	6.5	7.0	---
TOTAL	577.4	699.3	1215	482	284.1	252.0	191.2	165.6	363.0	451.8	261.0	339.4
MEAN	18.6	23.3	39.2	15.5	10.1	8.13	6.37	5.34	12.1	14.6	8.42	11.3
MAX	93	87	160	33	18	21	15	9.7	68	99	19	60
MIN	7.2	9.3	20	11	8.0	5.6	5.2	4.2	4.3	6.3	5.9	7.2
AC-FT	1150	1390	2410	956	564	500	379	328	720	896	518	673
CFSM	3.51	4.40	7.40	2.93	1.91	1.53	1.20	1.01	2.28	2.75	1.59	2.13
IN.	4.05	4.91	8.53	3.38	1.99	1.77	1.34	1.16	2.55	3.17	1.83	2.38

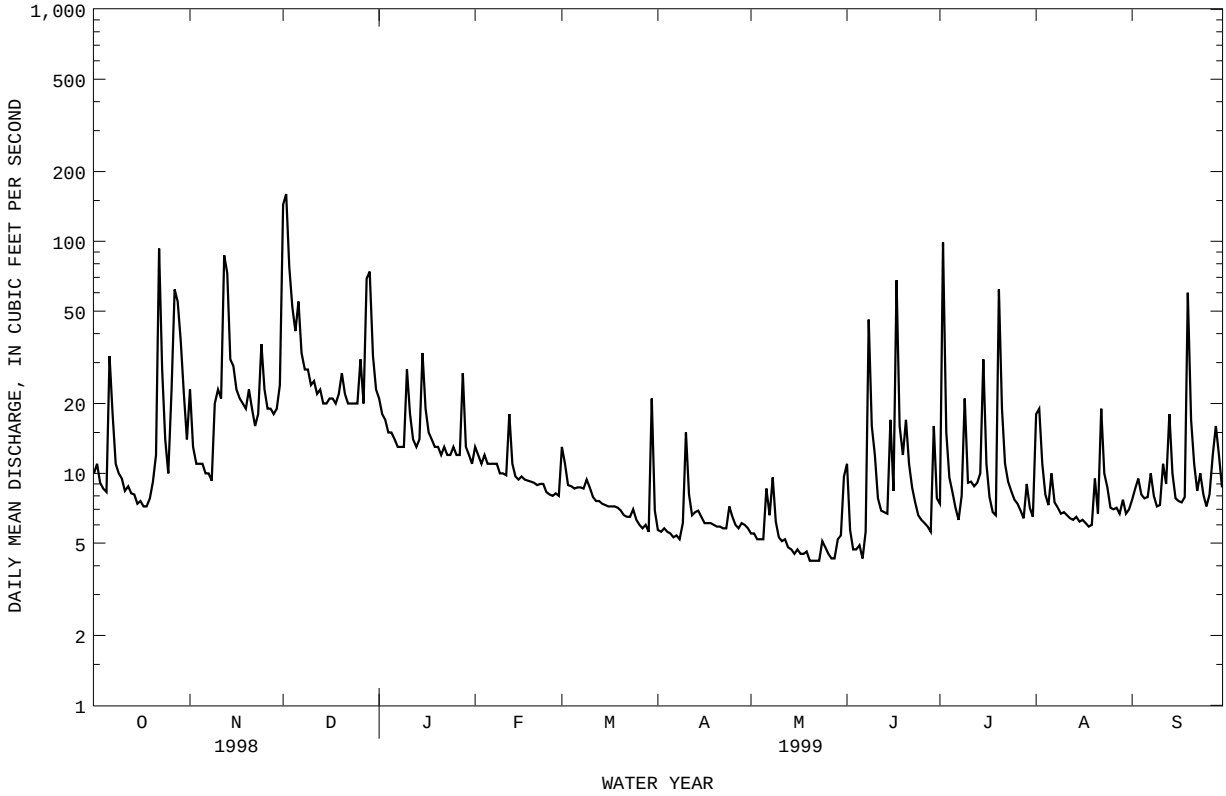
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1999, BY WATER YEAR (WY)

MEAN	9.63	8.74	9.81	8.89	5.72	5.04	4.69	5.15	5.06	6.87	6.99	15.7
MAX	20.9	23.3	39.2	16.7	10.1	8.87	13.1	18.0	12.1	18.6	12.7	52.9
(WY)	1991	1999	1999	1992	1999	1990	1993	1993	1999	1993	1998	1996
MIN	3.17	2.66	2.34	2.48	2.96	2.09	1.84	2.00	1.84	1.86	1.85	2.43
(WY)	1996	1995	1995	1995	1995	1996	1995	1997	1997	1994	1994	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1990 - 1999	
ANNUAL TOTAL	5308.1		5281.8			
ANNUAL MEAN	14.5		14.5		7.86	
HIGHEST ANNUAL MEAN					14.5	1999
LOWEST ANNUAL MEAN					4.31	1997
HIGHEST DAILY MEAN	663	Sep 22	160	Dec 2	1260	Sep 10 1996
LOWEST DAILY MEAN	2.1	Mar 2	4.2	May 20	1.0	Aug 1 1997
ANNUAL SEVEN-DAY MINIMUM	2.3	Feb 26	4.3	May 17	1.2	Apr 30 1996
INSTANTANEOUS PEAK FLOW			1500	Dec 1	4490	Sep 10 1996
INSTANTANEOUS PEAK STAGE			15.34	Dec 1	21.22	Sep 10 1996
INSTANTANEOUS LOW FLOW					.82	Jul 29 1997
ANNUAL RUNOFF (AC-FT)	10530		10480		5700	
ANNUAL RUNOFF (CFSM)	2.74		2.73		1.48	
ANNUAL RUNOFF (INCHES)	37.26		37.07		20.16	
10 PERCENT EXCEEDS	25		24		11	
50 PERCENT EXCEEDS	6.3		9.1		4.5	
90 PERCENT EXCEEDS	2.8		5.6		2.0	

e Estimated

50055100 RIO CAGÜITAS NEAR AGUAS BUENAS, PR--Continued



50055100 RIO CAGÜTAS NEAR AGUAS BUENAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: February 1990 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1990.

REMARKS:-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected by hydrologic technician and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 5,300 mg/L September 10, 1996; Minimum daily mean, 1 mg/L severals days during 1997-98.

SEDIMENT LOADS: Maximum daily mean, 24,500 tons (22,200 tonnes) September 10, 1996; Minimum daily mean, 0.01 ton (0.01 tonnes)severals days during 1997-98 . .

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, 2,540 mg/L December 2, 1998; Minimum daily mean, 3 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 1,570 tons (1,424 tonnes) December 1, 1998; Minimum daily mean, 0.05 ton (0.04tonnes> August 18-19, 1999.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	10	10	.27	23	246	53	144	1580	1570
2	11	31	1.0	e13	e17	e.63	160	2540	1500
3	9.1	8	.21	e11	e13	e.41	78	1450	318
4	8.6	5	.12	11	11	.32	52	796	119
5	8.3	5	.11	11	8	.24	41	478	58
6	32	625	162	10	12	.33	55	832	213
7	18	135	6.5	10	19	.50	33	175	16
8	11	25	.80	9.3	20	.49	28	24	1.9
9	10	10	.28	20	232	23	28	16	1.2
10	9.5	10	.25	23	263	19	24	12	.78
11	8.4	9	.21	21	439	36	25	14	.93
12	8.8	8	.20	87	885	444	22	17	1.0
13	8.2	8	.19	73	940	234	23	16	.99
14	e8.1	e10	e.21	31	675	58	20	14	.75
15	7.4	11	.22	29	156	14	20	12	.64
16	7.6	12	.24	23	36	2.2	21	8	.46
17	7.2	12	.23	21	15	.86	21	7	.41
18	7.2	12	.23	20	10	.52	20	13	.71
19	e7.8	e12	e.25	19	8	.41	22	24	1.4
20	9.2	12	.30	23	132	13	27	421	36
21	12	137	9.7	19	18	.91	22	29	1.7
22	93	912	502	16	13	.58	20	11	.62
23	28	107	9.5	18	38	2.5	20	9	.47
24	14	55	2.1	36	646	99	20	7	.40
25	10	36	.99	23	203	12	20	9	.50
26	23	276	52	19	110	5.8	31	230	47
27	e62	e938	e406	19	59	3.0	20	22	1.2
28	55	917	255	18	33	1.6	69	551	473
29	37	384	65	19	31	1.6	74	378	158
30	22	108	7.1	24	33	2.1	32	248	23
31	14	14	.53	---	---	---	23	15	.97
TOTAL	577.4	---	1483.74	699.3	---	1030.00	1215	---	4548.03

RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGÜTAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	21	14	.78	13	12	.44	13	122	9.8
2	18	14	.67	12	12	.39	11	68	2.1
3	17	15	.68	11	12	.36	8.9	26	.63
4	15	15	.62	12	12	.36	8.8	13	.31
5	15	16	.62	11	11	.35	8.6	15	.36
6	14	15	.55	11	11	.32	8.7	18	.42
7	13	13	.47	11	8	.25	8.7	15	.34
8	13	11	.37	11	7	.19	8.6	11	.25
9	13	9	.32	10	9	.25	9.4	8	.21
10	28	329	48	10	14	.37	8.7	6	.15
11	18	64	3.1	9.8	15	.40	7.9	5	.11
12	14	31	1.2	18	151	18	7.6	5	.11
13	13	15	.56	11	12	.35	7.6	6	.12
14	14	99	7.3	9.7	10	.27	7.4	6	.13
15	33	611	106	9.4	11	.27	7.3	7	.13
16	19	160	8.2	9.7	11	.29	7.2	7	.13
17	15	79	3.3	9.4	13	.32	7.2	6	.12
18	14	33	1.2	9.3	14	.35	7.2	5	.10
19	13	22	.77	9.2	11	.26	7.1	5	.09
20	13	17	.58	9.1	8	.19	6.9	4	.08
21	12	17	.52	8.9	7	.17	6.6	7	.12
22	13	17	.60	9.0	6	.16	6.5	12	.21
23	12	18	.59	9.0	7	.16	6.5	18	.32
24	12	19	.62	8.3	9	.21	7.0	18	.35
25	13	37	1.6	8.1	11	.23	6.3	16	.28
26	12	58	1.9	8.0	7	.16	6.0	11	.18
27	12	45	1.4	8.2	5	.12	5.8	7	.11
28	27	356	52	8.0	5	.11	6.0	5	.09
29	13	19	.66	---	---	---	5.6	4	.06
30	12	13	.43	---	---	---	21	443	79
31	11	13	.39	---	---	---	6.9	61	1.2
TOTAL	482	---	246.00	284.1	---	25.30	252.0	---	97.61

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	5.7	27	.41	5.5	11	.16	11	118	8.5
2	5.6	17	.25	5.5	10	.15	5.7	24	.37
3	5.8	14	.22	5.2	10	.14	4.7	21	.26
4	5.6	14	.20	5.2	9	.13	4.7	18	.23
5	5.5	13	.19	5.2	6	.09	4.9	15	.20
6	5.3	13	.19	8.6	36	2.0	4.3	8	.09
7	5.4	13	.19	6.6	9	.16	5.6	12	.22
8	5.2	13	.18	9.6	48	2.1	46	914	314
9	6.1	32	.53	6.2	21	.37	16	257	18
10	15	567	66	5.3	15	.21	12	92	2.9
11	8.1	56	1.3	5.1	11	.15	7.8	46	.99
12	6.6	32	.58	5.2	8	.11	6.9	28	.53
13	6.8	31	.57	4.8	7	.09	6.8	29	.53
14	6.9	34	.62	4.7	6	.08	6.7	29	.53
15	6.5	36	.63	4.5	7	.09	17	221	29
16	6.1	39	.64	4.7	9	.11	8.4	42	1.0
17	6.1	31	.51	4.5	10	.13	68	813	406
18	6.1	22	.37	4.5	9	.11	16	198	9.5
19	6.0	16	.26	4.6	8	.09	12	74	2.6
20	5.9	12	.19	4.2	6	.07	17	125	6.2
21	5.9	10	.16	4.2	9	.10	11	33	1.0
22	5.8	8	.13	4.2	14	.16	8.7	20	.48
23	5.8	8	.12	4.2	14	.17	7.5	12	.24
24	7.2	30	.69	5.1	13	.17	6.6	10	.19
25	6.5	35	.61	4.8	11	.15	6.3	11	.18
26	6.0	29	.48	4.5	11	.13	6.1	10	.16
27	5.8	25	.39	4.3	11	.12	5.9	10	.16
28	6.1	20	.33	4.3	10	.12	5.6	10	.15
29	6.0	16	.26	5.2	18	.31	16	205	29
30	5.8	13	.21	5.4	14	.21	7.8	34	.73
31	---	---	---	9.7	58	2.6	---	---	---
TOTAL	191.2	---	77.41	165.6	---	10.78	363.0	---	833.94

50055100 RIO CAGÜTAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	7.4	20	.39	18	341	76	7.7	14	.28
2	99	1040	1290	19	172	16	8.6	21	.58
3	15	66	3.1	11	125	4.2	9.5	43	1.2
4	9.6	21	.55	8.1	25	.56	8.1	26	.57
5	8.3	9	.21	7.3	17	.34	7.8	22	.46
6	7.1	6	.12	10	52	2.3	7.9	19	.41
7	6.3	12	.20	7.5	18	.37	10	45	1.5
8	8.0	20	.42	7.1	18	.35	8.0	37	.83
9	21	337	45	6.7	21	.38	7.2	20	.38
10	9.1	47	1.2	6.8	18	.33	7.3	18	.35
11	9.2	36	.89	6.6	7	.12	11	130	7.1
12	8.8	44	1.4	6.4	3	.06	9.0	36	.87
13	9.1	27	.67	6.3	4	.07	18	190	18
14	10	41	1.4	6.5	5	.09	10	51	1.5
15	31	366	71	6.2	5	.08	7.8	23	.49
16	11	51	1.6	6.3	4	.07	7.6	13	.26
17	7.9	21	.46	6.1	4	.06	7.5	13	.26
18	6.8	12	.21	5.9	3	.05	7.9	13	.29
19	6.6	8	.14	6.0	3	.05	60	676	578
20	62	874	437	9.5	34	1.5	17	136	6.7
21	19	101	6.2	6.7	38	.70	11	19	.58
22	11	28	.83	19	229	41	8.4	11	.25
23	9.2	12	.29	10	46	1.3	10	49	2.2
24	8.4	12	.27	8.7	33	.93	8.1	23	.51
25	7.7	13	.27	7.1	13	.25	7.2	8	.16
26	7.4	14	.28	7.0	8	.15	8.1	17	.42
27	6.9	15	.28	7.1	7	.13	12	66	2.2
28	6.4	15	.26	6.7	6	.11	16	119	6.6
29	9.0	38	1.3	7.7	15	.36	12	67	2.2
30	7.1	29	.56	6.7	16	.29	8.7	31	.75
31	6.5	15	.27	7.0	14	.26	---	---	---
TOTAL	451.8	---	1866.77	261.0	---	148.46	339.4	---	635.90
YEAR	5281.8		11003.94						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
22...	1720	223	1260	759	89
NOV					
13...	1350	98	221	58	95
14...	1236	31	1160	97	96
24...	0630	31	801	67	100
FEB					
12...	1545	58	2000	314	97
MAR					
02...	0715	11	70	2.1	96
APR					
10...	1800	75	2530	513	98
MAY					
29...	1512	6.1	89	1.5	34
JUL					
09...	1310	101	1910	521	90
20...	1525	112	2820	854	94
AUG					
02...	1215	60	697	113	91
SEP					
11...	1605	14	367	14	99

50055100 RIO CAGÜITAS NEAR AGUAS BUENAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
OCT							
06...	1415	154	3190	1330	24	38	55
NOV							
24...	0630	31	801	67	73	86	96
DEC							
28...	2135	245	6230	4120	40	49	61
JUN							
08...	1640	80	3310	715	64	77	88
08...	1845	37	5120	511	34	44	56
JUL							
02...	1015	673	11100	20100	35	44	55

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
OCT							
06...	69	77	86	94	98	100	100
NOV							
24...	98	99	100	100	100	100	100
DEC							
28...	70	78	85	85	90	94	99
JUN							
08...	93	94	95	96	97	98	100
08...	71	77	86	93	97	98	100
JUL							
02...	66	78	84	92	95	96	97

50055225 RIO CAGÜITAS 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 Plaza.

DRAINAGE AREA.--11.71 mi^2 (30.33 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. Low-flow affected by pluvial discharges above 50 ft (15.24 m), upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	335	615	42	32	54	15	15	39	e26	e59	34
2	133	100	837	36	31	34	15	14	18	e763	e53	39
3	83	56	300	37	28	20	14	14	16	e63	e30	17
4	47	45	189	31	31	18	15	13	17	e28	16	13
5	e27	41	121	31	28	18	20	15	35	e23	15	11
6	e341	73	230	30	26	17	16	16	14	e19	40	11
7	e176	36	94	29	26	18	16	15	e15	e18	22	48
8	63	33	64	31	24	17	27	48	e257	e26	23	14
9	37	137	64	31	24	24	19	13	e78	e186	14	12
10	29	100	48	84	24	19	28	11	e46	e35	13	13
11	26	104	47	42	24	16	21	12	e34	e28	12	17
12	44	526	42	28	53	16	15	11	e44	e29	12	11
13	22	639	41	27	35	16	15	11	e29	e27	12	57
14	e15	153	35	51	22	16	16	9.9	e30	e33	12	22
15	18	184	33	112	22	16	16	9.6	e101	e167	12	10
16	16	72	33	46	23	16	14	9.5	e50	e38	23	14
17	14	59	30	37	21	16	13	9.2	e347	e24	14	11
18	13	41	30	33	20	15	14	9.2	e97	e19	11	18
19	29	40	29	31	21	16	14	10	e58	e16	14	197
20	44	91	59	30	21	16	14	11	e76	e368	107	42
21	93	43	35	30	21	15	15	9.7	e44	e78	23	21
22	872	31	28	33	21	16	15	9.8	e31	e32	69	17
23	232	79	32	34	21	18	15	11	e27	e27	35	23
24	49	171	28	36	20	27	27	12	e23	e22	16	17
25	20	55	27	42	20	17	36	12	e19	e18	12	15
26	42	33	69	34	20	17	17	11	e19	e16	12	35
27	375	35	43	33	23	15	14	11	e17	e16	12	49
28	478	32	160	88	20	22	17	12	e17	e15	14	70
29	367	30	300	36	---	16	15	15	e48	e53	11	20
30	149	42	91	30	---	94	15	82	e31	e20	11	16
31	91	---	47	29	---	23	---	31	---	e15	12	---
TOTAL	4020	3416	3801	1244	702	678	523	492.9	1677	2248	741	894
MEAN	130	114	123	40.1	25.1	21.9	17.4	15.9	55.9	72.5	23.9	29.8
MAX	872	639	837	112	53	94	36	82	347	763	107	197
MIN	13	30	27	27	20	15	13	9.2	14	15	11	10
MED	47	58	47	33	23	17	15	12	32	27	14	17
AC-FT	7970	6780	7540	2470	1390	1340	1040	978	3330	4460	1470	1770
CFSM	11.1	9.72	10.5	3.43	2.14	1.87	1.49	1.36	4.77	6.19	2.04	2.54
IN.	12.77	10.85	12.07	3.95	2.23	2.15	1.66	1.57	5.33	7.14	2.35	2.84

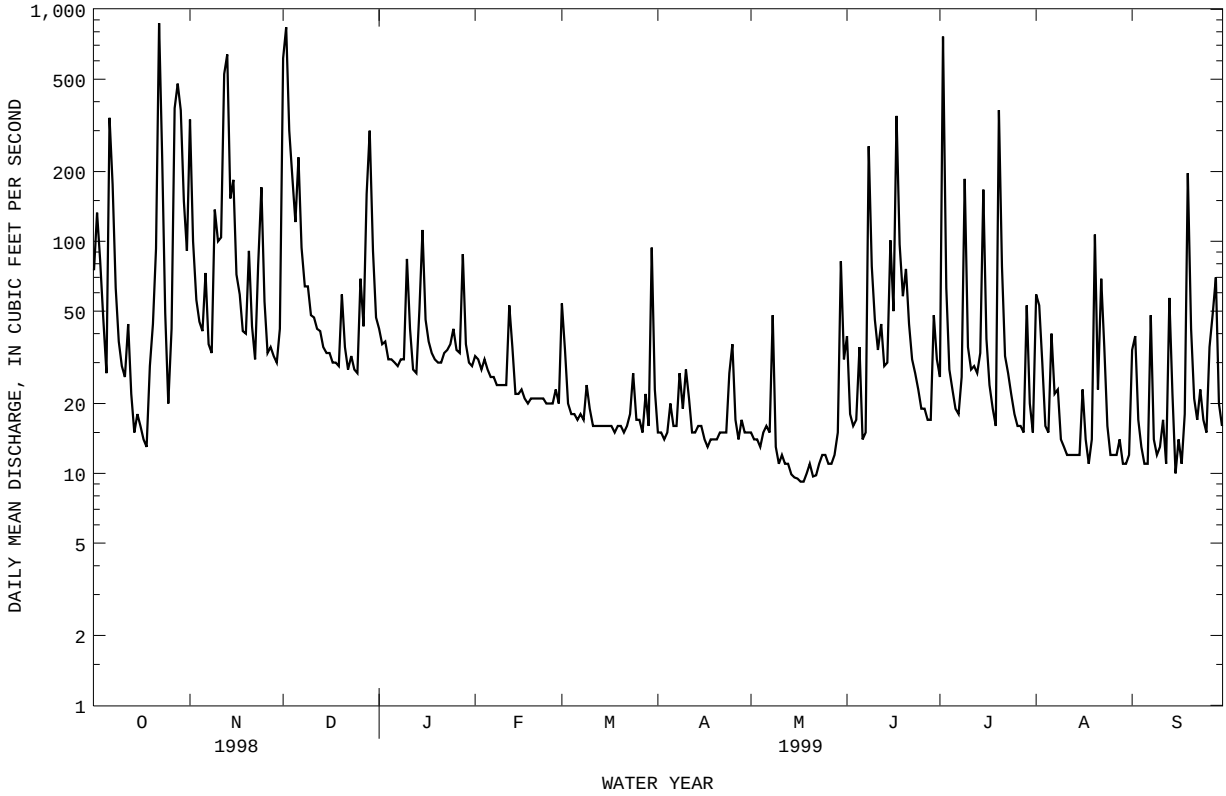
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1999, BY WATER YEAR (WY)

MEAN	43.2	42.6	33.3	38.0	24.9	18.7	16.2	22.3	27.2	35.3	40.4	105
MAX	130	114	123	120	67.9	42.6	39.8	59.8	55.9	74.6	109	364
(WY)	1999	1999	1999	1992	1998	1998	1993	1993	1999	1993	1998	1996
MIN	18.7	12.2	8.87	14.2	10.8	7.54	5.49	3.35	2.86	4.13	3.82	8.82
(WY)	1996	1995	1995	1995	1992	1994	1994	1994	1994	1994	1994	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1991 - 1999	
ANNUAL TOTAL	31498.3		20436.9			
ANNUAL MEAN	86.3		56.0		39.1	
HIGHEST ANNUAL MEAN					64.0	1998
LOWEST ANNUAL MEAN					11.9	1994
HIGHEST DAILY MEAN	3970	Sep 22	872	Oct 22	8600	Sep 10 1996
LOWEST DAILY MEAN	4.2	Aug 4	9.2	May 17	1.3	Jun 8 1994
ANNUAL SEVEN-DAY MINIMUM	5.0	Jul 30	9.7	May 15	1.4	Jun 8 1994
INSTANTANEOUS PEAK FLOW			5430	Jul 2	25000	Sep 10 1996
INSTANTANEOUS PEAK STAGE			16.00	Jul 2	23.89	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	62480		40540		28300	
ANNUAL RUNOFF (CFSM)	7.37		4.78		3.34	
ANNUAL RUNOFF (INCHES)	100.06		64.92		45.33	
10 PERCENT EXCEEDS	187		100		53	
50 PERCENT EXCEEDS	22		27		16	
90 PERCENT EXCEEDS	6.7		12		6.2	

e Estimated

50055225 RIO CAGÜITAS AT VILLA BLANCA AT CAGUAS, PR--Continued



50055225 RIO CAGÜTAS AT VILLA BLANCA AT CAGUAS, PR--Continued

ERIOD OF RECORDS.-- Water years 1991 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: December 1990 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1991.

REMARKS.-- Sediment samples collected by local observer on a weekly basis. During high flow events sediments samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 5,940 mg/L September 22, 1998; Minimum daily mean, 3 mg/L August 2, 1997.

SEDIMENT LOADS: Maximum daily mean, e110,000 tons (e99,800 tonnes) September 22,1998; Minimum daily mean, e0.03 ton (e0.02 tonne) June 15, 1994.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1,610 mg/L July 2, 1999; Minimum daily mean, 8 mg/L severals days.

SEDIMENT LOADS: Maximum daily mean, e8,670 tons (e7,865 tonnes) July 2, 1999 ; Minimum daily mean,0.22 tons (0.20 tonne) May 18, 1999.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	75	11	2.3	335	508	1560	615	1210	4320
2	133	211	160	100	120	40	837	1210	5570
3	83	37	9.9	56	20	3.0	300	404	525
4	47	16	2.0	45	17	2.1	189	347	209
5	e27	e13	e.93	41	18	2.0	121	186	59
6	e341	e205	e496	73	135	92	230	411	538
7	e176	e307	e167	36	13	1.3	94	183	49
8	63	51	10	33	9	.80	64	100	17
9	37	16	1.6	137	278	177	64	125	23
10	29	13	1.1	100	211	60	48	107	14
11	26	11	.77	104	209	78	47	74	9.4
12	44	99	22	526	1120	3470	42	52	5.9
13	22	18	1.0	639	1440	2900	41	47	5.2
14	e15	e12	e.69	153	723	331	35	44	4.1
15	18	10	.49	184	443	428	33	42	3.7
16	16	29	1.3	72	154	30	33	68	6.3
17	14	29	1.1	59	72	14	30	70	5.7
18	13	28	.99	41	18	1.9	30	61	5.0
19	29	44	4.2	40	66	7.9	29	54	4.2
20	44	72	17	91	135	90	59	125	23
21	93	145	102	43	39	5.9	35	70	7.3
22	872	329	1160	31	8	.70	28	47	3.6
23	232	131	104	79	155	125	32	32	2.7
24	49	58	7.8	171	347	206	28	25	1.9
25	20	40	2.2	55	108	18	27	29	2.2
26	42	82	29	33	19	1.8	69	130	48
27	375	851	2540	35	41	5.1	43	88	11
28	478	891	3030	32	38	3.3	160	751	1810
29	367	561	1120	30	18	1.5	300	966	1640
30	149	148	70	42	69	9.0	91	145	36
31	91	19	4.8	---	---	---	47	110	14
TOTAL	4020	---	9070.17	3416	---	9665.30	3801	---	14973.2

RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGÜTAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	42	74	8.5	32	58	5.0	54	187	83
2	36	55	5.4	31	53	4.4	34	137	17
3	37	41	4.1	28	48	3.6	20	30	1.7
4	31	30	2.5	31	44	3.6	18	21	1.0
5	31	22	1.9	28	40	3.0	18	18	.85
6	30	16	1.4	26	36	2.6	17	16	.77
7	29	13	.99	26	34	2.3	18	28	1.4
8	31	11	.96	24	32	2.1	17	39	1.8
9	31	10	.85	24	27	1.8	24	56	4.5
10	84	150	68	24	19	1.2	19	40	2.0
11	42	72	9.5	24	14	.87	16	27	1.2
12	28	16	1.2	53	93	27	16	24	1.0
13	27	13	.99	35	66	8.4	16	22	.95
14	51	62	48	22	28	1.7	16	18	.80
15	112	150	100	22	24	1.4	16	15	.66
16	46	83	10	23	21	1.3	16	14	.58
17	37	47	4.8	21	21	1.1	16	16	.69
18	33	27	2.4	20	21	1.2	15	18	.76
19	31	23	1.9	21	22	1.2	16	20	.85
20	30	22	1.8	21	23	1.3	16	22	.92
21	30	21	1.7	21	23	1.3	15	20	.84
22	33	43	4.1	21	24	1.3	16	18	.81
23	34	66	6.1	21	24	1.4	18	17	.81
24	36	68	7.5	20	30	1.6	27	51	6.0
25	42	103	14	20	37	2.0	17	13	.59
26	34	111	10	20	40	2.1	17	26	1.2
27	33	78	7.1	23	50	3.8	15	22	.87
28	88	424	191	20	26	1.4	22	36	4.2
29	36	77	7.4	---	---	---	16	30	1.3
30	30	70	5.8	---	---	---	94	244	144
31	29	64	4.9	---	---	---	23	160	12
TOTAL	1244	---	534.79	702	---	89.97	678	---	295.05

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	15	25	1.0	15	26	1.0	39	70	13
2	15	17	.68	14	20	.74	18	42	2.1
3	14	12	.46	14	15	.58	16	28	1.2
4	15	11	.42	13	13	.47	17	26	1.2
5	20	40	3.6	15	16	.63	35	67	15
6	16	14	.62	16	23	1.1	14	30	1.1
7	16	13	.57	15	33	1.4	e15	e28	e1.1
8	27	46	8.8	48	88	36	e257	e1030	e2590
9	19	48	2.6	13	24	.89	e78	e170	e38
10	28	58	8.2	11	14	.40	e46	e118	e15
11	21	45	2.7	12	18	.72	e34	e83	e7.7
12	15	29	1.2	11	31	.90	e44	e91	e15
13	15	22	.90	11	24	.67	e29	e57	e4.5
14	16	22	.95	9.9	17	.47	e30	e44	e3.8
15	16	23	1.0	9.6	13	.34	e101	e260	e159
16	14	26	.98	9.5	11	.29	e50	e149	e21
17	13	31	1.1	9.2	10	.25	e347	e708	e1480
18	14	34	1.3	9.2	9	.22	e97	e114	e43
19	14	37	1.4	10	8	.23	e58	e44	e8.1
20	14	36	1.4	11	16	.51	e76	e165	e35
21	15	25	1.0	9.7	13	.35	e44	e76	e9.4
22	15	18	.70	9.8	10	.28	e31	e25	e2.1
23	15	16	.62	11	10	.28	e27	e17	e1.2
24	27	52	7.8	12	9	.30	e23	e15	e.94
25	36	88	27	12	20	.71	e19	e17	e.88
26	17	22	1.0	11	21	.65	e19	e20	e1.0
27	14	16	.61	11	28	.85	e17	e24	e1.1
28	17	26	1.3	12	23	.73	e17	e30	e1.4
29	15	29	1.1	15	29	1.6	e48	e115	e31
30	15	33	1.4	82	368	450	e31	e66	e6.2
31	---	---	---	31	52	7.4	---	---	---
TOTAL	523	---	82.41	492.9	---	510.96	1677	---	4510.02

50055225 RIO CAGÜTAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	e26	e37	e2.6	e59	e121	e75	34	64	17
2	e763	e1610	e8670	e53	e119	e21	39	84	24
3	e63	e71	e17	e30	e71	e6.2	17	42	2.0
4	e28	e24	e1.9	16	24	1.1	13	46	1.6
5	e23	e20	e1.2	15	13	.53	11	33	.95
6	e19	e17	e.88	40	70	15	11	32	1.1
7	e18	e14	e.68	22	46	3.0	48	98	43
8	e26	e36	e2.9	23	49	4.2	14	50	1.9
9	e186	e526	e680	14	27	.98	12	39	1.3
10	e35	e101	e9.9	13	20	.71	13	30	1.1
11	e28	e89	e6.8	12	18	.58	17	39	2.2
12	e29	e66	e6.5	12	16	.52	11	30	.93
13	e27	e51	e4.0	12	17	.52	57	163	59
14	e33	e81	e8.6	12	17	.53	22	53	4.9
15	e167	e614	e650	12	17	.55	10	25	.69
16	e38	e71	e8.0	23	51	5.8	14	31	1.7
17	e24	e22	e1.5	14	26	.97	11	23	.71
18	e19	e20	e1.1	11	24	.72	18	47	e2.5
19	e16	e19	e.80	14	29	1.2	197	424	692
20	e368	e1150	e3080	107	207	295	42	119	e12
21	e78	e157	e45	23	34	2.6	21	41	2.4
22	e32	e47	e4.3	69	138	63	17	20	.94
23	e27	e21	e1.5	35	77	11	23	33	3.1
24	e22	e18	e1.1	16	33	1.5	17	31	1.5
25	e18	e16	e.79	12	32	1.0	15	19	.78
26	e16	e15	e.65	12	34	1.1	35	69	14
27	e16	e13	e.56	12	31	.97	49	117	25
28	e15	e14	e.56	14	23	1.3	70	477	180
29	e53	e100	e41	11	8	.24	20	41	2.2
30	e20	e52	e3.0	11	9	.28	16	28	1.2
31	e15	e27	e1.1	12	11	.36	---	---	---
TOTAL	2248	---	13253.92	741	---	517.46	894	---	1101.70
YEAR	20436.9		54604.95						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
06...	1505	E1180	397	e1260	89
21...	1930	692	1320	2470	81
DEC					
29...	0300	971	2600	6810	86
MAR					
02...	0740	37	118	12	84
MAY					
30...	1530	877	2440	5780	95
JUL					
02...	1000	E3910	3010	e31800	87
09...	1315	E696	3160	e5940	93
15...	1156	E474	4750	e6080	95
AUG					
20...	1640	1290	2010	6990	76

50055225 RIO CAGÜTAS AT VILLA BLANCA AT CAGUAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
DEC							
28...	2215	753	7040	14300	30	41	54
JAN							
28...	0632	241	4110	2680	31	40	52
JUL							
02...	1000	e3910	3010	e31800	45	55	65
15	1156	E474	4750	e6080	46	56	70
AUG							
20...	1640	1290	2010	6990	46	53	64

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
DEC							
28...	69	82	90	98	100	100	100
JAN							
28...	68	84	92	99	100	100	100
JUL							
02...	75	83	87	95	99	100	100
15...	81	92	95	99	100	100	100
AUG							
20...	70	72	76	90	98	100	100

50055250 RIO CAGÜITAS 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 mi^2 (36.5 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
15...	1100	42	540	7.1	26.5	4.3	4.8	59	<10	320000	78000
FEB											
23...	1135	14	616	7.8	26.5	10	5.6	68	30	K63000	34000
MAY											
25...	1405	9.7	641	7.8	35.0	10	3.8	54	55	K820000	350000
SEP											
29...	1040	24	417	7.9	27.2	.50	6.8	87	31	K65000	5500

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
15...	180	48	16	32	1	4.2	164	<1.0	43	40
FEB										
23...	--	--	--	--	--	--	172	--	--	--
MAY										
25...	170	44	14	55	2	4.5	164	E1.0	55	59
SEP										
29...	54	13	5.2	14	.8	3.8	140	--	8.7	14

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
15...	.25	33	314	35.6	<1	1.33	.270	1.60	2.20	.70
FEB										
23...	--	--	--	--	10	1.06	.240	1.30	2.90	.60
MAY										
25...	.31	32	363	9.48	10	.620	.320	.940	3.40	1.5
SEP										
29...	.11	19	162	10.6	98	.800	.060	.860	.290	.26

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
15...	2.9	4.5	20	.370	<1	<100	40	<1	10	95
FEB										
23...	3.5	4.8	21	.470	--	--	--	--	--	--
MAY										
25...	4.9	5.8	26	E.700	2	30	120	<1	7	120
SEP										
29...	.55	1.4	6.2	.180	--	--	--	--	--	--

50055250 RIO CAGÜITAS AT HIGHWAY 30 AT CAGUAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
15...	800	1	330	<.10	<1	3	70	.190	<1	.38
FEB										
23...	--	--	--	--	--	--	--	--	--	--
MAY										
25...	410	<1	250	<.10	<1	7	230	.040	7	E1.4
SEP										
29...	--	--	--	--	--	--	--	--	--	--

50055390 RIO BAIROA AT BAIROA, PR

LOCATION.--Lat 18°15'32", long 66°02'24", Hydrologic Unit 21010005, on left bank, in the Bairoa 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 AREA.--5.08 mi^2 (13.15 km^2).

WATER-DISCHARGE RECORDS

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

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 from school nearby station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e11	121	115	e18	e10	16	6.2	5.4	12	12	19	8.8
2	e12	21	112	e16	e8.6	9.0	6.2	5.2	5.6	198	29	11
3	e10	14	82	e15	e9.4	7.3	5.7	5.1	4.7	24	13	15
4	e9.4	12	49	e13	e8.6	7.1	5.3	4.9	4.9	14	10	11
5	e9.0	11	38	e13	e8.4	7.1	5.6	5.2	6.8	13	9.8	13
6	e35	14	54	e12	e8.2	7.1	5.5	6.6	5.2	11	11	10
7	e21	10	e33	e11	e8.4	6.9	5.5	5.8	5.3	10	11	28
8	e12	9.7	e26	e11	e8.4	6.9	5.7	9.1	52	11	11	11
9	e11	36	e26	e12	e7.8	16	5.6	5.6	8.0	98	9.2	11
10	e10	37	e20	e24	e7.8	7.9	10	4.8	6.8	18	10	13
11	e9.4	21	e19	e16	e8.0	7.2	6.3	5.2	5.5	17	9.3	24
12	e9.8	151	e17	e13	e14	6.7	5.7	4.6	7.5	16	9.2	10
13	e9.0	172	e17	e11	e8.4	6.9	5.4	4.6	6.1	13	9.4	15
14	e9.0	27	e14	e12	e7.8	6.7	5.6	4.5	80	13	14	13
15	e8.2	20	e13	e28	e7.6	7.0	6.0	4.4	610	46	13	8.9
16	e8.4	17	e13	e17	e7.6	6.7	5.4	4.4	48	15	23	8.9
17	e8.0	16	e12	e13	e7.3	6.6	5.3	4.4	93	12	10	8.9
18	e7.8	14	e11	e12	e7.3	6.7	5.7	4.5	40	9.9	9.8	9.6
19	e8.6	13	e12	e12	e7.2	6.6	5.6	4.6	24	9.0	9.6	54
20	e10	17	e14	e11	e7.2	6.5	5.3	4.6	18	116	20	19
21	e16	13	e13	e11	e7.3	6.3	5.4	4.6	14	27	11	11
22	e155	12	e11	e12	e7.5	6.4	5.3	4.6	13	16	32	9.1
23	e27	15	e10	e10	7.3	6.3	5.6	4.7	12	18	16	33
24	e18	22	e10	e10	7.3	7.7	6.2	5.3	11	13	12	11
25	e16	13	e11	e12	7.3	6.1	17	5.2	9.9	12	9.3	9.2
26	e19	11	e16	e10	7.2	5.9	5.9	4.7	9.3	11	8.6	12
27	e158	25	e11	e10	7.3	5.9	5.5	4.7	9.1	11	8.7	17
28	e217	14	e60	e24	7.4	5.8	5.8	4.8	9.0	11	9.7	22
29	80	19	e64	e10	---	5.8	5.4	5.6	28	11	15	13
30	25	24	e25	e9.4	---	42	5.3	41	10	11	9.8	9.4
31	17	---	e23	e8.6	---	7.3	---	9.1	---	10	12	---
TOTAL	976.6	921.7	951	417.0	226.6	264.4	185.0	197.8	1168.7	826.9	404.4	449.8
MEAN	31.5	30.7	30.7	13.5	8.09	8.53	6.17	6.38	39.0	26.7	13.0	15.0
MAX	217	172	115	28	14	42	17	41	610	198	32	54
MIN	7.8	9.7	10	8.6	7.2	5.8	5.3	4.4	4.7	9.0	8.6	8.8
AC-FT	1940	1830	1890	827	449	524	367	392	2320	1640	802	892
CFSM	6.20	6.05	6.04	2.65	1.59	1.68	1.21	1.26	7.67	5.25	2.57	2.95
IN.	7.15	6.75	6.96	3.05	1.66	1.94	1.35	1.45	8.56	6.06	2.96	3.29

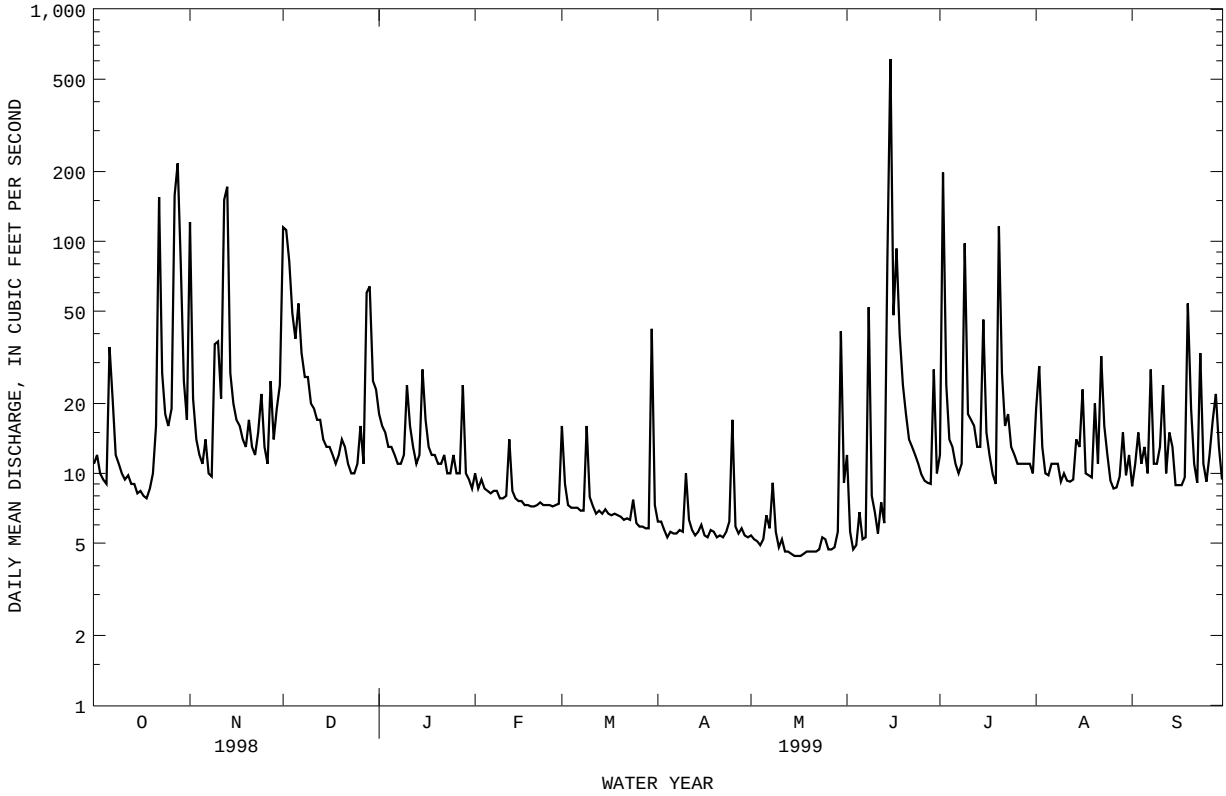
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1999, BY WATER YEAR (WY)

MEAN	12.3	11.7	10.6	9.21	6.21	4.96	4.94	5.92	8.92	9.87	9.54	20.8
MAX	31.5	30.7	30.7	14.7	8.81	8.53	9.23	12.5	39.0	26.7	17.7	76.9
(WY)	1999	1999	1999	1996	1997	1999	1996	1993	1999	1999	1996	1996
MIN	4.30	3.74	3.07	4.12	3.42	2.87	2.61	2.91	2.72	4.35	4.09	4.50
(WY)	1992	1998	1998	1995	1994	1994	1992	1994	1995	1994	1991	1991

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1991 - 1999	
ANNUAL TOTAL	5272.9		6989.9			
ANNUAL MEAN	14.4		19.2		9.59	
HIGHEST ANNUAL MEAN					19.2	1999
LOWEST ANNUAL MEAN					4.52	1994
HIGHEST DAILY MEAN	532	Sep 22	610	Jun 15	1700	Sep 10 1996
LOWEST DAILY MEAN	2.6	Jul 14	4.4	May 15	1.3	Jul 2 1995
ANNUAL SEVEN-DAY MINIMUM	2.9	Jul 30	4.5	May 12	1.6	Jun 30 1995
INSTANTANEOUS PEAK FLOW			4480	Jun 15	6190	Sep 10 1996
INSTANTANEOUS PEAK STAGE			12.04	Jun 15	18.16	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	10460		13860		6950	
ANNUAL RUNOFF (CFSM)	2.84		3.77		1.89	
ANNUAL RUNOFF (INCHES)	38.61		51.19		25.65	
10 PERCENT EXCEEDS	25		28		15	
50 PERCENT EXCEEDS	4.7		10		4.8	
90 PERCENT EXCEEDS	3.1		5.4		2.9	

e Estimated

50055390 RIO BAIROA AT BAIROA, PR--Continued



50055390 RIO BAIROA AT BAIROA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1991 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1994 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1991.

REMARKS:-- Sediment samples were collected by a local observer on a weekly. During high flows events sediment samples were collected and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 7,040 mg/L September 10, 1996; Minimum daily mean, 1 mg/L severals days 1998.

SEDIMENT LOADS: Maximum daily mean, 37,900 tons (34,300 tonnes) September 10, 1996; Minimum daily mean, 0.02 ton (0.01 tonne) Several years.

EXTREME FOR CURRENT YEAR 1998.--
SEDIMENT CONCENTRATION: Maximum daily mean,1,610 mg/L September 22, 1998; Minimum daily mean, 1 several days.

SEDIMENT LOADS: Maximum daily mean, 2,970 tons (2,700 tonnes) September 22, 1998; Minimum daily mean, 0.02 ton (0.01 tonne) March 18-19, 1998.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	e11	e12	e.64	121	604	1120	115	662	500
2	e12	e30	e1.0	21	56	3.5	112	888	363
3	e10	e12	e.64	14	32	1.2	82	406	94
4	e9.4	e12	e.51	12	24	.77	49	248	33
5	e9.0	e11	e.44	11	20	.58	38	158	16
6	e35	e89	e7.0	14	41	5.4	54	270	70
7	e21	e325	e74	10	12	.32	e33	e189	e16
8	e12	e14	e1.4	9.7	9	.25	e26	e158	e14
9	e11	e11	e.70	36	190	44	e26	e137	e13
10	e10	e11	e.60	37	143	28	e20	e127	e8.2
11	e9.4	e11	e.53	21	80	5.3	e19	e89	e7.0
12	e9.8	e11	e.47	151	326	268	e17	e70	e6.0
13	e9.0	e12	e.38	172	548	407	e17	e65	e5.0
14	e9.0	e12	e.31	27	124	9.9	e14	e35	e3.0
15	e8.2	e12	e.24	20	66	3.9	e13	e33	e1.5
16	e8.4	e30	e.20	17	61	3.5	e13	e33	e1.5
17	e8.0	e12	e.17	16	28	1.2	e12	e30	e1.0
18	e7.8	e30	e.17	14	15	.58	e11	e12	e.64
19	e8.6	e30	e.16	13	12	.42	e12	e30	e1.0
20	e10	e34	e.17	17	48	3.4	e14	e33	e1.5
21	e16	e34	e.15	13	36	1.3	e13	e33	e1.5
22	e155	e326	e278	12	28	.87	e11	e30	e1.0
23	e27	e150	e8.6	15	35	2.9	e10	e11	e.54
24	e18	e35	e2.8	22	89	10	e10	e11	e.54
25	e16	e35	e2.8	13	201	6.7	e11	e12	e.64
26	e19	e35	e2.8	11	24	.73	e16	e33	e1.5
27	e158	e321	e268	25	185	20	e11	e33	e1.5
28	e217	e548	e425	14	284	11	e60	e189	e16
29	80	374	156	19	196	9.7	e64	e325	e84
30	25	61	4.5	24	135	8.6	e25	e213	e66
31	17	32	1.5	---	---	---	e23	e130	e10
TOTAL	976.6	---	1239.88	921.7	---	1979.02	951	---	1338.56

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	e18	e100	e7.2	e10	e11	e.45	16	55	11
2	e16	e65	e5.0	e8.6	e11	e.45	9.0	25	.63
3	e15	e35	e3.0	e9.4	e10	e.40	7.3	14	.29
4	e13	e34	e1.9	e8.6	e10	e.40	7.1	11	.20
5	e13	e33	e1.5	e8.4	e9	e.37	7.1	8	.16
6	e12	e30	e1.0	e8.2	e9	e.36	7.1	7	.14
7	e11	e12	e.64	e8.4	e9	e.36	6.9	7	.12
8	e11	e12	e.64	e8.4	e9	e.36	6.9	6	.11
9	e12	e30	e1.0	e7.8	e9	e.35	16	71	12
10	e24	e65	e5.0	e7.8	e8	e.35	7.9	19	.41
11	e16	e100	e7.2	e8.0	e8	e.35	7.2	14	.26
12	e13	e34	e1.9	e14	e12	e.64	6.7	12	.21
13	e11	e30	e1.0	e8.4	e12	e.64	6.9	16	.30
14	e12	e30	e1.0	e7.8	e9	e.35	6.7	25	.45
15	e28	e89	e7.0	e7.6	e8	e.34	7.0	36	.68
16	e17	e120	e7.9	e7.6	e8	e.34	6.7	41	.73
17	e13	e35	e3.0	e7.3	e8	e.33	6.6	42	.75
18	e12	e30	e1.0	e7.3	e8	e.33	6.7	26	.48
19	e12	e30	e1.0	e7.2	e8	e.33	6.6	15	.26
20	e11	e12	e.64	e7.2	e8	e.33	6.5	11	.20
21	e11	e12	e.64	e7.3	e8	e.33	6.3	9	.16
22	e12	e30	e1.0	e7.5	e8	e.33	6.4	8	.14
23	e10	e12	e.64	7.3	4	.09	6.3	7	.13
24	e10	e11	e.54	7.3	4	.08	7.7	37	1.2
25	e12	e12	e.64	7.3	6	.11	6.1	10	.17
26	e10	e12	e.64	7.2	7	.15	5.9	7	.11
27	e10	e11	e.54	7.3	7	.14	5.9	7	.10
28	e24	e45	e3.8	7.4	7	.13	5.8	7	.11
29	e10	e45	e3.8	---	---	---	5.8	8	.13
30	e9.4	e12	e.51	---	---	---	42	230	93
31	e8.6	e10	e.40	---	---	---	7.3	85	1.8
TOTAL	417.0	---	71.67	226.6	---	9.19	264.4	---	126.43

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	6.2	19	.32	5.4	4	.05	12	52	6.0
2	6.2	6	.11	5.2	3	.05	5.6	27	.41
3	5.7	6	.09	5.1	3	.04	4.7	15	.20
4	5.3	6	.09	4.9	5	.06	4.9	10	.13
5	5.6	6	.09	5.2	7	.10	6.8	19	.48
6	5.5	7	.10	6.6	18	.44	5.2	10	.15
7	5.5	8	.11	5.8	26	.41	5.3	8	.12
8	5.7	6	.09	9.1	28	1.2	52	340	229
9	5.6	4	.06	5.6	15	.23	8.0	26	.55
10	10	25	1.6	4.8	12	.16	6.8	16	.29
11	6.3	28	.48	5.2	12	.22	5.5	11	.16
12	5.7	23	.36	4.6	8	.10	7.5	19	.65
13	5.4	21	.31	4.6	6	.07	6.1	12	.19
14	5.6	19	.28	4.5	4	.05	80	447	399
15	6.0	12	.20	4.4	4	.04	610	1650	11400
16	5.4	8	.11	4.4	3	.04	48	247	36
17	5.3	8	.11	4.4	3	.04	93	486	332
18	5.7	8	.13	4.5	2	.03	40	102	12
19	5.6	8	.12	4.6	2	.03	24	80	5.5
20	5.3	6	.09	4.6	2	.03	18	42	2.1
21	5.4	5	.08	4.6	3	.04	14	14	.51
22	5.3	5	.08	4.6	3	.04	13	15	.51
23	5.6	6	.09	4.7	4	.05	12	16	.50
24	6.2	6	.11	5.3	7	.11	11	5	.15
25	17	34	16	5.2	18	.27	9.9	6	.15
26	5.9	9	.15	4.7	13	.17	9.3	5	.13
27	5.5	7	.11	4.7	8	.11	9.1	5	.11
28	5.8	6	.10	4.8	6	.08	9.0	3	.08
29	5.4	5	.07	5.6	8	.16	28	434	99
30	5.3	4	.06	41	196	164	10	20	.58
31	---	---	---	9.1	28	1.2	---	---	---
TOTAL	185.0	---	21.70	197.8	---	169.62	1168.7	---	12526.65

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	12	30	1.6	19	62	9.9	8.8	15	.36
2	198	971	1820	29	101	14	11	24	.96
3	24	82	5.9	13	28	1.0	15	35	2.4
4	14	22	.84	10	13	.38	11	24	.67
5	13	7	.23	9.8	10	.26	13	50	6.9
6	11	5	.16	11	8	.23	10	17	.52
7	10	5	.14	11	8	.22	28	120	24
8	11	6	.17	11	7	.22	11	75	2.4
9	98	590	494	9.2	7	.18	11	24	.93
10	18	69	3.6	10	8	.20	13	30	1.3
11	17	66	3.3	9.3	8	.20	24	81	12
12	16	52	2.5	9.2	8	.20	10	22	.62
13	13	54	1.8	9.4	8	.20	15	40	2.2
14	13	45	1.8	14	37	3.0	13	40	2.5
15	46	214	67	13	51	3.5	8.9	8	.19
16	15	47	2.0	23	76	8.7	8.9	9	.22
17	12	33	1.2	10	20	.55	8.9	11	.27
18	9.9	19	.51	9.8	7	.20	9.6	20	.59
19	9.0	12	.30	9.6	8	.20	54	283	118
20	116	1150	1140	20	59	5.9	19	125	7.4
21	27	166	16	11	33	1.0	11	27	.86
22	16	28	1.2	32	156	71	9.1	14	.35
23	18	43	3.5	16	75	4.4	33	192	56
24	13	27	.97	12	25	.78	11	75	2.3
25	12	14	.44	9.3	16	.40	9.2	41	1.0
26	11	7	.21	8.6	12	.28	12	35	1.5
27	11	5	.16	8.7	9	.22	17	49	2.7
28	11	5	.15	9.7	19	.72	22	81	7.0
29	11	4	.12	15	74	6.7	13	27	1.1
30	11	3	.09	9.8	112	3.2	9.4	14	.37
31	10	3	.08	12	47	1.8	---	---	---
TOTAL	826.9	---	3569.97	404.4	---	139.74	449.8	---	257.61
YEAR	6989.9		21450.04						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
07...	1500	E398	655	e703	93
22...	1500	E290	359	e281	96
NOV					
13...	1125	654	1100	1950	95
DEC					
04...	1800	50	207	28	97
MAR					
31...	0743	7.4	84	1.7	100
MAY					
30...	1610	292	2080	1640	86
JUN					
16...	1152	33	187	17	95
JUL					
02...	0905	158	478	204	85
09...	1420	3450	3450	32100	87

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PATICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
JUL							
02...	1205	1170	5560	17600	36	43	52

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
JUL							
02...	61	68	76	90	98	100	100

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 Loíza, and 1.4 mi (2.3 km) north of Caguas plaza.

DRAINAGE AREA.--5.4 mi^2 (14.0 km^2).

PERIOD OF RECORD.--Water years 1958, 1962-66, 1973-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
15...	1300	13	423	7.2	27.5	1.4	8.0	99	<10	3700	200
FEB											
22...	1435	6.3	420	9.1	25.8	2.3	12.4	150	<10	450	160
MAY											
24...	1325	3.5	415	8.2	29.3	1.0	7.4	96	<10	30000	600
SEP											
29...	1215	11	365	7.9	27.0	5.7	7.1	90	14	20000	750

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
15...	160	38	16	20	.7	3.7	148	<1.0	15	32
FEB										
22...	--	--	--	--	--	--	149	--	--	--
MAY										
24...	150	37	15	23	.8	3.4	141	<1.0	13	34
SEP										
29...	140	32	13	18	.7	3.7	130	--	12	24

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
15...	.15	31	245	8.60	3	1.73	.072	1.80	.070	.13
FEB										
22...	--	--	--	--	1	1.18	.016	1.20	.020	.26
MAY										
24...	.18	29	240	2.29	<1	1.36	.040	1.40	.070	--
SEP										
29...	.15	29	210	6.38	26	1.77	.030	1.80	.090	.26

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
15...	.20	2.0	8.9	.150	1	<100	20	<1	<1	<10
FEB										
22...	.28	1.5	6.6	.170	--	--	--	--	--	--
MAY										
24...	E.20	--	--	E.250	2	70	50	<1	<1	E9
SEP										
29...	.35	2.2	9.5	.250	--	--	--	--	--	--

50055400 RIO BAIROA NEAR CAGUAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
15...	120	<1	57	<.10	<1	<1	<10	<.010	<1	.05
FEB										
22...	--	--	--	--	--	--	--	--	--	--
MAY										
24...	80	<1	35	<.10	<1	<1	E30	<.010	6	<.13
SEP										
29...	--	--	--	--	--	--	--	--	--	--

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) southeast of Escuela La Placita and 0.35 mi (0.56 km) southwest of El Mango.

DRAINAGE AREA.--22.3 mi^2 (57.8 km^2).

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 except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. Low-flow is affected by sewage discharges from a water treatment plant, 0.60 mi (0.96 m) upstream from gaging station since 1990.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e45	e51	e1560	e52	e20	12	8.9	5.5	e7.8	20	8.8	17
2	e48	e45	e342	e48	e20	12	45	5.6	e8.6	107	7.6	18
3	e49	e38	e1000	e60	e19	11	27	5.3	e15	37	22	15
4	e46	e34	e289	e39	e19	11	21	6.4	e11	21	25	13
5	e44	32	e97	e34	e19	10	12	6.6	e14	17	57	12
6	e43	50	e109	e31	e17	10	9.8	6.0	e10	15	50	11
7	e54	33	e67	e30	e16	9.9	8.6	23	e11	12	30	13
8	e46	32	e44	e33	e16	10	8.3	39	e11	14	20	57
9	e43	32	e43	e33	15	9.8	12	15	e13	25	13	32
10	e43	39	e40	e206	16	9.9	9.2	9.1	e9.4	19	9.6	18
11	e42	127	e42	e69	16	10	7.6	e7.0	e9.0	28	8.0	52
12	e54	322	e39	e53	21	9.2	7.2	e8.0	e13	32	7.8	26
13	e43	245	e34	e58	20	9.0	6.9	e11	e31	21	10	269
14	e119	145	e38	e396	16	9.0	6.7	e12	e17	114	8.2	160
15	e50	89	e33	e204	15	9.2	6.2	e9.6	e20	128	6.6	57
16	e43	70	e32	e61	15	9.1	6.1	e9.0	e29	43	7.0	30
17	e45	103	32	e42	14	8.9	6.1	e9.0	395	28	7.1	22
18	e42	57	30	e42	13	8.7	6.1	e9.2	95	27	14	19
19	e44	52	28	e37	14	8.5	5.9	e11	52	19	40	124
20	e66	58	56	e35	13	8.0	5.8	e16	48	16	20	86
21	e67	e73	51	e32	13	7.9	5.7	e13	37	15	31	47
22	e325	e56	e36	e31	13	7.9	5.8	e8.0	25	13	52	29
23	e183	e59	e41	e30	13	15	5.7	e8.0	23	15	203	26
24	e63	e79	e43	e30	12	98	6.8	e8.0	20	21	102	29
25	e61	e52	e41	e29	45	36	7.1	e8.4	15	16	43	29
26	e48	e46	e48	e27	25	22	6.1	e7.0	13	15	36	37
27	e87	e51	e82	e25	14	13	6.2	e6.3	12	30	41	124
28	e75	e300	e450	e30	13	15	7.5	e5.4	11	14	38	452
29	e100	e66	e239	e23	---	15	6.4	e7.0	11	11	37	102
30	e56	e63	e90	e22	---	11	5.7	e8.0	11	9.5	26	60
31	e46	---	e57	e21	---	9.7	---	e8.6	---	9.3	19	---
TOTAL	2120	2499	5133	1863	482	445.7	289.4	311.0	997.8	911.8	999.7	1986
MEAN	68.4	83.3	166	60.1	17.2	14.4	9.65	10.0	33.3	29.4	32.2	66.2
MAX	325	322	1560	396	45	98	45	39	395	128	203	452
MIN	42	32	28	21	12	7.9	5.7	5.3	7.8	9.3	6.6	11
AC-FT	4210	4960	10180	3700	956	884	574	617	1980	1810	1980	3940
CFSM	3.07	3.74	7.43	2.69	.77	.64	.43	.45	1.49	1.32	1.45	2.97
IN.	3.54	4.17	8.56	3.11	.80	.74	.48	.52	1.66	1.52	1.67	3.31

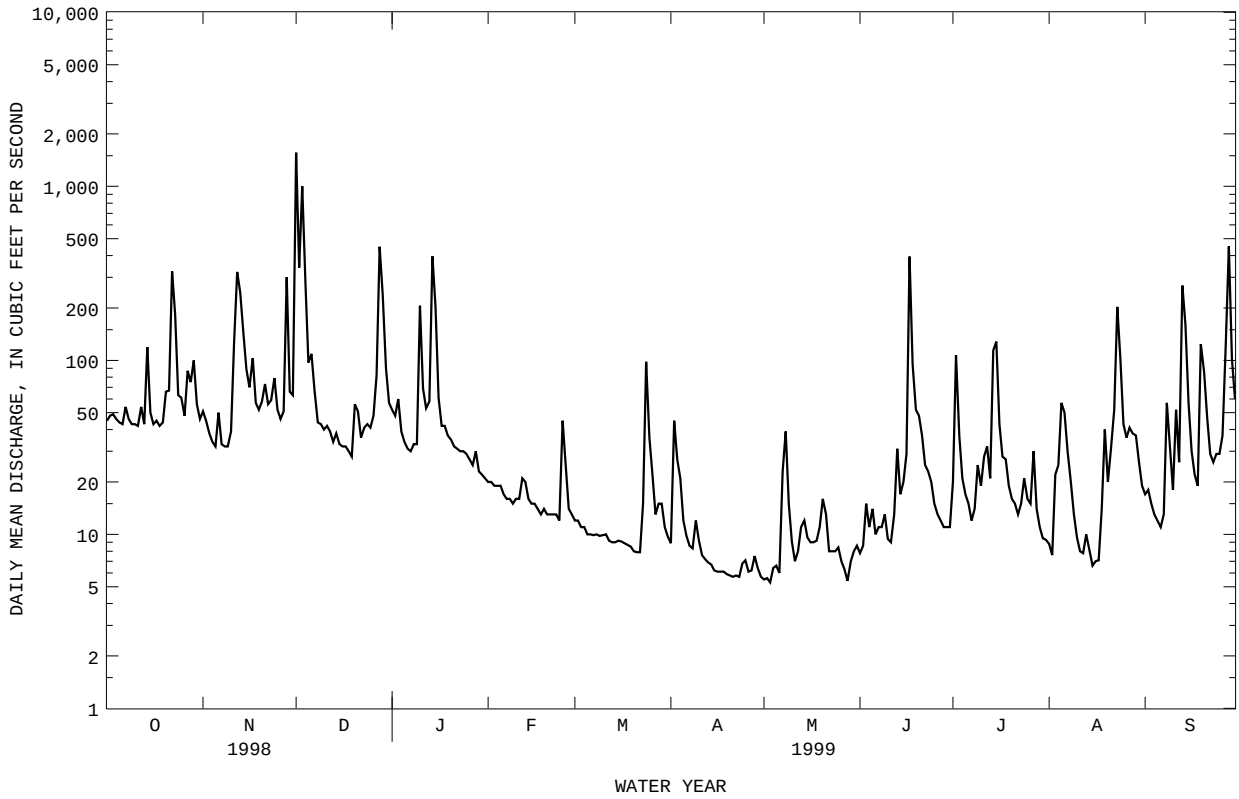
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1999, BY WATER YEAR (WY)

MEAN	52.7	63.8	42.7	41.6	30.1	11.8	8.65	24.3	45.2	45.2	42.8	87.9
MAX	161	109	166	103	66.7	18.1	11.0	123	117	147	110	196
(WY)	1991	1992	1999	1996	1995	1991	1993	1992	1992	1993	1998	1998
MIN	4.01	13.6	10.7	6.34	10.4	5.63	5.29	4.83	14.7	6.74	10.2	21.4
(WY)	1993	1996	1998	1995	1993	1993	1995	1990	1991	1994	1993	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1990 - 1999	
ANNUAL TOTAL	23606.0		18038.4			
ANNUAL MEAN	64.7		49.4		41.6	
HIGHEST ANNUAL MEAN					52.3	1992
LOWEST ANNUAL MEAN					22.0	1994
HIGHEST DAILY MEAN	2260	Sep 22	1560	Dec 1	4040	Sep 10 1996
LOWEST DAILY MEAN	4.5	Mar 19	5.3	May 3	1.1	Oct 27 1992
ANNUAL SEVEN-DAY MINIMUM	5.3	Jun 27	5.9	Apr 17	1.4	Oct 22 1992
INSTANTANEOUS PEAK FLOW					19100	Sep 10 1996
INSTANTANEOUS PEAK STAGE					24.12	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	46820		35780		30160	
ANNUAL RUNOFF (CFSM)	2.90		2.22		1.87	
ANNUAL RUNOFF (INCHES)	39.38		30.09		25.36	
10 PERCENT EXCEEDS	101		89		71	
50 PERCENT EXCEEDS	18		23		12	
90 PERCENT EXCEEDS	6.1		7.8		4.8	

e Estimated

50055750 RIO GURABO BELOW EL MANGO, PR--Continued



50055750 RIO GURABO BELOW EL MANGO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water year 1990 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: March 1990 to current year.

INSTRUMENTATION.--USDH-48 sediment sampler and automatic sediment sampler since 1990.

REMARKS:-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 2,400 mg/L September 22, 1998; Minimum daily mean, 2 mg/L May 5,1997.

SEDIMENT LOADS: Maximum daily mean, 51,000 tons (46,300 tonnes) September 10, 1996; Minimum daily mean, 0.05 ton (0.3 tonne) several days.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1,340 mg/L December 1, 1998; Minimum daily mean, 7 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 11,600 tons (10,500 tonnes) December 1, 1998; Minimum daily mean, 0.14 ton (.13 tonne) April 30 - May 1, 1998.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	e45	e82	e10	e51	e102	e15	e1560	e1340	e11600
2	e48	e74	e9.5	e45	e49	e6.5	e342	e486	e469
3	e49	e64	e8.4	e38	e12	e1.2	e1000	e864	e5930
4	e46	e53	e6.5	e34	e10	e.95	e289	e423	e376
5	e44	e44	e5.1	32	10	.87	e97	e205	e55
6	e43	e41	e4.8	50	43	9.2	e109	e220	e84
7	e54	e92	e16	33	8	.74	e67	e95	e19
8	e46	e124	e16	32	9	.75	e44	e14	e1.7
9	e43	e105	e12	32	9	.81	e43	e7	e.82
10	e43	e99	e11	39	10	1.0	e40	e7	e.76
11	e42	e97	e11	127	681	395	e42	e10	e1.1
12	e54	e383	e51	322	424	665	e39	e14	e1.5
13	e43	e68	e7.9	245	382	301	e34	e15	e1.3
14	e119	e480	e154	145	284	116	e38	e60	e6.5
15	e50	e94	e13	89	193	46	e33	e30	e2.7
16	e43	e63	e7.3	70	149	28	e32	e19	e1.6
17	e45	e58	e7.2	103	210	62	32	16	1.4
18	e42	e59	e6.8	57	134	21	30	15	1.2
19	e44	e65	e9.5	52	128	18	28	15	1.2
20	e66	e148	e28	58	140	24	56	114	19
21	e67	e142	e30	e73	e168	e35	51	118	17
22	e325	e441	e556	e56	e114	e17	e36	e82	e8.0
23	e183	e244	e194	e59	e129	e22	e41	e93	e10
24	e63	e76	e13	e79	e169	e36	e43	e96	e11
25	e61	e110	e19	e52	e133	e19	e41	e89	e9.9
26	e48	e39	e5.1	e46	e112	e14	e48	e106	e14
27	e87	e122	e51	e51	e116	e16	e82	e183	e45
28	e75	e164	e34	e300	e362	e578	e450	e581	e1350
29	e100	e189	e80	e66	e155	e28	e239	e264	e282
30	e56	e100	e16	e63	e165	e31	e90	e193	e48
31	e46	e76	e9.4	---	---	---	e57	e138	e21
TOTAL	2120	---	1402.5	2499	---	2509.02	5133	---	20389.68

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	e52	e114	e16	e20	e17	e.89	12	51	1.7
2	e48	e105	e14	e20	e19	e1.0	12	37	1.2
3	e60	e134	e22	e19	e25	e1.3	11	24	.72
4	e39	e70	e7.6	e19	e19	e.95	11	16	.45
5	e34	e43	e4.0	e19	e11	e.57	10	10	.28
6	e31	e30	e2.5	e17	e10	e.49	10	9	.26
7	e30	e38	e3.1	e16	e11	e.49	9.9	10	.27
8	e33	e54	e4.8	e16	e12	e.53	10	11	.29
9	e33	e62	e5.5	15	16	.64	9.8	11	.30
10	e206	e314	e317	16	21	.91	9.9	12	.32
11	e69	e63	e13	16	23	.98	10	13	.34
12	e53	e26	e3.7	21	37	2.6	9.2	14	.33
13	e58	e69	e11	20	27	1.5	9.0	14	.35
14	e396	e348	e2880	16	24	1.1	9.0	15	.37
15	e204	e249	e391	15	23	.93	9.2	16	.40
16	e61	e118	e20	15	22	.91	9.1	17	.42
17	e42	e83	e9.4	14	21	.81	8.9	18	.44
18	e42	e59	e6.8	13	20	.73	8.7	19	.46
19	e37	e62	e6.2	14	19	.73	8.5	21	.47
20	e35	e68	e6.4	13	19	.66	8.0	22	.47
21	e32	e61	e5.3	13	18	.62	7.9	21	.45
22	e31	e52	e4.4	13	17	.60	7.9	20	.43
23	e30	e49	e3.9	13	18	.63	15	34	1.8
24	e30	e48	e3.9	12	20	.66	98	194	137
25	e29	e46	e3.6	45	93	33	36	89	9.4
26	e27	e46	e3.3	25	77	5.9	22	53	3.3
27	e25	e45	e3.1	14	56	2.1	13	32	1.2
28	e30	e63	e5.1	13	54	1.9	15	30	1.2
29	e23	e44	e2.7	---	---	---	15	28	1.2
30	e22	e31	e1.8	---	---	---	11	26	.79
31	e21	e22	e1.2	---	---	---	9.7	24	.64
TOTAL	1863	---	3782.3	482	---	64.13	445.7	---	167.25

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	8.9	23	.55	5.5	9	.14	e7.8	e13	e.29
2	45	93	22	5.6	11	.16	e8.6	e13	e.29
3	27	62	4.8	5.3	14	.20	e15	e39	e1.5
4	21	47	2.8	6.4	18	.32	e11	e7	e.22
5	12	23	.75	6.6	23	.41	e14	e34	e1.3
6	9.8	19	.50	6.0	22	.36	e10	e7	e.22
7	8.6	18	.43	23	44	6.8	e11	e7	e.22
8	8.3	18	.41	39	89	11	e11	e7	e.22
9	12	26	.86	15	36	1.5	e13	e7	e.26
10	9.2	22	.54	9.1	17	.42	e9.4	e9	e.22
11	7.6	16	.33	e7.0	e13	e.29	e9.0	e9	e.22
12	7.2	12	.24	e8.0	e13	e.30	e13	e7	e.26
13	6.9	14	.25	e11	e23	e.75	e31	e69	e7.2
14	6.7	18	.32	e12	e23	e.75	e17	e8	e.32
15	6.2	17	.29	e9.6	e30	e1.2	e20	e10	e.55
16	6.1	15	.25	e9.0	e15	e.36	e29	e29	e2.0
17	6.1	13	.22	e9.0	e15	e.38	395	398	1500
18	6.1	12	.19	e9.2	e15	e.39	95	223	61
19	5.9	10	.17	e11	e23	e.75	52	118	17
20	5.8	10	.16	e16	e30	e1.2	48	106	14
21	5.7	10	.15	e13	e30	e1.2	37	69	7.2
22	5.8	10	.16	e8.0	e13	e.29	25	29	2.0
23	5.7	10	.15	e8.0	e13	e.29	23	16	.94
24	6.8	12	.22	e8.0	e13	e.29	20	10	.55
25	7.1	18	.34	e8.4	e13	e.29	15	8	.32
26	6.1	14	.23	e7.0	e18	e.34	13	7	.25
27	6.2	12	.20	e6.3	e18	e.32	12	7	.22
28	7.5	14	.31	e5.4	e10	e.15	11	7	.22
29	6.4	10	.17	e7.0	e18	e.34	11	7	.22
30	5.7	9	.14	e8.0	e13	e.29	11	7	.21
31	---	---	---	e8.6	e13	e.29	---	---	---
TOTAL	289.4	---	38.13	311.0	---	31.77	997.8	---	1619.42

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	20	38	2.5	8.8	9	.20	17	28	1.3
2	107	221	104	7.6	8	.17	18	31	1.5
3	37	88	9.4	22	34	4.9	15	26	1.1
4	21	49	2.8	25	49	3.7	13	22	.78
5	17	40	1.8	57	596	173	12	22	.72
6	15	39	1.5	50	138	21	11	24	.71
7	12	41	1.4	30	80	6.7	13	28	.99
8	14	34	1.3	20	89	4.9	57	138	32
9	25	46	3.2	13	78	2.7	32	79	7.2
10	19	35	1.8	9.6	66	1.7	18	43	2.1
11	28	56	4.9	8.0	40	.87	52	110	19
12	32	74	6.7	7.8	23	.49	26	71	5.3
13	21	49	2.9	10	22	.63	269	350	381
14	114	239	105	8.2	14	.32	160	304	142
15	128	256	95	6.6	14	.25	57	122	20
16	43	70	8.7	7.0	16	.30	30	34	2.8
17	28	50	3.9	7.1	18	.35	22	22	1.3
18	27	51	3.7	14	38	6.0	19	28	1.5
19	19	38	2.0	40	79	11	124	213	184
20	16	28	1.2	20	51	3.0	86	194	61
21	15	22	.92	31	75	6.8	47	69	10
22	13	25	.90	52	168	57	29	25	2.0
23	15	36	1.5	203	276	218	26	22	1.6
24	21	48	2.7	102	202	59	29	44	3.7
25	16	37	1.6	43	76	9.5	29	64	5.1
26	15	38	1.8	36	40	6.3	37	98	12
27	30	75	6.8	41	95	12	124	247	86
28	14	31	1.2	38	82	9.9	452	717	2180
29	11	19	.58	37	78	8.2	102	134	40
30	9.5	12	.30	26	38	2.8	60	32	5.2
31	9.3	9	.22	19	28	1.4	---	---	---
TOTAL	911.8	---	382.22	999.7	---	633.08	1986	---	3211.90
YEAR	18038.4		34231.40						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
14...	0558	165	328	146	96
NOV					
11...	1659	520	965	1350	91
12...	1812	643	797	1380	89
13...	1800	146	226	89	93
DEC					
29...	0804	140	228	86	99
FEB					
26...	1300	19	58	3.0	95
AUG					
05...	2311	122	257	85	100
22...	2159	146	992	391	99

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 mi^2 (42.5 km^2).

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 poor. Minor diversion from public water supply tank, 0.5 mi upstream, during low flow. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate discharges (no stages were recorded) of major floods are as follows: Sept. 6, 1960, 37,100 ft^3/s (1,050 m^3/s), Oct. 9, 1970, 18,200 ft^3/s (515 m^3/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e51	79	449	64	24	13	8.2	6.6	6.6	58	8.4	14
2	e48	56	165	54	23	14	12	6.5	21	595	e7.8	12
3	e54	51	345	81	22	13	34	6.6	17	51	e14	10
4	e52	58	256	53	22	13	17	6.8	18	29	e10	9.8
5	e50	64	102	46	22	13	11	5.9	20	24	e29	10
6	e47	348	97	43	20	12	11	5.7	10	21	e18	9.1
7	e41	92	87	40	19	13	e10	31	7.5	19	34	9.2
8	e43	74	60	38	19	18	e9.0	70	12	35	20	14
9	e37	68	55	44	20	14	e10	22	10	e89	12	9.1
10	e37	64	49	122	20	12	e9.7	11	12	e31	12	8.3
11	e35	206	62	83	20	12	e9.9	9.4	11	e21	e12	28
12	e42	302	48	49	e40	12	e9.7	8.9	23	e17	e12	12
13	e32	586	46	41	e28	11	e9.6	15	71	e27	e11	286
14	e295	178	62	55	e23	11	e9.6	21	14	e85	10	72
15	59	100	45	501	23	12	e8.9	10	13	e50	11	24
16	47	84	43	158	22	12	8.4	8.3	83	e23	15	14
17	77	86	51	67	21	11	8.1	7.3	230	e80	12	11
18	43	63	42	50	21	9.6	9.0	6.9	79	e35	11	12
19	e151	55	42	45	21	9.0	8.5	8.8	e175	e17	37	26
20	263	60	46	43	19	8.9	8.3	48	102	e14	27	13
21	176	65	41	40	20	7.9	7.8	12	e41	e14	15	9.7
22	3490	55	38	37	19	7.8	8.8	8.6	31	e12	94	8.5
23	306	56	39	36	17	27	9.0	15	23	e21	81	7.7
24	117	70	45	36	18	36	13	12	18	e12	64	11
25	108	52	39	33	19	15	8.5	13	16	e11	28	12
26	78	49	43	32	16	18	7.7	8.8	14	e9.6	17	13
27	e132	49	70	29	15	10	7.8	8.3	15	e9.6	17	59
28	79	209	138	34	13	10	11	8.1	14	e9.0	43	226
29	133	78	298	26	---	10	7.5	7.4	16	8.8	22	76
30	98	61	158	24	---	9.4	7.0	6.9	16	9.1	15	22
31	67	---	69	23	---	8.5	---	7.0	---	e8.6	18	---
TOTAL	6288	3418	3130	2027	586	403.1	310.0	422.8	1139.1	1445.7	737.2	1048.4
MEAN	203	114	101	65.4	20.9	13.0	10.3	13.6	38.0	46.6	23.8	34.9
MAX	3490	586	449	501	40	36	34	70	230	595	94	286
MIN	32	49	38	23	13	7.8	7.0	5.7	6.6	8.6	7.8	7.7
AC-FT	12470	6780	6210	4020	1160	800	615	839	2260	2870	1460	2080
CFSM	12.4	6.95	6.16	3.99	1.28	.79	.63	.83	2.32	2.84	1.45	2.13
IN.	14.26	7.75	7.10	4.60	1.33	.91	.70	.96	2.58	3.28	1.67	2.38

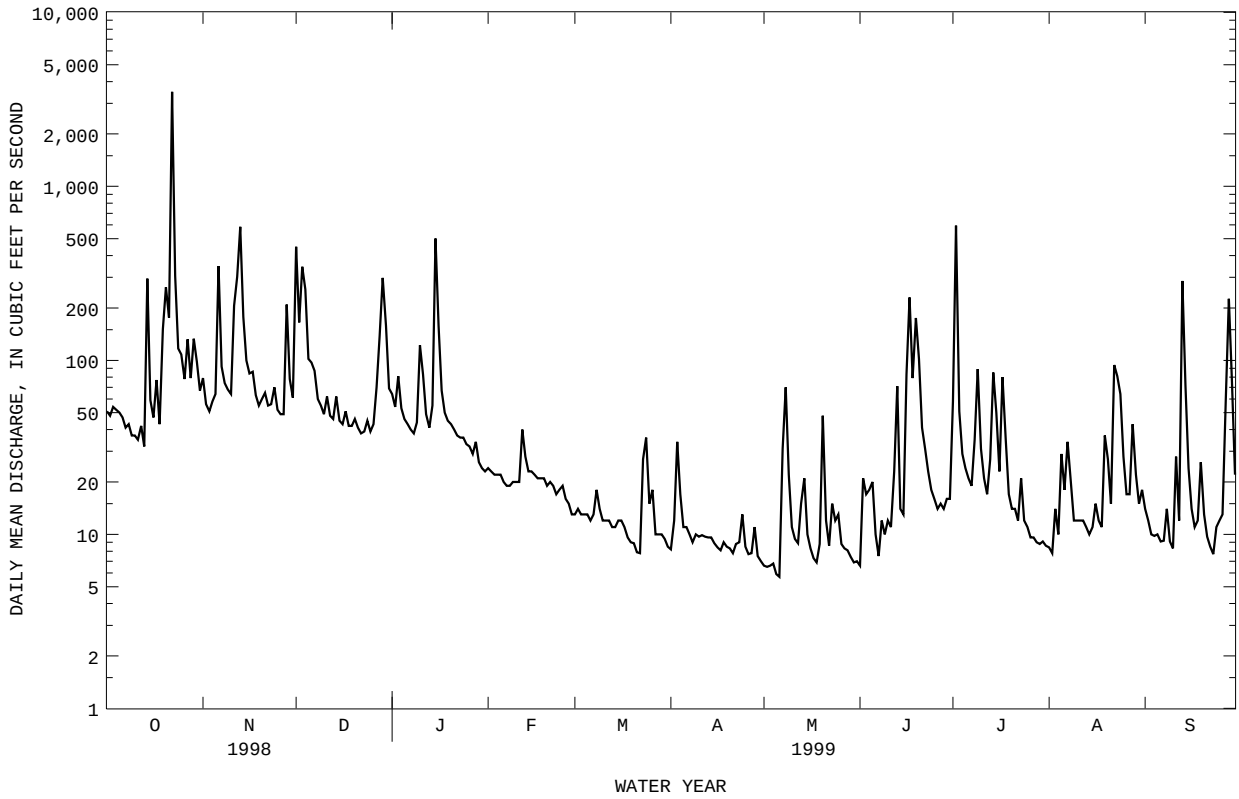
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1999, BY WATER YEAR (WY)

MEAN	78.5	87.3	53.1	28.0	20.3	18.8	15.1	45.7	49.9	47.1	61.2	88.9
MAX	293	461	550	79.6	47.9	39.7	41.7	268	188	163	231	285
(WY)	1986	1988	1988	1998	1984	1973	1985	1985	1979	1981	1979	1998
MIN	19.9	16.8	11.0	11.4	7.21	7.01	5.17	5.02	4.95	4.61	4.71	10.8
(WY)	1993	1996	1990	1976	1974	1977	1995	1990	1994	1994	1994	1987

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1971 - 1999	
ANNUAL TOTAL	31446.7		20955.3			
ANNUAL MEAN	86.2		57.4		49.7	
HIGHEST ANNUAL MEAN					121	1988
LOWEST ANNUAL MEAN					17.1	1990
HIGHEST DAILY MEAN	4680	Sep 22	3490	Oct 22	9100	Dec 8 1987
LOWEST DAILY MEAN	5.8	May 22	5.7	May 6	1.4	Jul 15 1994
ANNUAL SEVEN-DAY MINIMUM	7.0	May 16	6.4	Apr 30	1.7	Jul 10 1994
INSTANTANEOUS PEAK FLOW			21200	Oct 22	40000	Dec 8 1987
INSTANTANEOUS PEAK STAGE			21.25	Oct 22	25.63	Dec 8 1987
ANNUAL RUNOFF (AC-FT)	62370		41560		35980	
ANNUAL RUNOFF (CFSM)	5.25		3.50		3.03	
ANNUAL RUNOFF (INCHES)	71.33		47.53		41.14	
10 PERCENT EXCEEDS	139		95		73	
50 PERCENT EXCEEDS	26		22		18	
90 PERCENT EXCEEDS	9.1		8.6		7.1	

e Estimated

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued



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 1994 to current year.

INSTRUMENTATION.-- Automatic sediment sampler since 1984.

REMARKS:-- Sediment samples were collected by a local observer on a weekly basis. During high flow event sediment samples were collected by a local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 8,340 mg/L September 10, 1996; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 263,000 tons (238,000 tonnes) September 10,1996; Minimum daily mean, 0.01 ton (0.01 tonne) several days.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, 3,450 mg/L October 22, 1998; Minimum daily mean, e12 mg/L August 2, 1999.

SEDIMENT LOADS: Maximum daily mean, 80,000 tons (72,000 tonnes) October 22, 1998; Minimum daily mean, 0.28 tons (.25 tonne) August 1, 1999.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	e51	e10	e1.4	79	251	74	449	1060	2240
2	e48	e12	e1.5	56	190	31	165	382	174
3	e54	e14	e2.1	51	172	24	345	797	2730
4	e52	e17	e2.4	58	183	29	256	837	703
5	e50	e20	e2.7	64	194	34	102	174	50
6	e47	e24	e3.1	348	1190	2200	97	221	67
7	e41	e37	e4.4	92	311	78	87	254	67
8	e43	e63	e7.2	74	237	48	60	92	15
9	e37	e88	e8.9	68	219	40	55	84	13
10	e37	e84	e8.5	64	202	35	49	81	11
11	e35	e79	e7.5	206	744	532	62	174	31
12	e42	e73	e8.3	302	938	1570	48	88	11
13	e32	e65	e5.7	586	2960	7300	46	83	10
14	e295	e704	e898	178	608	323	62	187	38
15	59	126	22	100	447	122	45	152	19
16	47	142	19	84	364	83	43	144	17
17	77	232	66	86	296	69	51	171	24
18	43	128	15	63	241	41	42	144	16
19	e151	e452	e687	55	200	30	42	149	17
20	263	755	1060	60	188	31	46	154	19
21	176	457	446	65	222	39	41	156	17
22	3490	3450	80000	55	189	28	38	148	15
23	306	1210	1420	56	190	30	39	140	15
24	117	411	132	70	207	40	45	131	16
25	108	380	116	52	133	19	39	124	13
26	78	249	52	49	99	13	43	138	17
27	e132	e267	e106	49	94	12	70	224	51
28	79	207	48	209	563	724	138	518	720
29	133	495	312	78	250	54	298	728	1090
30	98	339	91	61	134	22	158	679	338
31	67	233	42	---	---	---	69	238	44
TOTAL	6288	---	85595.7	3418	---	13675	3130	---	8608

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	64	204	35	24	43	2.8	13	31	1.1
2	54	176	26	23	49	3.0	14	32	1.2
3	81	268	68	22	54	3.2	13	32	1.1
4	53	157	22	22	55	3.2	13	33	1.1
5	46	150	19	22	55	3.2	13	32	1.1
6	43	144	17	20	56	3.0	12	31	.99
7	40	138	15	19	62	3.2	13	31	1.1
8	38	132	14	19	66	3.4	18	52	2.9
9	44	144	18	20	60	3.2	14	40	1.5
10	122	359	203	20	57	3.1	12	26	.88
11	83	275	66	20	60	3.3	12	20	.66
12	49	182	24	e40	e237	e44	12	21	.68
13	41	153	17	e28	e107	e8.3	11	21	.61
14	55	200	51	e23	e52	e3.3	11	21	.59
15	501	1150	4910	23	28	1.7	12	20	.68
16	158	492	260	22	21	1.2	12	20	.63
17	67	226	42	21	16	.89	11	20	.59
18	50	155	21	21	16	.90	9.6	20	.52
19	45	125	15	21	18	.98	9.0	20	.49
20	43	101	12	19	20	1.0	8.9	20	.48
21	40	82	8.7	20	25	1.4	7.9	20	.43
22	37	68	6.8	19	29	1.4	7.8	20	.42
23	36	65	6.4	17	25	1.2	27	136	19
24	36	64	6.2	18	21	1.0	36	130	19
25	33	63	5.6	19	17	.86	15	141	6.0
26	32	62	5.4	16	15	.62	18	589	41
27	29	61	4.7	15	19	.74	10	179	4.9
28	34	89	8.8	13	25	.88	10	88	2.4
29	26	28	1.9	---	---	---	10	45	1.2
30	24	30	2.0	---	---	---	9.4	24	.61
31	23	36	2.3	---	---	---	8.5	20	.46
TOTAL	2027	---	5913.8	586	---	104.97	403.1	---	114.32

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	8.2	20	.44	6.6	31	.56	6.6	264	4.7
2	12	20	.66	6.5	35	.62	21	213	15
3	34	236	58	6.6	40	.71	17	63	4.3
4	17	65	3.4	6.8	45	.82	18	70	5.0
5	11	42	1.3	5.9	51	.81	20	62	3.3
6	11	36	1.1	5.7	49	.76	10	57	1.5
7	e10	e31	e.85	31	98	29	7.5	47	.94
8	e9.0	e26	e.63	70	240	69	12	41	2.0
9	e10	e22	e.60	22	120	7.7	10	42	1.2
10	e9.7	e19	e.49	11	67	1.9	12	25	.79
11	e9.9	e16	e.43	9.4	68	1.7	11	22	.65
12	e9.7	e14	e.36	8.9	54	1.3	23	156	25
13	e9.6	e12	e.32	15	58	2.8	71	1130	590
14	e9.6	e13	e.34	21	103	6.6	14	47	1.7
15	e8.9	e14	e.34	10	83	2.3	13	51	2.2
16	8.4	16	.35	8.3	70	1.6	83	367	184
17	8.1	17	.37	7.3	61	1.2	230	1810	1880
18	9.0	18	.44	6.9	54	1.0	79	257	66
19	8.5	20	.46	8.8	48	1.1	e175	e594	e364
20	8.3	21	.47	48	120	37	102	311	114
21	7.8	22	.47	12	80	2.5	e41	e97	e11
22	8.8	23	.55	8.6	78	1.8	31	100	8.4
23	9.0	459	13	15	73	2.9	23	110	7.0
24	13	205	7.1	12	80	2.5	18	122	6.0
25	8.5	241	5.4	13	126	4.6	16	127	5.3
26	7.7	256	5.3	8.8	203	4.8	14	125	4.7
27	7.8	154	3.2	8.3	270	6.1	15	114	4.5
28	11	89	2.6	8.1	230	5.0	14	98	3.7
29	7.5	52	1.0	7.4	192	3.9	16	71	3.0
30	7.0	32	.60	6.9	176	3.3	16	51	2.1
31	---	---	---	7.0	216	4.1	---	---	---
TOTAL	310.0	---	110.57	422.8	---	209.98	1139.1	---	3321.98

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	58	186	52	8.4	13	.28	14	33	1.2
2	595	1160	6530	e7.8	e12	e.26	12	27	.89
3	51	73	13	e14	e41	e1.9	10	24	.66
4	29	19	1.5	e10	e29	e.86	9.8	24	.63
5	24	19	1.2	e29	e84	e11	10	24	.65
6	21	19	1.1	e18	e59	e3.6	9.1	24	.58
7	19	18	.93	34	123	19	9.2	24	.60
8	35	79	16	20	92	5.3	14	50	2.3
9	e89	e276	e120	12	44	1.4	9.1	25	.61
10	e31	e153	e14	12	40	1.3	8.3	23	.53
11	e21	e88	e5.0	e12	e37	e1.2	28	92	8.2
12	e17	e56	e2.7	e12	e34	e1.1	12	42	1.5
13	e27	e97	e11	e11	e32	e.93	286	817	2020
14	e85	e283	e126	10	30	.83	72	223	57
15	e50	e156	e23	11	28	.80	24	74	5.0
16	e23	e105	e6.6	15	242	13	14	41	1.5
17	e80	e296	e128	12	189	6.2	11	36	1.1
18	e35	e135	e15	11	68	2.1	12	40	1.5
19	e17	e52	e2.4	37	115	20	26	94	7.2
20	e14	e34	e1.3	27	86	7.1	13	54	2.0
21	e14	e22	e.83	15	53	2.2	9.7	34	.90
22	e12	e22	e.68	94	1810	1160	8.5	29	.67
23	e21	e47	e2.4	81	243	60	7.7	27	.56
24	e12	e58	e1.9	64	206	42	11	27	.83
25	e11	e50	e1.5	28	179	14	12	27	.90
26	e9.6	e44	e1.1	17	127	5.9	13	42	2.2
27	e9.6	e35	e.91	17	91	4.1	59	193	55
28	e9.0	e22	e.53	43	136	17	226	930	970
29	8.8	14	.34	22	73	4.4	76	232	79
30	9.1	13	.33	15	46	1.8	22	81	4.8
31	e8.6	e13	e.30	18	39	1.8	---	---	---
TOTAL	1445.7	---	7081.55	737.2	---	1411.36	1048.4	---	3228.51
YEAR	20955.3		129375.74						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
17...	0640	43	53	6.2	90
NOV					
13...	1430	476	5530	7110	94
DEC					
30...	0455	271	1660	1210	96
MAR					
23...	1057	46	709	88	97
JUN					
17...	1835	497	2100	2820	97
28...	0802	15	105	4.3	95
AUG					
22...	1415	405	11100	12100	34
22...	2110	252	7640	5200	98
SEP					
28...	0845	691	3090	5770	96
29...	0200	266	689	495	91

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
NOV							
13...	1645	280	7890	5960	32	45	62
JUN							
17...	1435	343	13600	12600	34	47	62
AUG							
22...	2110	252	7640	5200	44	57	72
SEP							
13...	0800	1230	5360	17800	44	56	70
13...	1048	881	1210	2880	63	74	86

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
NOV							
13...	82	96	98	100	100	100	100
JUN							
17...	79	91	94	99	100	100	100
AUG							
22...	88	96	98	100	100	100	100
SEP							
13...	84	93	95	98	99	100	100
13...	92	95	96	99	100	100	100

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 Loíza.

DRAINAGE AREA.--60.2 mi^2 (155.9 km^2).

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. Low flow affected by diversions for water supply about, 400 ft (121 m) upstream from station by PRASA.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119	222	1360	163	e72	e49	e37	16	25	69	57	51
2	137	197	718	145	e70	e51	e54	16	27	615	55	67
3	146	e149	826	175	e66	e49	e59	16	47	115	50	52
4	127	142	793	137	e66	e48	e53	19	34	76	82	46
5	119	150	302	127	65	e47	e39	18	46	70	84	46
6	116	357	278	116	60	e46	e35	18	e32	61	118	44
7	175	151	259	112	56	e45	36	38	e34	55	76	49
8	143	133	176	e107	53	e46	e31	e82	35	59	74	79
9	124	135	161	106	51	56	e30	43	40	97	54	93
10	121	134	155	e305	51	47	e29	24	30	73	48	64
11	119	328	152	240	50	e45	e28	21	28	84	45	95
12	190	847	146	143	88	e45	e26	24	40	86	42	81
13	130	1210	133	e121	75	e45	e23	33	115	69	43	696
14	e540	492	146	e107	54	e44	e22	34	e52	275	48	401
15	179	232	134	e720	50	e50	e22	28	64	269	43	195
16	136	195	132	e261	49	49	19	27	90	105	45	88
17	155	251	133	e178	47	e51	19	27	1060	102	46	78
18	139	173	124	e160	46	e47	19	28	270	94	38	83
19	137	155	119	e137	45	e46	20	31	160	74	86	209
20	289	159	e147	e118	45	e45	19	46	136	92	80	176
21	291	212	137	e116	44	e47	18	41	89	75	73	132
22	e8300	183	117	e111	44	e49	18	25	68	68	99	101
23	e1100	167	e115	e107	43	63	18	25	54	69	383	106
24	292	251	132	e105	42	168	18	25	54	81	173	97
25	277	175	116	e100	58	78	23	e26	54	64	91	100
26	196	152	e121	e96	e67	56	19	22	58	56	62	103
27	460	162	197	e90	e51	43	18	20	60	75	70	244
28	384	432	e175	e99	e49	e41	20	17	51	61	72	1080
29	549	235	780	e82	---	e41	18	22	49	65	76	301
30	272	189	e276	e78	---	e43	17	e25	47	71	58	156
31	194	---	192	e75	---	e35	---	27	---	67	53	---
TOTAL	15656	7970	8752	4737	1557	1615	807	864	2949	3292	2424	5113
MEAN	505	266	282	153	55.6	52.1	26.9	27.9	98.3	106	78.2	170
MAX	8300	1210	1360	720	88	168	59	82	1060	615	383	1080
MIN	116	133	115	75	42	35	17	16	25	55	38	44
AC-FT	31050	15810	17360	9400	3090	3200	1600	1710	5850	6530	4810	10140
CFSM	8.39	4.41	4.69	2.54	.92	.87	.45	.46	1.63	1.76	1.30	2.83
IN.	9.67	4.92	5.41	2.93	.96	1.00	.50	.53	1.82	2.03	1.50	3.16

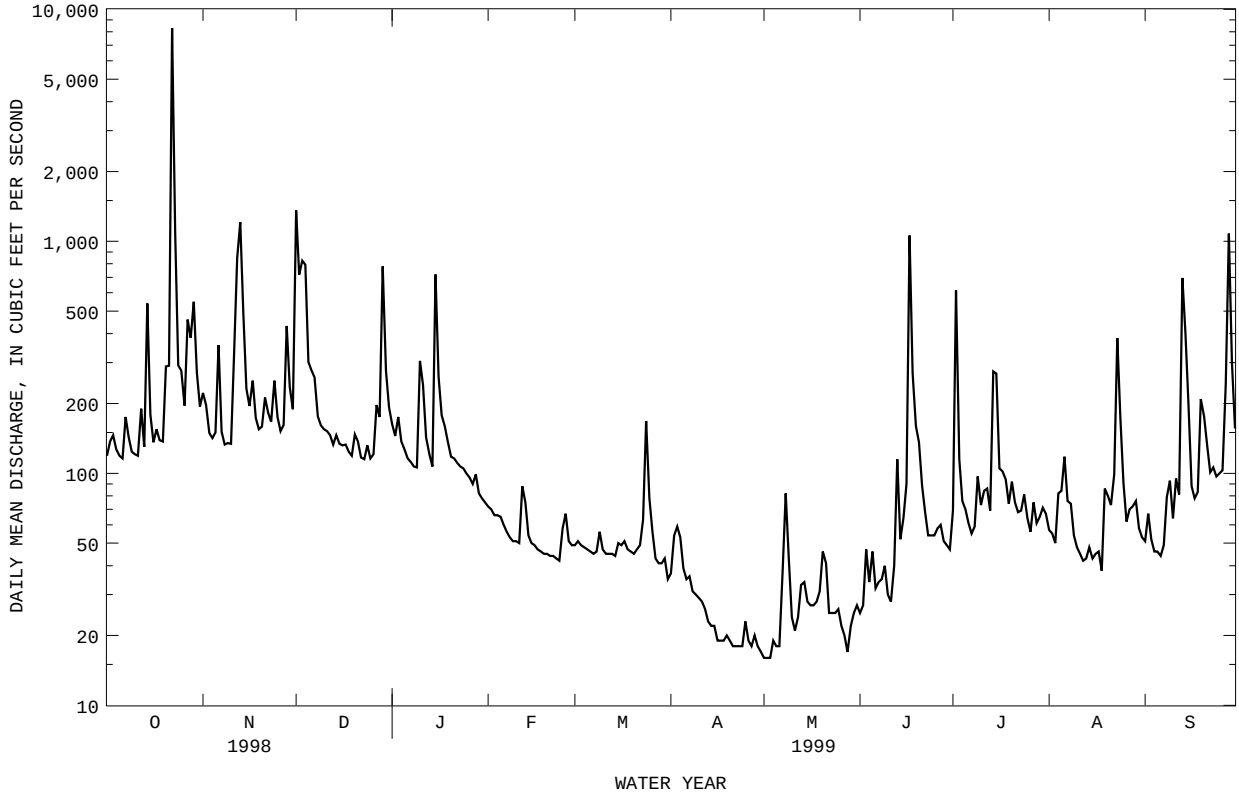
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1999, BY WATER YEAR (WY)

MEAN	222	208	148	64.3	47.8	38.9	40.6	135	127	112	161	235
MAX	1414	1045	863	204	131	97.5	108	746	468	376	610	1225
(WY)	1971	1988	1988	1992	1989	1985	1978	1985	1970	1993	1979	1960
MIN	16.0	23.7	10.7	16.4	12.6	11.2	13.1	12.7	16.8	20.7	24.8	8.76
(WY)	1968	1996	1968	1968	1968	1965	1995	1990	1972	1994	1967	1967

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1960 - 1999	
ANNUAL TOTAL	57724		55736			
ANNUAL MEAN	158		153		129	
HIGHEST ANNUAL MEAN					286	1979
LOWEST ANNUAL MEAN					42.2	1967
HIGHEST DAILY MEAN	8300	Oct 22	8300	Oct 22	26200	Sep 10 1996
LOWEST DAILY MEAN	14	May 20	16	May 1	3.7	May 27 1996
ANNUAL SEVEN-DAY MINIMUM	16	Apr 27	17	Apr 29	5.2	May 25 1996
INSTANTANEOUS PEAK FLOW			5190	Jun 17	62100	Sep 10 1996
INSTANTANEOUS PEAK STAGE			16.07	Jun 17	31.44	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	114500		110600		93200	
ANNUAL RUNOFF (CFSM)	2.63		2.54		2.14	
ANNUAL RUNOFF (INCHES)	35.67		34.44		29.04	
10 PERCENT EXCEEDS	266		269		201	
50 PERCENT EXCEEDS	56		75		47	
90 PERCENT EXCEEDS	23		26		17	

e Estimated

50057000 RIO GURABO AT GURABO, PR--Continued



50057000 RIO GURABO AT GURABO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1985 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1983 to current year.

INSTRUMENTATION.-- USDH-48 and USD-77 sediment sampler, since 1984. Automatic sediment sampler, since 1984.

REMARKS:-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediments samples were collected by local observer 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, 3 mg/L August 09, 1994.

SEDIMENT LOADS: Maximum daily mean, 686,000 tons (622,340 tonnes) Nov 27, 1987;Minimum daily mean, 0.08 tons (0.07 tonne) August 09, 1994.

EXTREMES FOR CURRENT YEAR 1998.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1,510 mg/L November 26, 1997 ; minimum daily mean, 5 mg/L December 5, 1997.

SEDIMENT LOADS: Maximum daily mean, 32,300 tons (29,300 tonnes) October 14, 1997; minimum daily, 0.30 ton (0.27 tonne) December 21, 1997.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	119	7	2.3	222	193	148	1360	2190	13700
2	137	10	3.9	197	220	129	718	1030	2030
3	146	12	4.6	e149	e67	e27	826	950	4670
4	127	12	4.2	142	25	9.6	793	992	3170
5	119	13	4.2	150	21	8.6	302	306	250
6	116	14	4.4	357	519	789	278	326	308
7	175	677	560	151	153	63	259	274	218
8	143	158	63	133	48	17	176	84	40
9	124	45	15	135	17	6.0	161	46	20
10	121	37	12	134	12	4.2	155	33	14
11	119	39	12	328	475	620	152	26	11
12	190	72	40	847	1070	5850	146	23	9.1
13	130	43	15	1210	1390	6410	133	21	7.6
14	e540	e749	e1570	492	997	1560	146	19	7.4
15	179	378	185	232	253	165	134	14	5.0
16	136	284	105	195	58	31	132	10	3.5
17	155	281	123	251	339	252	133	12	4.2
18	139	138	53	173	180	85	124	15	5.1
19	137	49	36	155	92	39	119	16	5.1
20	289	536	485	159	55	23	e147	e15	e6.1
21	291	392	480	212	376	218	137	15	5.6
22	e8300	e1950	e11900	183	337	166	117	15	4.9
23	e1100	e989	e4340	167	274	124	e115	e16	e5.1
24	292	232	183	251	262	177	132	14	5.0
25	277	336	276	175	260	123	116	12	3.6
26	196	60	32	152	257	106	e121	e10	e3.3
27	460	543	1540	162	252	110	197	222	161
28	384	515	584	432	592	1210	e175	e325	e210
29	549	763	2310	235	462	306	780	950	2560
30	272	267	214	189	239	122	e276	e353	e271
31	194	123	65	---	---	---	192	169	88
TOTAL	15656	---	25221.6	7970	---	18898.4	8752	---	27801.6

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	163	95	42	e72	e13	e2.4	e49	e143	e19
2	145	58	23	e70	e14	e2.5	e51	e174	e24
3	175	199	103	e66	e15	e2.7	e49	e214	e28
4	137	91	34	e66	e17	e2.9	e48	e226	e29
5	127	42	14	65	18	3.2	e47	e233	e29
6	116	24	7.5	60	20	3.2	e46	e255	e31
7	112	20	6.0	56	22	3.3	e45	e283	e34
8	e107	e18	e5.1	53	24	3.5	e46	e295	e37
9	106	18	5.2	51	26	3.6	56	228	34
10	e305	e235	e493	51	29	3.9	47	171	22
11	240	294	248	50	32	4.3	e45	e138	e17
12	143	88	34	88	112	43	e45	e120	e15
13	e121	e54	e18	75	135	29	e45	e162	e20
14	e107	e43	e12	54	66	9.6	e44	e238	e28
15	e720	e888	e3550	50	34	4.7	e50	e327	e44
16	e261	e266	e187	49	18	2.5	49	340	45
17	e178	e240	e116	47	15	1.8	e51	e341	e47
18	e160	e220	e95	46	13	1.6	e47	e321	e41
19	e137	e253	e92	45	13	1.6	e46	e298	e37
20	e118	e304	e98	45	13	1.6	e45	e275	e34
21	e116	e318	e100	44	13	1.5	e47	e254	e32
22	e111	e314	e94	44	13	1.6	e49	e225	e30
23	e107	e233	e67	43	16	1.8	63	165	27
24	e105	e158	e45	42	18	2.1	168	328	300
25	e100	e103	e28	58	50	18	78	157	35
26	e96	e59	e15	e67	e168	e31	56	82	12
27	e90	e34	e8.3	e51	e150	e21	43	70	8.1
28	e99	e30	e7.9	e49	e143	e19	e41	e6	e7.4
29	e82	e29	e6.3	---	---	---	e41	e64	e7.1
30	e78	e22	e4.6	---	---	---	e43	e103	e13
31	e75	e16	e3.2	---	---	---	e35	e131	e12
TOTAL	4737	---	5562.1	1557	---	226.9	1615	---	1098.6

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	e37	e164	e16	16	15	.68	25	68	4.5
2	e54	e185	e26	16	15	.64	27	71	5.3
3	e59	e141	e22	16	14	.64	47	92	12
4	e53	e112	e16	19	17	.90	34	68	6.4
5	e39	e104	e11	18	21	1.0	46	90	11
6	e35	e97	e9.3	18	21	.98	e32	e77	e6.7
7	36	91	8.8	38	65	24	e34	e74	e6.7
8	e31	e91	e7.6	e82	e152	e43	35	53	5.0
9	e30	e93	e7.5	43	170	20	40	38	4.1
10	e29	e100	e7.9	24	145	9.2	30	34	2.7
11	e28	e109	e8.1	21	97	5.6	28	31	2.4
12	e26	e118	e8.4	24	67	4.4	40	40	5.1
13	e23	e126	e7.8	33	57	5.0	115	229	85
14	e22	e124	e7.3	34	49	4.5	e52	e148	e21
15	e22	e74	e4.4	28	42	3.2	64	168	30
16	19	41	2.1	27	36	2.7	90	370	104
17	19	35	1.8	27	31	2.2	1060	1810	12900
18	19	34	1.7	28	27	2.0	270	588	648
19	20	31	1.6	31	24	2.0	160	281	135
20	19	29	1.5	46	56	9.4	136	238	92
21	18	26	1.3	41	90	9.9	89	125	31
22	18	24	1.2	25	71	4.9	68	66	12
23	18	21	1.0	25	57	3.9	54	41	6.0
24	18	19	.94	25	47	3.1	54	55	7.9
25	23	17	1.0	e26	e43	e3.0	54	80	12
26	19	15	.81	22	41	2.4	58	118	18
27	18	17	.79	20	46	2.4	60	172	28
28	20	18	.95	17	51	2.3	51	212	30
29	18	17	.85	22	57	3.5	49	98	13
30	17	16	.77	e25	e64	e4.3	47	45	5.6
31	---	---	---	27	70	5.1	---	---	---
TOTAL	807	---	186.41	864	---	186.84	2949	---	14250.4

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	69	112	25	57	122	19	51	39	5.3
2	615	987	4180	55	106	16	67	83	19
3	115	340	105	50	106	14	52	105	15
4	76	337	69	82	100	22	46	72	8.9
5	70	333	63	84	111	36	46	43	5.3
6	61	330	54	118	216	79	44	28	3.3
7	55	327	48	76	127	26	49	59	9.2
8	59	348	56	74	104	21	79	145	37
9	97	254	68	54	81	12	93	143	39
10	73	137	27	48	52	6.7	64	136	24
11	84	178	42	45	35	4.2	95	116	29
12	86	370	87	42	32	3.7	81	98	21
13	69	186	35	43	30	3.6	696	1020	3930
14	275	443	534	48	29	3.8	401	595	674
15	269	456	347	43	27	3.2	195	259	141
16	105	200	57	45	29	3.5	88	222	53
17	102	184	54	46	51	6.2	78	218	46
18	94	177	46	38	81	8.4	83	214	48
19	74	141	28	86	82	19	209	406	420
20	92	175	50	80	81	18	176	335	176
21	75	144	29	73	81	16	132	184	72
22	68	125	23	99	143	68	101	42	11
23	69	129	26	383	678	982	106	43	12
24	81	147	32	173	328	161	97	53	14
25	64	119	21	91	175	45	100	64	17
26	56	110	17	62	135	23	103	77	21
27	75	148	30	70	116	22	244	293	264
28	61	220	36	72	99	19	1080	753	2920
29	65	200	35	76	85	18	301	233	204
30	71	170	32	58	64	10	156	134	56
31	67	144	26	53	47	6.7	---	---	---
TOTAL	3292	---	6282	2424	---	1696.0	5113	---	9295.0
YEAR	55736		110705.85						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
23...	1545	504	275	374	99
NOV					
13...	0155	1820	1870	9210	90
JAN					
11...	1430	178	139	67	94
MAR					
03...	1504	48	222	29	97
MAY					
12...	0830	21	67	3.8	97
JUN					
28...	0747	52	234	33	98
SEP					
13...	1015	2190	3780	22300	92
15...	0713	233	227	143	99
28...	1215	2160	1360	7920	95

50057000 RIO GURABO AT GURABO--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
OCT							
07...	1645	274	2920	2160	73	85	96

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
OCT							
07...	99	100	100	100	100	100	100

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 plaza.

DRAINAGE AREA.--62.8 mi^2 (162.7 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC										
21...	1415	395	7.5	27.0	4.0	6.4	79	<10	K1300	K170
FEB										
22...	1145	422	7.5	26.4	8.5	2.3	28	<10	420	210
MAY										
25...	1030	388	7.6	29.9	15	2.7	35	27	480	40
SEP										
29...	1330	179	7.4	26.1	37	4.9	61	10	21000	7700

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
21...	130	31	14	25	1	3.4	140	<1.0	14	29
FEB										
22...	--	--	--	--	--	--	149	--	--	--
MAY										
25...	110	22	13	31	1	4.3	125	E1.0	16	33
SEP										
29...	150	38	14	21	.7	2.3	57	--	29	25

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
DEC										
21...	.12	29	229	<1	.911	.039	.950	.080	.30	.38
FEB										
22...	--	--	--	13	.951	.049	1.00	.140	.46	.60
MAY										
25...	.16	32	225	33	.710	.200	.910	3.00	1.5	4.5
SEP										
29...	.13	32	195	54	.530	.070	.600	.210	.99	1.2

DATE	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
DEC										
21...	1.3	5.9	.110	<1	<100	20	<1	<1	<10	370
FEB										
22...	1.6	7.1	.150	--	--	--	--	--	--	--
MAY										
25...	5.4	24	E.340	3	100	60	<1	1	E6	1200
SEP										
29...	1.8	8.0	.360	--	--	--	--	--	--	--

50057025 RIO GURABO NEAR GURABO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	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)
DEC									
21...	<1	140	<.10	<1	<1	<10	<.010	<4	.03
FEB									
22...	--	--	--	--	--	--	--	--	--
MAY									
25...	<1	920	<.10	<1	<1	<40	<.010	8	.09
SEP									
29...	--	--	--	--	--	--	--	--	--

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, 0.5 mi (0.8 km) northeast from Escuela Segunda Unidad de Francisco Valdés, and 0.8 mi (1.3 km) north of La Barra.

DRAINAGE AREA.--7.53 mi^2 (19.50 km^2).

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	154	107	18	18	14	7.7	5.5	28	e20	e13	13
2	44	e45	111	17	14	13	9.4	5.4	8.1	e71	e13	33
3	44	33	88	16	13	10	7.8	5.4	5.6	e19	e12	126
4	43	28	75	17	12	9.5	7.9	5.4	5.1	e16	e11	22
5	42	26	71	16	12	9.4	9.4	5.4	5.1	e15	e13	17
6	41	29	39	15	12	9.3	7.8	7.3	4.8	e14	e13	24
7	82	196	e32	15	12	9.3	7.5	5.1	5.1	e14	e13	16
8	52	42	e28	15	11	9.3	8.1	7.4	18	e39	e12	14
9	40	65	e25	15	11	88	7.8	5.3	15	e49	e11	33
10	37	91	24	26	11	15	7.4	5.0	7.2	e17	e11	17
11	35	61	26	17	11	11	7.4	5.2	5.9	e48	e17	40
12	34	181	23	15	14	10	6.9	5.4	7.0	e17	e11	15
13	33	161	22	14	21	9.6	6.5	5.0	6.5	e23	e10	14
14	e33	43	21	15	11	9.3	6.5	4.9	263	e20	e14	12
15	32	33	20	128	11	9.2	6.4	4.7	236	e34	e14	11
16	32	27	20	25	11	9.1	6.1	4.6	88	e20	e134	11
17	32	24	19	17	10	9.1	6.0	4.4	70	e22	e16	10
18	32	24	19	17	10	8.7	6.0	4.4	31	e15	e15	11
19	49	26	19	17	10	8.2	6.0	4.3	40	e14	e17	19
20	35	26	24	15	10	8.0	6.0	4.3	19	e31	e17	15
21	51	40	19	e15	9.9	7.9	6.5	4.2	16	e17	e16	12
22	185	23	18	e18	9.9	7.9	6.7	4.3	16	e16	e18	11
23	48	23	30	e15	9.9	8.1	7.3	4.3	14	e87	19	22
24	34	22	20	e14	9.8	10	6.1	4.2	13	e20	15	31
25	29	20	18	e15	9.8	8.2	6.0	e4.7	14	e15	15	14
26	27	19	19	15	10	8.0	6.0	4.2	14	e14	13	18
27	e105	56	20	15	9.9	7.9	5.9	4.1	13	e15	13	14
28	147	31	21	22	15	7.8	5.8	4.0	13	e12	12	22
29	77	28	35	14	---	7.9	5.6	5.6	59	e56	12	18
30	35	37	27	14	---	11	5.6	26	15	e18	12	14
31	25	---	20	14	---	8.6	---	19	---	e14	29	---
TOTAL	1581	1614	1060	621	329.2	372.3	206.1	189.0	1055.4	802	561	649
MEAN	51.0	53.8	34.2	20.0	11.8	12.0	6.87	6.10	35.2	25.9	18.1	21.6
MAX	185	196	111	128	21	88	9.4	26	263	87	134	126
MIN	25	19	18	14	9.8	7.8	5.6	4.0	4.8	12	10	10
AC-FT	3140	3200	2100	1230	653	738	409	375	2090	1590	1110	1290
CFSM	6.77	7.14	4.54	2.66	1.56	1.59	.91	.81	4.67	3.44	2.40	2.87
IN.	7.81	7.97	5.24	3.07	1.63	1.84	1.02	.93	5.21	3.96	2.77	3.21

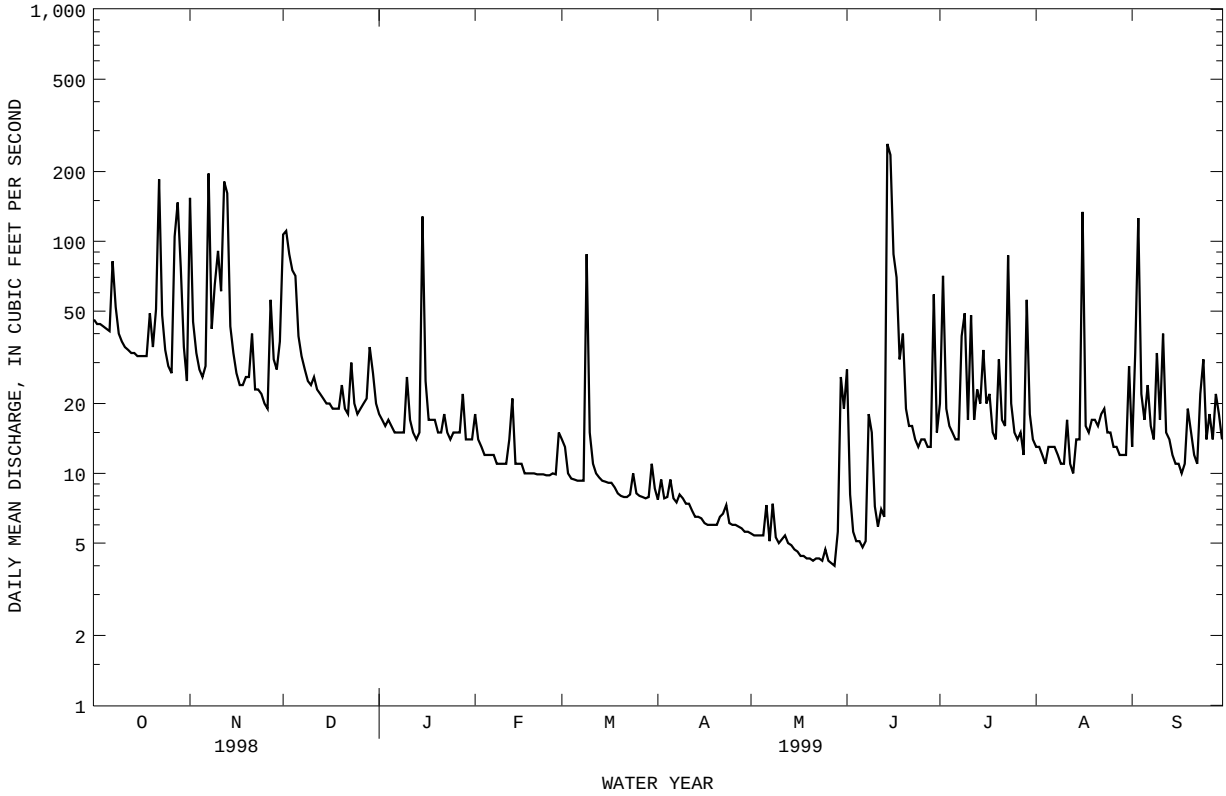
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1999, BY WATER YEAR (WY)

MEAN	19.4	18.0	13.8	12.3	10.4	6.00	5.52	8.05	10.3	10.2	16.0	27.2
MAX	51.0	53.8	34.2	24.5	18.8	12.0	11.1	19.5	35.2	25.9	36.8	81.6
(WY)	1999	1999	1999	1992	1995	1999	1993	1992	1999	1999	1996	1996
MIN	4.60	7.18	5.55	4.48	4.29	2.48	3.24	2.50	1.78	3.40	4.36	4.25
(WY)	1992	1991	1994	1994	1994	1994	1995	1994	1994	1990	1990	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1990 - 1999	
ANNUAL TOTAL	8356.7		9040.0			
ANNUAL MEAN	22.9		24.8		13.6	
HIGHEST ANNUAL MEAN					24.8	1999
LOWEST ANNUAL MEAN					5.77	1994
HIGHEST DAILY MEAN	1060	Sep 22	263	Jun 14	1670	Sep 10 1996
LOWEST DAILY MEAN	2.2	May 7	4.0	May 28	1.1	Jun 8 1994
ANNUAL SEVEN-DAY MINIMUM	2.4	May 1	4.3	May 22	1.2	Jun 8 1994
INSTANTANEOUS PEAK FLOW			2180	Jun 14	7500	Sep 10 1996
INSTANTANEOUS PEAK STAGE			17.56	Jun 14	24.60	Sep 10 1996
INSTANTANEOUS LOW FLOW			3.8	May 28	1.0	Jun 21 1994
ANNUAL RUNOFF (AC-FT)	16580		17930		9830	
ANNUAL RUNOFF (CFSM)	3.04		3.29		1.80	
ANNUAL RUNOFF (INCHES)	41.28		44.66		24.49	
10 PERCENT EXCEEDS	50		47		23	
50 PERCENT EXCEEDS	5.9		15		5.5	
90 PERCENT EXCEEDS	3.3		5.9		2.8	

e Estimated

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued



50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1994 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1990.

REMARKS:-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 12,9000 mg/L September 10, 1996; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 95,000 tons (86,200 tonnes) September 10, 1996; Minimum daily mean, 0.01 ton (0.01 tonne) January 08, 1995.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1,820 mg/L March 9, 1999; Minimum daily mean, 3 mg/L sevaral days.

SEDIMENT LOADS: Maximum daily mean, 3,490 tons (3,166 tonnes) November 7, 1998; Minimum daily mean, ton 0.05 (0.04 tonne) May 24, 1999.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	46	21	2.6	154	1060	2200	107	1270	444
2	44	22	2.7	e45	e161	e22	111	1270	569
3	44	19	2.2	33	44	3.9	88	1260	367
4	43	15	1.7	28	21	1.6	75	960	240
5	42	12	1.4	26	16	1.1	71	585	251
6	41	12	1.3	29	144	13	39	205	22
7	82	424	200	196	1490	3490	e32	e109	e9.5
8	52	148	22	42	262	32	e28	e58	e4.4
9	40	21	2.3	65	586	143	e25	e32	e2.2
10	37	14	1.4	91	937	394	24	28	1.8
11	35	11	1.0	61	639	112	26	41	3.2
12	34	8	.74	181	1900	1610	23	20	1.2
13	33	6	.52	161	1500	1110	22	13	.77
14	e33	e4	e.38	43	232	27	21	9	.50
15	32	4	.31	33	140	12	20	8	.43
16	32	3	.27	27	105	7.6	20	8	.44
17	32	3	.28	24	97	6.4	19	10	.51
18	32	4	.31	24	95	6.1	19	12	.64
19	49	236	60	26	111	8.3	19	14	.73
20	35	176	17	26	52	3.8	24	101	7.7
21	51	384	84	40	511	184	19	23	1.2
22	185	1440	1930	23	79	4.9	18	17	.81
23	48	216	31	23	50	3.1	30	289	32
24	34	57	5.2	22	31	1.8	20	70	4.1
25	29	26	2.1	20	20	1.1	18	26	1.3
26	27	13	.95	19	18	.94	19	32	2.1
27	e105	e881	e926	56	553	316	20	53	3.5
28	147	1340	1900	31	136	11	21	55	4.4
29	77	621	216	28	109	8.3	35	182	22
30	35	180	19	37	255	29	27	136	11
31	25	61	4.1	---	---	---	20	62	3.4
TOTAL	1581	---	5436.76	1614	---	9763.94	1060	---	2012.83

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	18	25	1.2	18	41	2.6	14	41	2.9
2	17	11	.52	14	8	.31	13	36	1.3
3	16	11	.45	13	6	.21	10	26	.73
4	17	11	.53	12	6	.20	9.5	17	.43
5	16	14	.59	12	6	.19	9.4	10	.25
6	15	15	.61	12	6	.19	9.3	8	.21
7	15	10	.40	12	6	.19	9.3	8	.19
8	15	7	.26	11	6	.18	9.3	7	.18
9	15	6	.24	11	6	.18	88	1820	1450
10	26	100	12	11	6	.18	15	221	11
11	17	53	2.5	11	6	.18	11	41	1.3
12	15	23	.89	14	24	1.1	10	27	.76
13	14	15	.59	21	468	143	9.6	18	.47
14	15	20	1.2	11	10	.29	9.3	12	.30
15	128	1290	2060	11	9	.26	9.2	8	.21
16	25	111	7.9	11	8	.24	9.1	7	.18
17	17	37	1.8	10	7	.20	9.1	7	.18
18	17	13	.58	10	6	.17	8.7	10	.23
19	17	10	.44	10	7	.19	8.2	14	.30
20	15	9	.37	10	8	.20	8.0	10	.22
21	e15	e7	e.29	9.9	6	.15	7.9	6	.14
22	e18	e5	e.26	9.9	4	.11	7.9	4	.09
23	e15	e5	e.19	9.9	4	.11	8.1	5	.12
24	e14	e4	e.17	9.8	4	.11	10	22	.68
25	e15	e4	e.16	9.8	6	.16	8.2	15	.33
26	15	3	.14	10	8	.23	8.0	13	.28
27	15	3	.12	9.9	9	.24	7.9	11	.24
28	22	76	5.9	15	43	3.5	7.8	9	.20
29	14	27	1.0	---	---	---	7.9	8	.17
30	14	20	.72	---	---	---	11	26	1.2
31	14	17	.62	---	---	---	8.6	18	.43
TOTAL	621	---	2102.64	329.2	---	154.87	372.3	---	1475.22

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	7.7	16	.33	5.5	4	.06	28	659	198
2	9.4	24	.82	5.4	4	.06	8.1	17	.38
3	7.8	16	.35	5.4	4	.06	5.6	12	.19
4	7.9	16	.33	5.4	4	.06	5.1	9	.12
5	9.4	54	1.5	5.4	4	.06	5.1	9	.12
6	7.8	12	.25	7.3	10	.30	4.8	8	.11
7	7.5	8	.16	5.1	8	.12	5.1	8	.11
8	8.1	10	.21	7.4	17	.60	18	84	11
9	7.8	13	.27	5.3	12	.18	15	75	6.4
10	7.4	10	.20	5.0	10	.14	7.2	29	.58
11	7.4	7	.14	5.2	8	.12	5.9	13	.20
12	6.9	5	.10	5.4	7	.10	7.0	13	.24
13	6.5	5	.09	5.0	6	.08	6.5	13	.23
14	6.5	6	.10	4.9	5	.07	263	1240	3380
15	6.4	6	.09	4.7	5	.06	236	1450	2220
16	6.1	5	.08	4.6	5	.06	88	1130	457
17	6.0	5	.09	4.4	5	.06	70	761	284
18	6.0	6	.09	4.4	6	.07	31	130	11
19	6.0	6	.10	4.3	7	.08	40	327	83
20	6.0	7	.11	4.3	7	.09	19	62	3.3
21	6.5	7	.12	4.2	8	.09	16	33	1.5
22	6.7	7	.12	4.3	6	.07	16	22	.96
23	7.3	19	.42	4.3	5	.06	14	16	.61
24	6.1	9	.14	4.2	4	.05	13	11	.39
25	6.0	8	.14	e4.7	e6	e.07	14	6	.24
26	6.0	8	.12	4.2	8	.09	14	7	.25
27	5.9	5	.09	4.1	8	.09	13	7	.26
28	5.8	4	.06	4.0	8	.09	13	8	.28
29	5.6	4	.06	5.6	12	.27	59	1040	793
30	5.6	4	.06	26	734	272	15	33	1.4
31	---	---	---	19	126	23	---	---	---
TOTAL	206.1	---	6.74	189.0	---	298.31	1055.4	---	7454.87

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	e20	e108	e20	e13	e32	e1.1	13	42	1.5
2	e71	e1040	e482	e13	e19	e.64	33	628	223
3	e19	e58	e3.1	e12	e16	e.51	126	867	1390
4	e16	e21	e.91	e11	e17	e.52	22	149	9.9
5	e15	e9	e.36	e13	e24	e.84	17	36	1.7
6	e14	e10	e.39	e13	e29	e.98	24	95	13
7	e14	e12	e.47	e13	e20	e.70	16	56	2.4
8	e39	e247	e67	e12	e14	e.45	14	21	.80
9	e49	e344	e78	e11	e10	e.31	33	523	188
10	e17	e69	e3.2	e11	e11	e.31	17	169	12
11	e48	e263	e72	e17	e12	e.56	40	343	103
12	e17	e79	e3.6	e11	e13	e.40	15	50	2.1
13	e23	e103	e9.3	e10	e15	e.41	14	30	1.1
14	e20	e54	e3.0	e14	e18	e.70	12	14	.46
15	e34	e179	e24	e14	e22	e.86	11	8	.25
16	e20	e69	e3.9	e134	e1170	e1780	11	13	.36
17	e22	e37	e2.2	e16	e22	e1.0	10	17	.47
18	e15	e19	e.80	e15	e16	e.66	11	25	.93
19	e14	e12	e.44	e17	e16	e.72	19	80	6.5
20	e31	e194	e23	e17	e16	e.71	15	25	1.2
21	e17	e123	e5.6	e16	e16	e.66	12	5	.15
22	e16	e88	e3.7	e18	e15	e.73	11	4	.12
23	e87	e1110	e812	19	73	5.4	22	110	22
24	e20	e72	e4.0	15	27	1.1	31	505	133
25	e15	e32	e1.3	15	10	.41	14	44	1.7
26	e14	e18	e.70	13	8	.28	18	69	3.7
27	e15	e11	e.44	13	6	.21	14	25	.97
28	e12	e7	e24	12	5	.16	22	90	8.5
29	e56	e510	e393	12	4	.12	18	59	3.1
30	e18	e145	e7.5	12	3	.10	14	36	1.3
31	e14	e60	e2.3	29	156	25	---	---	---
TOTAL	802	---	2052.21	561	---	1826.55	649	---	2133.21
YEAR	9040.0		34718.15						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
07...	1455	292	2830	2230	78
NOV					
13...	1545	131	1420	504	85
DEC					
01...	0800	189	2280	1160	88
23...	1645	37	1130	113	98
JAN					
15...	1645	630	7060	12000	82
FEB					
12...	1615	16	214	9.2	97
APR					
05...	0913	10	97	2.6	74
SEP					
10...	0718	18	67	3.3	99
24...	1525	193	5850	3050	86

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
NOV							
13...	1230	717	5350	10300	35	46	59
21...	1505	175	7580	3580	35	47	62
DEC							
04...	1730	88	2870	682	36	46	59
JAN							
15...	1650	630	7180	12200	38	49	61
FEB							
13...	1550	195	12200	6420	36	50	65
JUL							
02...	0704	153	2580	1060	54	66	81
SEP							
03...	1555	1420	8680	33300	30	40	51

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
NOV							
13...	70	79	82	91	96	99	100
21...	77	89	92	97	100	100	100
DEC							
04...	72	82	87	94	97	98	100
JAN							
15...	71	79	83	92	98	99	100
FEB							
13...	79	89	92	98	100	100	100
JUL							
02...	89	91	94	99	100	100	100
SEP							
03...	62	70	73	83	92	96	98

50059000 LAGO LOIZA AT DAMSITE NEAR TRUJILLO ALTO, 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 mi^2 (539 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--December 1987 to current year. Prior to October 1994, published as Lago Loiza at Damsite.

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

REMARKS.--Lake is formed by Loiza Dam, a concrete structure completed in 1954. Useable capacity of impoundment is 30,000 acre-ft (37.0 hm^3). Out flow from lake is controlled by five slide gates in powerplant and pump intake structure, four sluicegates, and concrete spillway with eight radial gates. Lake is used for municipal water supply and intermittent power generation. Gage-height satellite telemetry at station. New capacity table based on U.S. Geological Survey Water-Resources Investigations Report 97-4108, November,1994 .

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 147.42 ft (44.93 m), Sept. 18, 1989; minimum elevation, 108.52 ft (33.08 m), July 18, 1994.

EXTREMES FOR CURRENT YEAR.--Maximum elevation 135.14 ft (41.19 m), Jan. 21; minimum elevation, 124.83 ft (38.05 m), May 30.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 97-4108,Puerto Rico-1994)

Elevation, in feet	Contents in acre-feet	Elevation, in feet	Contents in acre-feet
75	0	125	5,861
95	73	131	9,218
115	2,205	135	11,504

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	132.86	132.12	133.40	133.66	134.27	133.46	133.29	129.23	126.12	131.59	132.85	132.84
2	132.22	A	133.35	134.39	134.45	133.57	133.29	128.96	125.91	132.18	133.00	132.88
3	132.70	132.12	133.55	133.63	134.67	133.58	133.78	128.64	125.75	133.06	133.00	132.52
4	131.89	132.63	132.39	134.30	134.90	133.52	133.95	128.23	125.47	133.21	133.00	132.52
5	132.15	133.14	132.77	134.05	134.99	133.48	133.90	127.82	125.58	133.26	133.14	132.59
6	131.94	133.42	133.72	133.63	134.40	133.41	133.75	127.43	125.35	133.23	133.46	A
7	131.96	133.17	133.86	134.05	134.38	133.33	133.53	127.26	125.05	133.14	132.93	132.69
8	132.32	133.63	133.51	134.36	134.30	133.24	133.40	129.07	126.15	131.62	133.13	A
9	132.45	133.56	133.55	133.84	134.13	133.52	133.31	129.59	126.78	131.93	133.09	A
10	132.52	133.66	133.70	134.17	134.00	133.56	133.21	129.53	126.79	132.30	133.04	132.79
11	132.54	133.09	133.85	134.30	134.01	133.46	133.11	129.42	126.62	132.85	133.00	132.95
12	132.89	133.23	133.74	133.85	133.43	133.34	132.93	129.27	126.85	133.10	132.90	132.97
13	131.96	132.60	133.44	134.14	133.59	133.22	132.73	129.16	127.44	132.09	132.79	132.84
14	132.18	133.37	134.10	134.63	133.74	133.09	132.50	129.06	129.13	131.62	132.81	133.16
15	132.56	133.47	133.93	133.90	133.83	132.99	132.37	128.88	132.38	131.92	132.77	132.94
16	132.71	132.28	133.66	134.45	133.90	132.81	132.14	128.68	132.42	132.55	132.96	133.01
17	132.81	133.65	133.98	134.33	133.52	132.68	131.96	128.47	132.19	131.67	132.97	133.04
18	132.77	133.59	133.43	133.83	133.50	132.54	131.78	128.23	132.88	132.23	132.89	132.83
19	132.83	133.30	133.82	134.48	133.47	132.39	131.59	127.94	132.07	132.38	132.93	132.74
20	132.57	133.27	133.79	134.99	133.45	132.23	131.33	127.72	132.75	131.71	132.95	133.15
21	132.26	133.33	134.24	134.26	133.39	132.09	131.04	127.54	132.90	132.10	133.00	133.29
22	132.01	133.35	133.64	134.68	133.32	131.96	130.84	127.22	132.85	132.22	132.77	133.32
23	132.25	134.12	134.22	134.00	133.27	131.98	130.61	126.93	132.70	132.01	133.04	132.99
24	132.97	134.04	133.67	134.53	133.20	132.83	130.44	126.62	132.48	132.21	132.94	132.99
25	132.91	133.80	134.09	133.90	133.19	133.09	130.51	126.42	132.25	132.30	133.08	133.01
26	A	133.51	133.63	134.36	133.24	133.16	130.34	126.14	131.96	132.29	133.09	133.15
27	132.27	133.39	133.62	134.68	133.27	133.10	130.13	125.84	131.74	132.29	133.10	132.87
28	131.71	133.24	134.21	134.25	133.35	132.98	129.94	125.41	131.49	132.27	132.59	132.68
29	132.00	133.34	133.44	134.56	---	132.87	129.73	125.06	131.81	132.81	132.66	132.78
30	133.17	133.43	134.25	134.78	---	133.43	129.48	125.53	131.61	132.83	132.63	132.93
31	132.58	---	133.57	134.92	---	133.40	---	125.61	---	132.81	132.68	---
MAX	---	---	134.25	134.99	134.99	133.58	133.95	129.59	132.90	133.26	133.46	---
MIN	---	---	132.39	133.63	133.19	131.96	129.48	125.06	125.05	131.59	132.59	---

A No gage-height record

50059000 LAGO LOIZA AT DAMSITE NEAR TRUJULLO ALTO, 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 mi^2 (539 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)
DEC										
15...	1500	250	7.1	26.4	2.6	32	<10	98	24	84
FEB										
22-22	0940	317	7.5	25.2	1.2	14	--	--	6	107
MAY										
27...	1440	384	7.5	30.9	.5	6	13	60	16	126
SEP										
30...	1445	231	7.3	31.3	.3	4	12	210	520	74

DATE	SULFIDE TOTAL (MG/L AS S) (00745)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)
DEC										
15...	--	20	.405	.015	.420	.030	.26	.29	.71	3.1
FEB										
22...	--	1	.580	.030	.610	.020	.21	.23	.84	3.7
MAY										
27...	<1.0	3	.120	.040	.160	.320	--	E.65	--	--
SEP										
30...	--	31	.340	.010	.350	.130	.50	.63	.98	4.3

DATE	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	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)
DEC									
15...	.040	20	17	1100	76	10	<.010	<1	<.02
FEB									
22...	.060	--	--	--	--	--	--	--	--
MAY									
27...	E.060	60	<12	630	320	<40	<.010	5	<.13
SEP									
30...	.150	--	--	--	--	--	--	--	--

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 Loíza Dam.

DRAINAGE AREA.--209 mi^2 (541 km^2).

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 poor. Flow regulated by Lago Loíza Dam. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	1810	4220	432	386	28	10	4.3	25	42	5.8	5.7
2	631	e353	4480	39	27	39	14	4.2	24	3730	5.8	261
3	87	549	2910	723	22	29	9.9	4.2	4.3	9.5	5.7	617
4	522	62	3610	35	23	28	9.6	4.2	5.1	7.0	5.7	6.9
5	90	54	1260	360	25	27	9.9	4.2	3.8	7.3	5.6	9.3
6	526	563	801	391	259	27	9.7	4.1	3.7	6.8	5.9	7.3
7	736	682	759	35	25	26	9.3	4.8	3.7	6.8	228	7.3
8	84	47	677	35	26	26	9.3	6.5	4.3	676	85	7.1
9	78	641	420	384	26	205	9.1	4.5	13	629	5.6	7.9
10	80	478	328	641	26	13	8.7	4.1	4.5	6.9	5.7	414
11	85	1260	379	482	27	12	8.3	4.2	4.1	6.5	5.6	17
12	90	2830	386	407	557	11	7.5	3.8	6.1	6.3	5.5	9.0
13	501	5340	414	33	179	11	7.0	3.4	4.6	496	5.5	2010
14	716	1210	47	34	24	11	6.7	3.4	4.4	1180	5.7	849
15	75	839	258	3530	25	11	6.8	3.4	4.5	976	5.5	388
16	66	964	398	702	25	10	6.8	3.3	304	8.6	346	69
17	68	54	50	609	196	11	6.6	3.3	2980	649	8.6	8.6
18	74	385	495	534	24	11	6.6	3.2	527	11	7.4	405
19	72	448	42	32	23	12	6.5	3.1	718	6.4	7.3	1720
20	1330	401	361	34	23	10	6.2	3.2	69	1160	300	42
21	794	429	46	524	24	10	6.3	3.3	68	7.2	9.0	9.7
22	20400	327	419	32	24	9.9	6.4	3.4	67	6.1	691	11
23	4270	49	51	462	24	10	6.4	3.4	64	550	559	340
24	632	811	450	31	24	9.9	6.1	3.4	61	6.9	522	121
25	681	433	48	496	27	9.8	5.5	3.3	61	5.9	7.0	12
26	840	353	473	30	54	9.5	5.3	3.4	60	5.8	7.3	13
27	e1860	507	411	31	27	9.5	5.1	3.3	59	5.7	7.3	649
28	e696	771	1180	616	25	9.5	5.0	3.1	58	5.9	525	2340
29	e2300	408	3980	30	---	9.6	4.6	6.8	55	5.9	7.5	402
30	405	362	709	30	---	9.5	4.3	5.3	52	5.9	5.8	12
31	744	---	861	32	---	10	---	4.2	---	5.7	5.8	---
TOTAL	39704	23420	30923	11786	2177	665.2	223.5	122.3	5318.1	10232.1	3402.6	10770.8
MEAN	1281	781	998	380	77.8	21.5	7.45	3.95	177	330	110	359
MAX	20400	5340	4480	3530	557	205	14	6.8	2980	3730	691	2340
MIN	66	47	42	30	22	9.5	4.3	3.1	3.7	5.7	5.5	5.7
AC-FT	78750	46450	61340	23380	4320	1320	443	243	10550	20300	6750	21360
CFSM	6.13	3.74	4.77	1.82	.37	.10	.04	.02	.85	1.58	.53	1.72
IN.	7.07	4.17	5.50	2.10	.39	.12	.04	.02	.95	1.82	.61	1.92

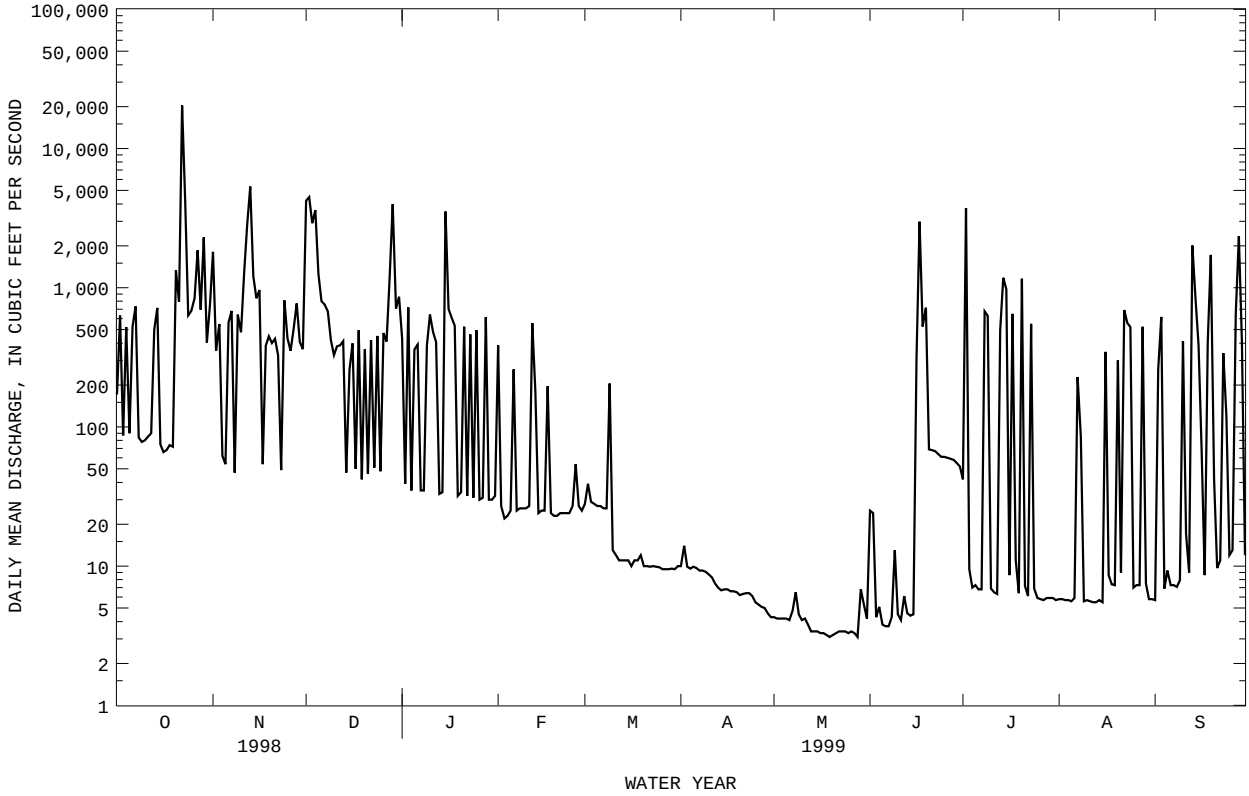
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1999, BY WATER YEAR (WY)

MEAN	393	488	369	171	76.8	52.4	27.4	74.9	167	161	226	876
MAX	1281	2732	2603	733	242	299	112	367	784	672	718	4255
(WY)	1999	1988	1988	1992	1989	1989	1987	1992	1987	1993	1988	1996
MIN	44.7	37.6	17.2	2.49	4.52	5.19	1.20	1.03	1.96	1.62	2.21	29.7
(WY)	1992	1996	1994	1995	1990	1997	1995	1995	1994	1994	1994	1990

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1987 - 1999	
ANNUAL TOTAL	226022.33		138744.6			
ANNUAL MEAN	619		380		258	
HIGHEST ANNUAL MEAN					652	1988
LOWEST ANNUAL MEAN					37.8	1994
HIGHEST DAILY MEAN	65900	Sep 22	20400	Oct 22	110000	Sep 10 1996
LOWEST DAILY MEAN	.54	Aug 14	3.1	May 19	.42	May 13 1995
ANNUAL SEVEN-DAY MINIMUM	1.2	Jun 24	3.3	May 15	.49	Aug 11 1994
INSTANTANEOUS PEAK FLOW			68600	Oct 22	223000	Sep 10 1996
INSTANTANEOUS PEAK STAGE			30.49	Oct 22	49.31	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	448300		275200		187100	
ANNUAL RUNOFF (CFSM)	2.96		1.82		1.24	
ANNUAL RUNOFF (INCHES)	40.23		24.70		16.79	
10 PERCENT EXCEEDS	856		750		412	
50 PERCENT EXCEEDS	12		27		8.2	
90 PERCENT EXCEEDS	1.6		4.5		2.4	

e Estimated

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR--Continued



50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1987 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: December 1986 to current year.

INSTRUMENTATION.-- Automatic sediment sampler, since 1987.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 4,290 mg/L September 10, 1996; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 1,500,000 tons (1,360,000 tonnes) September10, 1996; Minimum daily mean, <0.01 tons (<0.01 tonne) several years.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1,390 mg/L October 22, 1998; Minimum daily mean, 4 mg/L September 1, 1999.

SEDIMENT LOADS: Maximum daily mean, 214,000 tons (194,000 tonnes) October 22,1998; Minimum daily mean, 0.06 ton (0.05 tonne) September 1,1999.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	171	152	70	1810	273	2690	4220	184	2320
2	631	148	480	e353	e238	e262	4480	381	5290
3	87	76	18	549	239	621	2910	327	2790
4	522	99	405	62	180	30	3610	332	3800
5	90	67	16	54	112	16	1260	216	1040
6	526	82	417	563	178	486	801	194	682
7	736	132	552	682	164	531	759	184	677
8	84	32	7.4	47	135	17	677	168	498
9	78	16	3.4	641	155	550	420	160	304
10	80	14	3.1	478	146	383	328	152	325
11	85	13	3.0	1260	201	1080	379	140	230
12	90	12	2.8	2830	200	2490	386	137	209
13	501	60	386	5340	218	3360	414	149	268
14	716	141	626	1210	144	605	47	130	17
15	75	12	2.5	839	193	679	258	167	363
16	66	6	1.2	964	185	809	398	123	178
17	68	6	1.1	54	119	17	50	105	17
18	74	6	1.1	385	147	275	495	121	186
19	72	5	1.0	448	149	337	42	93	11
20	1330	456	3560	401	132	258	361	99	120
21	794	58	226	429	157	284	46	90	11
22	20400	1390	214000	327	154	198	419	118	170
23	4270	1060	13200	49	116	15	51	110	15
24	632	774	1440	811	184	692	450	103	148
25	681	569	1160	433	162	330	48	94	12
26	840	423	887	353	148	243	473	88	155
27	e1860	e338	e1500	507	152	399	411	102	136
28	e696	e216	e376	771	166	609	1180	154	2090
29	e2300	e316	e3120	408	167	317	3980	325	4600
30	405	253	316	362	148	276	709	183	698
31	744	263	643	---	---	---	861	179	679
TOTAL	39704	---	243424.6	23420	---	18859	30923	---	28039

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	432	135	215	386	135	263	28	18	1.4
2	39	127	13	27	141	10	39	18	1.9
3	723	150	367	22	113	6.7	29	19	1.5
4	35	126	12	23	91	5.7	28	19	1.4
5	360	114	113	25	73	4.9	27	19	1.4
6	391	100	130	259	136	194	27	19	1.4
7	35	108	10	25	143	9.8	26	19	1.4
8	35	79	7.5	26	117	8.2	26	20	1.4
9	384	98	110	26	96	6.8	205	66	313
10	641	97	197	26	78	5.5	13	16	.58
11	482	92	143	27	64	4.6	12	10	.34
12	407	76	130	557	112	468	11	10	.29
13	33	30	2.6	179	134	108	11	10	.29
14	34	21	2.0	24	131	8.4	11	10	.29
15	3530	89	1060	25	91	6.0	11	10	.29
16	702	153	504	25	63	4.3	10	10	.29
17	609	169	361	196	42	108	11	10	.29
18	534	149	360	24	17	1.1	11	10	.30
19	32	164	14	23	16	1.0	12	10	.33
20	34	110	10	23	16	1.0	10	10	.30
21	524	204	402	24	17	1.1	10	11	.29
22	32	153	13	24	17	1.1	9.9	11	.28
23	462	203	355	24	17	1.1	10	11	.29
24	31	161	14	24	17	1.1	9.9	11	.28
25	496	153	346	27	17	1.3	9.8	11	.28
26	30	183	15	54	18	2.6	9.5	11	.28
27	31	115	9.7	27	18	1.3	9.5	11	.28
28	616	200	432	25	18	1.2	9.5	11	.28
29	30	182	15	---	---	---	9.6	11	.28
30	30	132	11	---	---	---	9.5	11	.28
31	32	96	8.1	---	---	---	10	11	.31
TOTAL	11786	---	5381.9	2177	---	1235.8	665.2	---	331.52

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	10	11	.30	4.3	15	.17	25	24	1.6
2	14	11	.43	4.2	15	.17	24	24	1.6
3	9.9	11	.30	4.2	15	.17	4.3	24	.28
4	9.6	11	.29	4.2	15	.17	5.1	25	.34
5	9.9	11	.30	4.2	16	.17	3.8	25	.26
6	9.7	11	.30	4.1	16	.17	3.7	26	.25
7	9.3	12	.29	4.8	16	.21	3.7	26	.26
8	9.3	12	.29	6.5	16	.28	4.3	27	.31
9	9.1	12	.28	4.5	16	.20	13	27	.93
10	8.7	12	.27	4.1	17	.18	4.5	27	.34
11	8.3	12	.26	4.2	17	.19	4.1	28	.30
12	7.5	12	.24	3.8	17	.17	6.1	28	.47
13	7.0	12	.23	3.4	17	.16	4.6	29	.36
14	6.7	12	.22	3.4	18	.16	4.4	29	.35
15	6.8	12	.22	3.4	18	.16	4.5	29	.35
16	6.8	12	.22	3.3	18	.16	304	124	629
17	6.6	12	.22	3.3	18	.16	2980	262	2640
18	6.6	12	.22	3.2	19	.16	527	156	310
19	6.5	13	.22	3.1	19	.16	718	155	541
20	6.2	13	.22	3.2	19	.17	69	203	38
21	6.3	13	.22	3.3	20	.17	68	187	34
22	6.4	13	.23	3.4	20	.19	67	173	31
23	6.4	13	.23	3.4	20	.19	64	160	27
24	6.1	13	.22	3.4	21	.19	61	147	24
25	5.5	14	.20	3.3	21	.19	61	134	22
26	5.3	14	.20	3.4	21	.20	60	129	21
27	5.1	14	.19	3.3	22	.19	59	129	21
28	5.0	14	.19	3.1	22	.19	58	128	20
29	4.6	14	.18	6.8	23	.41	55	128	19
30	4.3	15	.17	5.3	23	.33	52	127	18
31	---	---	---	4.2	23	.26	---	---	---
TOTAL	223.5	---	7.35	122.3	---	6.05	5318.1	---	4403.00

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	42	127	14	5.8	10	.15	5.7	4	.06
2	3730	202	2720	5.8	8	.13	261	5	16
3	9.5	178	4.6	5.7	7	.11	617	15	38
4	7.0	121	2.3	5.7	6	.09	6.9	21	.40
5	7.3	91	1.8	5.6	5	.08	9.3	20	.51
6	6.8	74	1.4	5.9	5	.07	7.3	20	.38
7	6.8	61	1.1	228	7	29	7.3	19	.37
8	676	127	421	85	21	5.0	7.1	18	.34
9	629	162	319	5.6	20	.30	7.9	17	.36
10	6.9	128	2.4	5.7	19	.29	414	25	76
11	6.5	92	1.6	5.6	18	.27	17	35	1.6
12	6.3	66	1.1	5.5	17	.25	9.0	23	.56
13	496	94	239	5.5	16	.24	2010	33	260
14	1180	109	584	5.7	16	.24	849	37	182
15	976	158	489	5.5	15	.22	388	19	72
16	8.6	107	2.5	346	19	35	69	15	2.1
17	649	99	338	8.6	17	.40	8.6	13	.29
18	11	101	3.3	7.4	12	.25	405	19	85
19	6.4	30	.52	7.3	11	.22	1720	48	451
20	1160	40	261	300	14	27	42	25	3.9
21	7.2	52	1.0	9.0	16	.40	9.7	22	.58
22	6.1	34	.56	691	16	44	11	20	.58
23	550	36	129	559	18	38	340	26	97
24	6.9	37	.69	522	22	47	121	26	24
25	5.9	31	.50	7.0	15	.28	12	18	.61
26	5.8	26	.41	7.3	13	.26	13	18	.64
27	5.7	22	.34	7.3	12	.24	649	24	63
28	5.9	19	.30	525	19	53	2340	103	1760
29	5.9	16	.25	7.5	16	.33	402	37	133
30	5.9	13	.21	5.8	10	.16	12	18	.62
31	5.7	11	.18	5.8	6	.10	---	---	---
TOTAL	10232.1	---	5541.06	3402.6	---	283.08	10770.8	---	3270.90
YEAR	138744.6		310783.26						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
20...	1455	3630	146	1430	56
22...	1735	46700	412	51900	71
23...	0235	10000	1070	28800	94
26...	1215	53	416	60	99
27...	2140	7420	200	4010	90
NOV					
12...	1715	3420	166	1530	79
13...	0800	3340	153	1380	94
JAN					
15...	0410	18300	132	6520	79
16...	1335	3290	257	2280	96

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 mi^2 (552 km^2).

PERIOD OF RECORD.--Water years 1981 to current year.

REMARKS: Flow controlled by Lago Loiza reservoir.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
16...	1000	--	328	7.1	25.5	33	7.0	84	<10	4500	4500
MAR											
09...	1305	9.9	485	8.4	26.5	5.7	10.8	131	14	37000	91
MAY											
27...	1300	7.2	498	8.0	31.0	28	8.7	116	27	240	<10

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
16...	120	28	11	20	.8	2.7	166	<1.0	14	22
MAR										
09...	--	--	--	--	--	--	180	--	--	--
MAY										
27...	170	38	17	37	1	2.5	174	<1.0	20	39

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
16...	.14	26	223	--	14	--	<.010	1.30	.040	.34
MAR										
09...	--	--	--	--	3	.884	.026	.910	.030	--
MAY										
27...	.15	31	289	5.65	9	.220	.020	.240	.070	--

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
16...	.38	1.7	7.4	.120	<1	<100	20	<1	1	<10
MAR										
09...	E.54	--	--	E.050	--	--	--	--	--	--
MAY										
27...	E.51	--	--	E.080	<1	40	60	<1	1	E7

50059100 RIO GRANDE DE LOIZA BELOW TRUJILLO ALTO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
16...	1400	<1	60	<.10	<1	<1	<10	<.010	<4	.02
MAR										
09...	--	--	--	--	--	--	--	--	--	--
MAY										
27...	430	<1	200	<.10	<1	<1	E30	<.010	<4	.04

50061800 RIO CANOVANAS NEAR CAMPO RICO, PR

LOCATION.--Lat 18°19'08", long 65°53'21", Hydrologic Unit 21010005, at upstream 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 Loíza.

DRAINAGE AREA.--9.84 mi^2 (25.48 km^2).

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. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	43	290	45	57	11	7.8	8.4	5.5	7.2	6.5	12
2	26	84	396	40	41	11	17	8.4	5.6	20	6.3	12
3	26	43	275	38	24	10	19	8.4	5.9	12	12	11
4	23	33	157	35	22	10	20	8.8	7.0	7.8	14	11
5	22	30	134	35	21	9.9	13	8.5	7.1	7.6	9.1	10
6	20	28	94	33	19	9.8	12	8.0	5.8	7.3	11	14
7	19	27	75	31	18	9.8	12	23	5.6	6.8	9.0	11
8	21	25	65	29	17	9.8	12	52	5.7	8.6	8.4	17
9	23	34	58	30	17	9.5	12	15	9.3	15	7.0	55
10	26	42	53	47	16	9.8	11	9.1	6.8	9.8	e6.8	20
11	26	123	65	44	16	9.3	11	11	6.5	12	e6.2	34
12	51	247	65	30	17	8.7	11	11	7.0	13	e6.5	18
13	e70	169	56	33	17	8.4	11	8.5	13	12	6.1	85
14	e35	78	45	59	15	8.4	10	7.9	7.2	32	6.0	58
15	e31	53	41	166	15	8.3	10	7.1	5.8	70	6.0	24
16	e28	44	46	55	15	8.0	9.9	6.7	6.0	18	6.6	17
17	e27	39	39	41	14	7.8	9.7	6.5	166	14	6.5	15
18	e26	35	36	38	14	7.9	9.9	6.6	34	13	32	14
19	e52	33	36	32	14	7.8	9.8	6.8	13	9.2	69	73
20	e63	33	62	30	14	7.6	9.5	6.5	21	8.4	39	42
21	e88	38	53	27	13	7.4	9.4	6.3	17	8.1	34	28
22	e596	33	43	28	13	7.4	9.3	6.2	11	7.4	45	17
23	e154	43	61	42	12	7.8	11	5.9	11	7.7	95	15
24	59	102	60	35	12	e119	11	5.9	9.0	7.8	46	15
25	58	47	54	31	12	e78	10	6.0	8.3	7.2	22	15
26	46	33	67	39	12	e27	9.8	5.8	7.5	7.0	16	61
27	97	32	77	29	14	e10	9.1	5.7	7.5	8.3	20	71
28	68	62	109	57	13	e19	9.0	5.7	7.4	7.2	18	240
29	277	42	138	30	---	e12	9.0	5.7	7.7	6.7	20	47
30	80	60	57	26	---	e8.9	8.7	7.0	7.5	6.8	17	28
31	56	---	49	24	---	8.0	---	5.7	---	6.8	13	---
TOTAL	2221	1735	2856	1259	504	487.3	333.9	294.1	437.7	384.7	620.0	1090
MEAN	71.6	57.8	92.1	40.6	18.0	15.7	11.1	9.49	14.6	12.4	20.0	36.3
MAX	596	247	396	166	57	119	20	52	166	70	95	240
MIN	19	25	36	24	12	7.4	7.8	5.7	5.5	6.7	6.0	10
AC-FT	4410	3440	5660	2500	1000	967	662	583	868	763	1230	2160
CFSM	7.28	5.88	9.36	4.13	1.83	1.60	1.13	.96	1.48	1.26	2.03	3.69
IN.	8.40	6.56	10.80	4.76	1.91	1.84	1.26	1.11	1.65	1.45	2.34	4.12

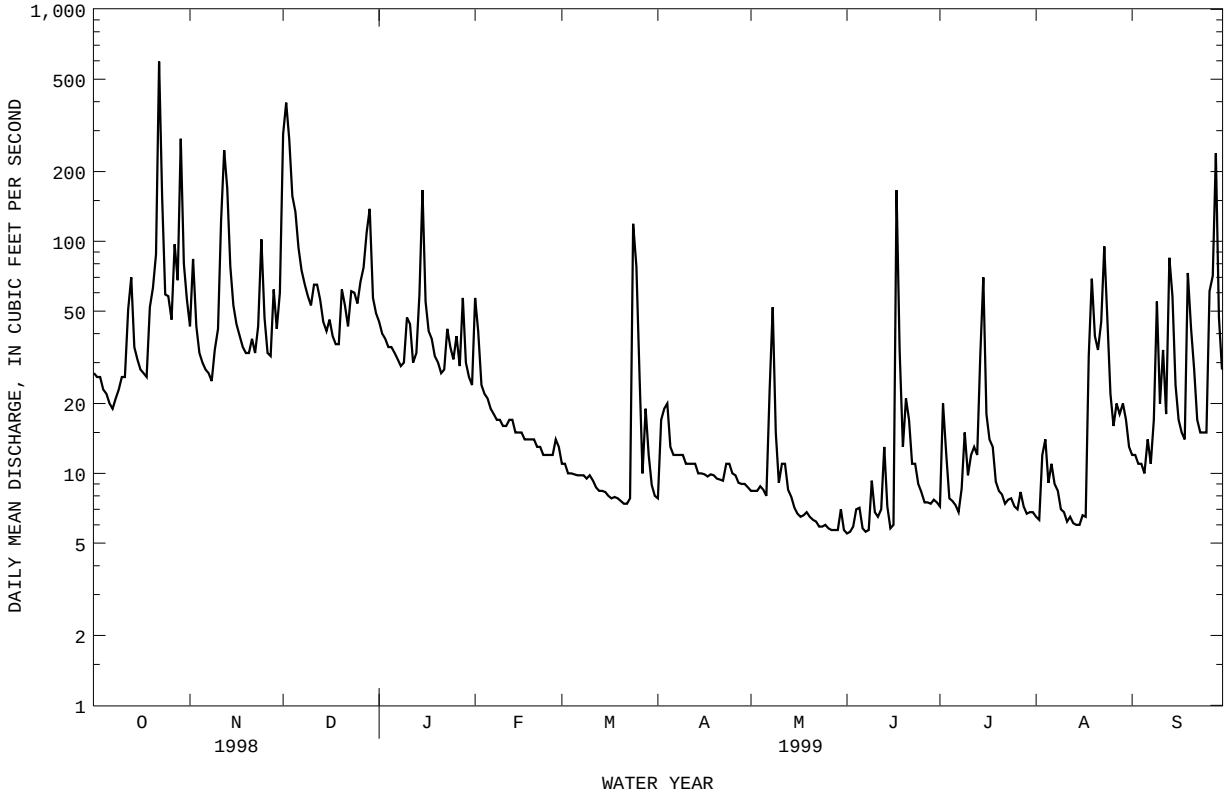
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1999, BY WATER YEAR (WY)

MEAN	41.6	44.6	33.8	25.5	19.7	14.0	14.7	26.6	17.6	18.6	26.3	41.6
MAX	273	125	116	62.4	48.4	36.2	53.2	93.2	63.7	63.7	137	196
(WY)	1971	1985	1971	1969	1988	1969	1971	1969	1970	1979	1979	1996
MIN	6.74	6.66	5.82	6.66	4.04	3.54	4.36	4.28	2.80	3.72	5.69	5.20
(WY)	1968	1981	1968	1977	1977	1977	1994	1974	1974	1974	1991	1967

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1967 - 1999	
ANNUAL TOTAL	16113.9		12222.7			
ANNUAL MEAN	44.1		33.5		27.3	
HIGHEST ANNUAL MEAN					58.0	1971
LOWEST ANNUAL MEAN					10.5	1994
HIGHEST DAILY MEAN	2060	Sep 21	596	Oct 22	4230	Sep 10 1996
LOWEST DAILY MEAN	2.6	Jul 13	5.5	Jun 1	.80	Jul 24 1977
ANNUAL SEVEN-DAY MINIMUM	3.4	Jul 8	5.8	May 23	1.5	Jul 18 1977
INSTANTANEOUS PEAK FLOW			Not determined	Oct 22	17300	Sep 21 1998
INSTANTANEOUS PEAK STAGE			Not determined	Oct 22	15.90	Sep 21 1998
INSTANTANEOUS LOW FLOW			5.3	Jun 2	.80	Jul 24 1977
ANNUAL RUNOFF (AC-FT)	31960		24240		19790	
ANNUAL RUNOFF (CFSM)	4.49		3.40		2.78	
ANNUAL RUNOFF (INCHES)	60.92		46.21		37.72	
10 PERCENT EXCEEDS	69		66		44	
50 PERCENT EXCEEDS	13		16		12	
90 PERCENT EXCEEDS	5.5		6.8		5.2	

e Estimated

50061800 RIO CANOVANAS NEAR CAMPO RICO, PR--Continued



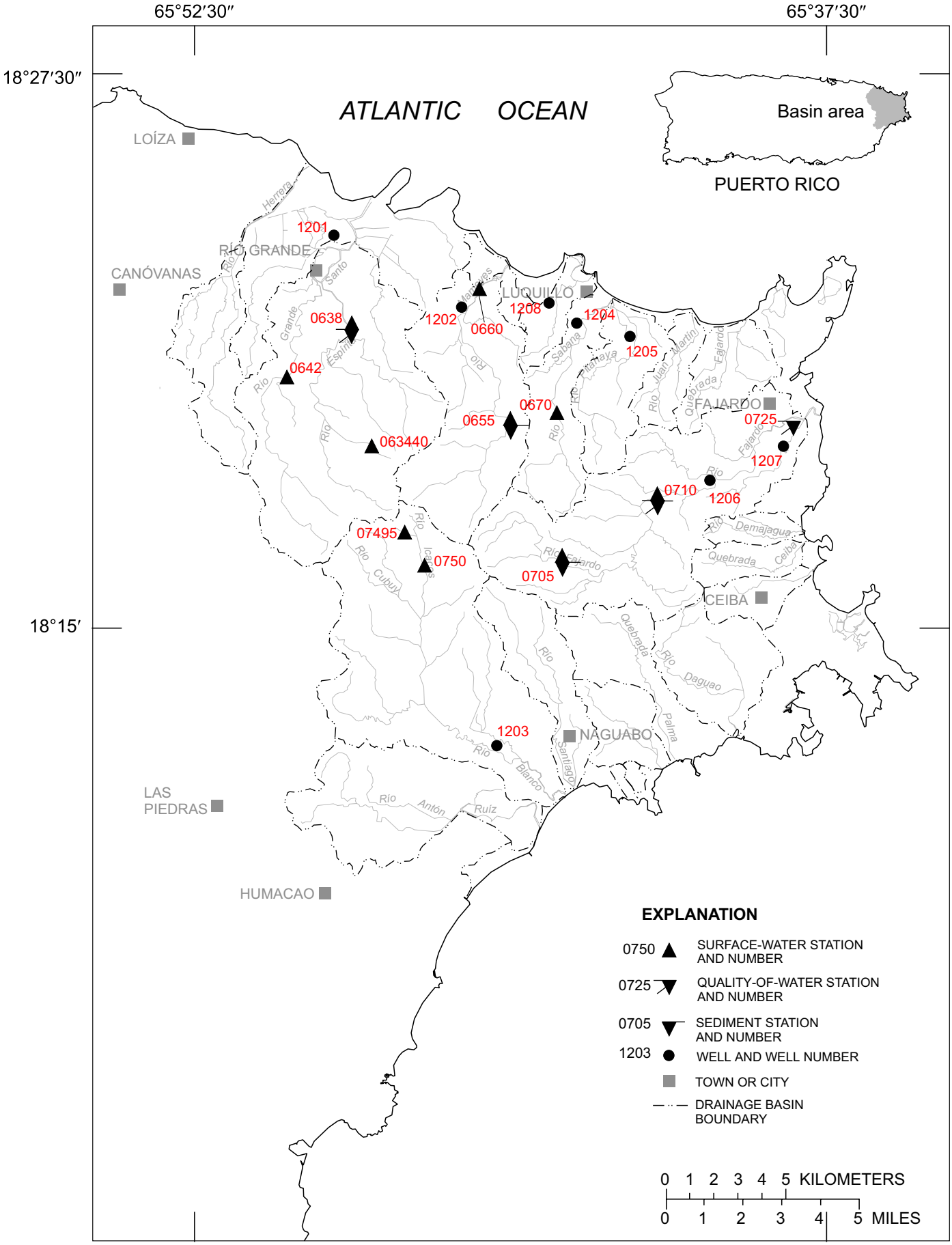


Figure 19. Northeastern river basins -- Río Herrera to Río Antón Ruíz basins.

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 mi^2 (2.62 km^2).

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.9	e3.3	e13	e6.8	e15	e1.7	e1.3	e.60	e.68	e1.2	3.5	2.8
2	e2.9	e7.0	e44	e5.8	e10	e1.5	e1.7	e.60	e.68	e13	2.9	5.0
3	e3.3	e3.3	e46	e6.0	e4.9	e1.5	e2.3	e.60	e.68	e2.7	19	3.3
4	e2.9	e2.3	e36	e4.8	e5.8	e1.5	e2.9	e.85	e.94	e1.6	7.2	2.6
5	e2.6	e2.3	e38	e5.8	e5.4	e1.5	e1.6	e1.1	e.80	e1.4	e5.2	2.4
6	e2.4	e2.3	e25	e6.6	e3.7	e1.5	e1.2	e.64	e.70	e1.6	e5.8	2.3
7	e2.2	e2.3	e15	e4.1	e3.3	e1.4	e1.1	e4.5	e.76	e1.4	e4.0	2.2
8	e2.1	e2.2	e12	3.7	e3.0	e1.4	e1.3	e30	e1.8	e1.9	e3.4	2.1
9	e1.9	e2.7	11	7.7	e2.9	e1.4	e2.4	e5.0	e2.1	e9.0	e3.0	2.1
10	e1.8	e3.1	8.2	22	e2.9	e1.7	e1.4	1.5	e.98	e3.3	e2.6	2.0
11	e1.8	e7.0	30	7.4	e2.8	e1.5	e1.1	1.1	e1.3	e3.7	e2.6	3.4
12	e5.4	e11	18	4.2	e3.6	e1.4	e.98	e1.0	e2.5	e3.6	e2.4	2.4
13	e2.0	e8.8	17	11	e4.3	e1.3	e.90	e.92	e6.4	e8.7	e2.3	20
14	e10	e4.6	9.9	32	e2.8	e1.2	e.86	e.85	e1.1	e15	2.2	6.0
15	e2.6	e3.5	5.0	e37	e2.5	e1.2	e.82	e.84	e.82	e18	4.0	3.0
16	e3.3	e3.1	11	e9.2	e2.8	e1.2	e.76	e.80	e1.4	e5.2	4.0	2.3
17	e2.1	e2.9	4.6	e5.8	e2.4	e1.3	e.74	e.78	e41	e5.8	3.6	3.2
18	e2.0	e2.7	3.8	e5.6	e2.2	e1.3	e.76	e.76	e6.6	4.7	6.7	7.7
19	e2.9	e2.6	4.4	e4.1	e2.2	e1.2	e.72	e.87	e3.2	3.5	11	12
20	e8.4	e2.6	11	e3.8	e2.1	e1.2	e.67	e.87	e20	3.3	3.3	8.1
21	e10	e2.8	7.6	e3.5	e2.1	e1.2	e.66	e.76	5.0	3.0	5.3	3.8
22	e67	e2.5	4.7	e3.7	e2.0	e1.2	e.67	e.74	3.2	e2.7	20	2.6
23	e11	e2.9	23	e7.8	e2.0	e1.4	e1.0	e.72	2.8	e4.4	19	2.3
24	e4.0	e5.6	7.5	e5.8	e1.8	e14	e1.4	e.76	2.2	e3.3	4.4	2.6
25	e7.4	e3.1	14	e4.8	e1.8	e7.8	e1.1	e.84	e1.4	e2.9	3.2	4.0
26	e3.0	e2.5	27	e7.2	e1.8	e3.7	e.76	e.74	e1.3	e2.5	3.9	17
27	e6.2	e2.4	e27	e4.3	e1.8	e1.8	e.68	e.68	e1.3	e3.7	3.6	13
28	e4.8	e3.7	e40	e13	e1.7	e2.9	e.63	e.66	e1.5	e2.3	4.3	25
29	e15	e2.8	e34	e4.6	---	e1.9	e.62	e.64	e1.5	e2.2	11	4.5
30	e4.9	e3.8	e8.0	e3.6	---	e1.5	e.62	e.72	e1.2	e5.0	4.0	3.6
31	e6.4	---	e7.6	e3.3	---	e1.2	---	e.66	---	e4.2	2.8	---
TOTAL	205.2	111.7	563.3	255.0	99.6	66.5	33.65	62.10	115.84	144.8	180.2	173.3
MEAN	6.62	3.72	18.2	8.23	3.56	2.15	1.12	2.00	3.86	4.67	5.81	5.78
MAX	67	11	46	37	15	14	2.9	30	41	18	20	25
MIN	1.8	2.2	3.8	3.3	1.7	1.2	.62	.60	.68	1.2	2.2	2.0
AC-FT	407	222	1120	506	198	132	67	123	230	287	357	344
CFSM	6.55	3.69	18.0	8.14	3.52	2.12	1.11	1.98	3.82	4.62	5.76	5.72
IN.	7.56	4.11	20.75	9.39	3.67	2.45	1.24	2.29	4.27	5.33	6.64	6.38

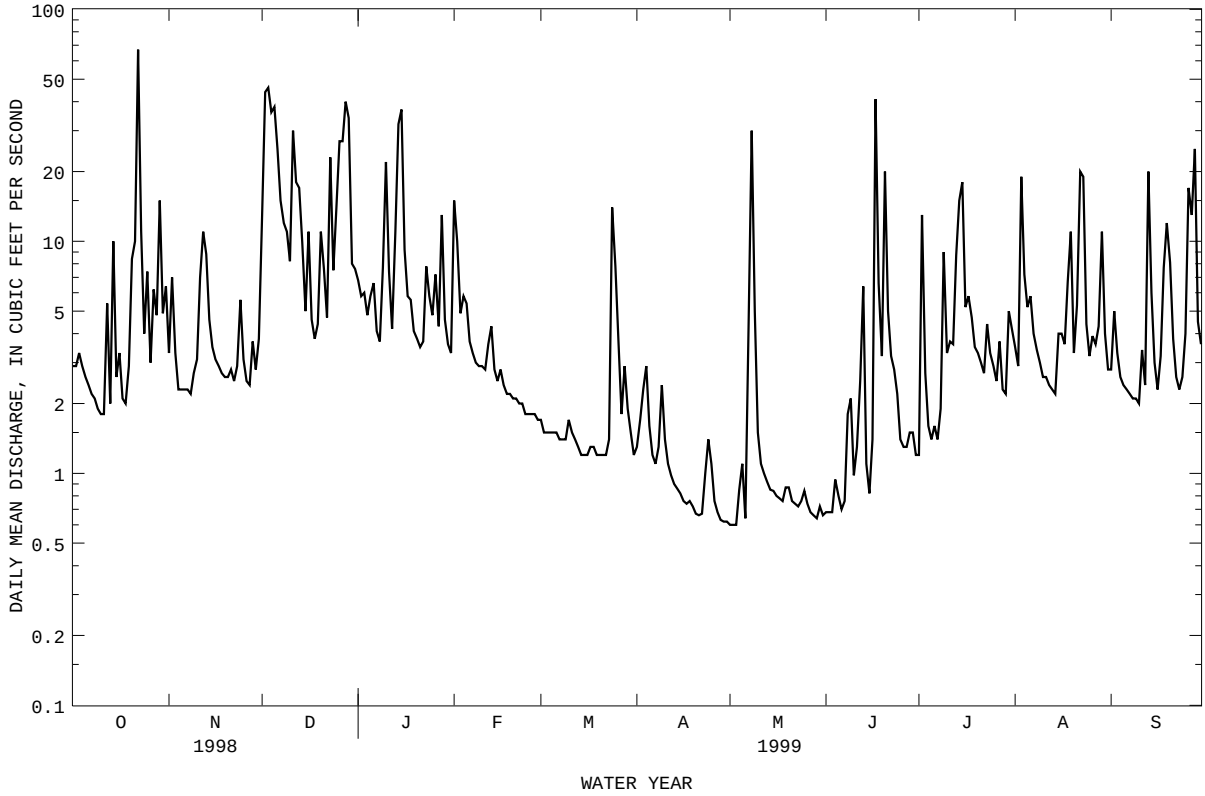
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1999, BY WATER YEAR (WY)

MEAN	5.49	8.97	8.13	7.09	5.74	4.83	4.45	7.06	5.69	6.27	6.95	7.81
MAX	16.8	19.8	20.9	11.1	11.9	14.3	9.76	14.3	13.7	12.7	14.2	23.2
(WY)	1986	1985	1988	1996	1988	1990	1987	1992	1987	1983	1988	1998
MIN	.22	2.47	.92	3.42	1.56	1.53	.90	2.00	.98	2.33	.50	2.45
(WY)	1993	1991	1990	1985	1992	1993	1997	1999	1985	1991	1993	1986

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1983 - 1999	
ANNUAL TOTAL	3193.01		2011.19			
ANNUAL MEAN	8.75		5.51		6.49	
HIGHEST ANNUAL MEAN					9.32	1988
LOWEST ANNUAL MEAN					3.91	1994
HIGHEST DAILY MEAN	240	Sep 21	67	Oct 22	346	Sep 10 1996
LOWEST DAILY MEAN	.25	Mar 5	.60	May 1	.00	Aug 14 1993
ANNUAL SEVEN-DAY MINIMUM	.34	Feb 27	.62	Apr 27	.01	Mar 31 1994
INSTANTANEOUS PEAK FLOW			952	Jan 14	2230	Dec 7 1987
INSTANTANEOUS PEAK STAGE			8.07	Jan 14	9.42	Dec 7 1987
INSTANTANEOUS LOW FLOW					.00	Aug 13 1993
ANNUAL RUNOFF (AC-FT)	6330		3990		4700	
ANNUAL RUNOFF (CFSM)	8.66		5.46		6.42	
ANNUAL RUNOFF (INCHES)	117.60		74.08		87.26	
10 PERCENT EXCEEDS	17		13		16	
50 PERCENT EXCEEDS	3.1		2.9		2.6	
90 PERCENT EXCEEDS	1.0		.82		.49	

e Estimated

50063440 QUEBRADA SONADORA NEAR EL VERDE, PR--Continued



50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR

LOCATION.--Lat 18°21'37", long 65°48'49", Hydrologic Unit 21010005, 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 km^2).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	64	e488	67	e264	16	8.7	5.2	3.7	42	e26	24
2	31	83	e498	61	e84	16	21	5.5	3.6	243	20	43
3	43	49	e1140	51	e40	16	24	5.9	3.7	33	160	26
4	35	34	e789	37	e52	16	11	5.7	6.0	19	73	18
5	35	29	e839	42	e47	15	7.9	7.4	6.0	17	73	17
6	35	27	282	90	e34	14	6.7	5.6	4.4	15	51	16
7	36	25	132	e32	e30	14	6.7	5.7	4.1	19	51	16
8	55	26	95	e29	e28	13	43	522	7.6	48	32	15
9	35	85	110	e44	e26	13	78	43	13	148	21	16
10	34	95	78	e191	e25	24	15	9.8	7.6	33	18	16
11	63	419	265	e66	e23	18	7.6	7.1	5.7	32	17	35
12	116	304	192	e30	44	12	6.6	6.2	12	77	16	21
13	54	426	147	e41	43	13	6.2	5.5	46	271	20	172
14	127	99	89	e267	27	16	6.3	5.0	16	216	16	76
15	42	e58	49	e543	23	15	6.2	4.7	11	162	21	24
16	e67	e47	72	e96	25	15	6.5	4.8	14	46	56	e21
17	e40	e42	42	e50	20	13	7.3	5.3	692	86	27	e29
18	e42	e38	35	e48	19	12	7.1	5.1	60	42	100	e83
19	e114	e38	36	e34	19	11	6.2	8.1	e34	25	140	e164
20	169	e37	86	e30	19	10	6.4	6.8	e349	23	33	e106
21	172	e69	59	e27	18	9.5	6.2	5.7	e48	22	57	e50
22	1080	e74	38	e34	18	8.7	5.8	4.7	e24	34	172	e23
23	190	e114	152	e76	18	15	12	4.3	e39	104	271	e19
24	46	e242	78	e51	18	323	31	4.7	e19	51	63	e18
25	43	e90	96	e44	19	98	11	7.9	e16	41	32	e42
26	107	e62	234	e69	20	100	6.3	5.0	e16	37	43	e87
27	64	e62	270	e34	18	23	6.0	4.1	15	41	41	e111
28	73	e303	721	e173	17	35	5.8	3.8	25	25	48	e178
29	189	e129	453	e37	---	21	5.5	3.8	58	21	125	e38
30	77	e196	63	e29	---	10	5.2	4.8	45	392	53	e35
31	121	---	59	e25	---	8.2	---	4.3	---	e61	26	---
TOTAL	3366	3366	7687	2448	1038	943.4	383.2	727.5	1604.4	2426	1902	1539
MEAN	109	112	248	79.0	37.1	30.4	12.8	23.5	53.5	78.3	61.4	51.3
MAX	1080	426	1140	543	264	323	78	522	692	392	271	178
MIN	31	25	35	25	17	8.2	5.2	3.8	3.6	15	16	15
AC-FT	6680	6680	15250	4860	2060	1870	760	1440	3180	4810	3770	3050
CFSM	12.6	13.0	28.8	9.16	4.30	3.53	1.48	2.72	6.20	9.08	7.12	5.95
IN.	14.53	14.53	33.17	10.56	4.48	4.07	1.65	3.14	6.92	10.47	8.21	6.64

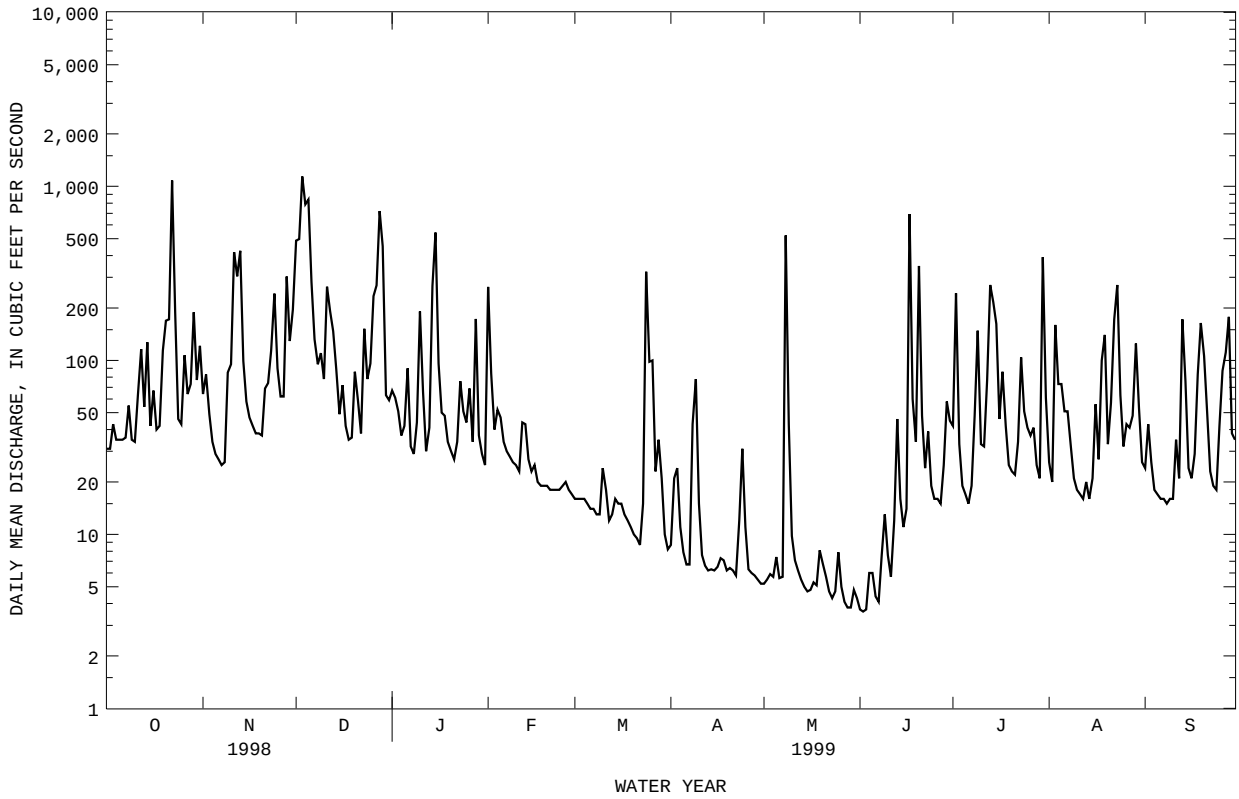
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1999, BY WATER YEAR (WY)

MEAN	61.0	86.5	76.4	56.0	50.0	39.4	43.3	64.4	45.9	52.9	62.4	64.5
MAX	202	196	248	119	117	153	119	185	120	114	126	235
(WY)	1971	1985	1999	1969	1982	1990	1981	1979	1970	1983	1998	1998
MIN	12.3	29.1	16.8	18.5	10.8	9.53	6.27	14.9	10.0	11.1	18.5	17.7
(WY)	1969	1982	1994	1977	1983	1996	1984	1973	1975	1975	1994	1971

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1966 - 1999	
ANNUAL TOTAL	37094.7		27430.5			
ANNUAL MEAN	102		75.2		58.7	
HIGHEST ANNUAL MEAN					98.6	1979
LOWEST ANNUAL MEAN					21.6	1994
HIGHEST DAILY MEAN	2380	Sep 21	1140	Dec 3	2600	Dec 7 1987
LOWEST DAILY MEAN	9.7	Feb 24	3.6	Jun 2	3.6	Apr 2 1996
ANNUAL SEVEN-DAY MINIMUM	11	Feb 19	4.0	May 28	4.0	May 28 1999
INSTANTANEOUS PEAK FLOW			8310	Jul 30	21200	Aug 13 1990
INSTANTANEOUS PEAK STAGE			10.33	Jul 30	16.62	Aug 13 1990
ANNUAL RUNOFF (AC-FT)	73580		54410		42510	
ANNUAL RUNOFF (CFSM)	11.8		8.72		6.81	
ANNUAL RUNOFF (INCHES)	160.08		118.38		92.50	
10 PERCENT EXCEEDS	194		172		124	
50 PERCENT EXCEEDS	40		34		26	
90 PERCENT EXCEEDS	15		6.2		10	

e Estimated

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR--Continued



RIO ESPIRITU SANTO BASIN

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958, 1961-66, 1968 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
16...	1100	66	123	7.3	23.5	12	8.2	96	<10	20000	4700
MAR											
01...	1440	17	142	8.0	25.5	2.0	7.6	91	10	290	99
JUN											
14...	1230	17	120	7.4	29.7	4.2	7.0	92	17	400	440
SEP											
28...	1245	158	47	7.1	23.7	25	8.3	98	26	390	2500

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
16...	50	11	5.3	10	.6	.97	39	<1.0	2.2	12
MAR										
01...	--	--	--	--	--	--	51	--	--	--
JUN										
14...	36	7.7	4.0	8.2	.6	.65	38	<1.0	4.0	11
SEP										
28...	12	2.6	1.2	3.9	.5	.50	10	--	1.9	5.0

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
16...	<.10	20	85	15.2	10	--	<.010	.230	.030	--
MAR										
01...	--	--	--	--	1	--	<.010	.130	.020	--
JUN										
14...	<.10	16	74	3.35	1	.210	.010	.220	.030	--
SEP										
28...	<.10	6.7	28	11.8	39	--	<.010	.180	.030	.42

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
16...	<.20	--	--	.020	<1	<100	<10	<1	<1	<10
MAR										
01...	<.20	--	--	<.020	--	--	--	--	--	--
JUN										
14...	E.23	--	--	<.020	<1	6	30	<1	<1	<12
SEP										
28...	.45	.63	2.8	.040	--	--	--	--	--	--

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
16...	550	<1	30	<.10	<1	<1	<10	<.010	5	<.02
MAR										
01...	--	--	--	--	--	--	--	--	--	--
JUN										
14...	280	<1	14	<.10	1	<1	<40	<.010	<4	.15
SEP										
28...	--	--	--	--	--	--	--	--	--	--

50064200 RIO GRANDE NEAR EL VERDE, PR

LOCATION.--Lat 18°20'42", 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^2 (18.93 km^2).

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 except those for estimated daily discharges, wich are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	e38	e178	57	108	12	9.0	4.2	5.6	9.9	16	17
2	34	81	e275	49	73	11	12	4.2	5.6	108	15	22
3	38	e38	e291	50	35	11	16	4.2	5.6	23	83	16
4	34	e27	e228	41	41	11	20	5.8	7.8	13	33	14
5	30	e27	e236	49	39	11	11	7.3	6.6	12	39	13
6	28	e27	157	57	27	11	8.4	4.5	5.7	13	42	12
7	25	e27	96	35	24	10	7.8	36	5.5	12	29	12
8	24	e26	72	31	22	10	8.9	207	15	16	24	14
9	22	e32	70	49	21	10	17	36	17	75	16	16
10	21	e36	66	e95	21	12	9.9	11	8.2	27	13	13
11	21	e79	144	e57	20	11	7.7	8.9	11	31	13	61
12	62	e129	138	e34	26	9.7	6.9	8.6	21	30	12	20
13	23	e100	109	e41	31	9.4	6.3	7.6	54	77	12	145
14	e119	e53	65	e100	20	9.0	6.0	7.1	8.9	131	12	73
15	30	e40	48	232	18	8.9	5.8	6.9	6.8	147	11	24
16	38	e36	64	e68	20	9.0	5.4	6.6	12	43	16	16
17	24	e34	43	e42	17	9.2	5.2	6.4	344	48	13	17
18	23	e31	36	e40	16	9.2	5.3	6.3	56	36	84	31
19	35	e30	37	e30	16	8.9	5.1	7.1	27	22	165	105
20	98	e30	103	e27	15	8.8	4.7	7.1	167	20	70	90
21	120	e32	71	e25	15	8.8	4.6	6.3	42	21	69	38
22	773	e29	56	e27	14	8.7	4.7	6.1	19	21	83	18
23	143	e34	118	e56	14	10	7.0	5.9	25	36	123	15
24	e47	e64	81	e41	13	101	9.8	6.4	15	27	71	15
25	87	e36	91	e35	13	58	7.8	7.0	12	24	29	18
26	35	e29	173	e52	13	29	5.3	6.0	11	21	42	126
27	e71	e28	174	e31	13	13	4.7	5.6	11	31	33	113
28	56	e43	258	e95	12	20	4.4	5.5	12	19	38	247
29	173	e33	221	e33	---	14	4.3	5.4	12	18	69	43
30	57	e42	68	26	---	11	4.3	5.9	10	42	32	26
31	74	---	64	24	---	8.6	---	5.5	---	27	19	---
TOTAL	2399	1291	3831	1629	717	484.2	235.3	458.4	959.3	1180.9	1326	1390
MEAN	77.4	43.0	124	52.5	25.6	15.6	7.84	14.8	32.0	38.1	42.8	46.3
MAX	773	129	291	232	108	101	20	207	344	147	165	247
MIN	21	26	36	24	12	8.6	4.3	4.2	5.5	9.9	11	12
AC-FT	4760	2560	7600	3230	1420	960	467	909	1900	2340	2630	2760
CFSM	10.6	5.89	16.9	7.19	3.50	2.14	1.07	2.02	4.37	5.21	5.85	6.34
IN.	12.21	6.57	19.50	8.29	3.65	2.46	1.20	2.33	4.88	6.01	6.75	7.07

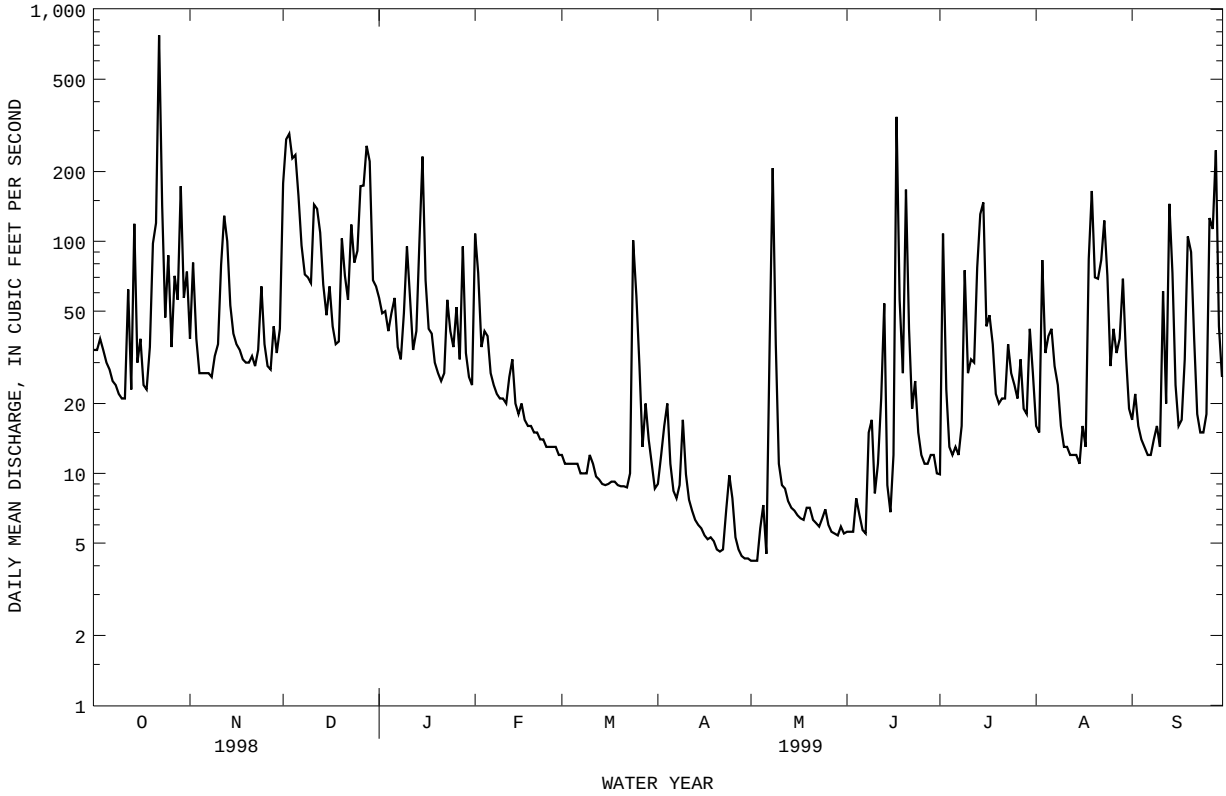
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1999, BY WATER YEAR (WY)

MEAN	55.9	65.2	48.8	44.2	30.6	20.7	26.2	48.0	30.5	36.5	44.5	52.1
MAX	392	172	140	151	76.4	54.4	119	203	86.5	109	90.0	153
(WY)	1971	1970	1971	1969	1969	1969	1978	1969	1968	1969	1968	1975
MIN	8.45	14.3	12.0	10.1	5.80	4.50	6.29	10.2	6.22	8.66	7.39	12.4
(WY)	1969	1981	1998	1977	1977	1977	1995	1974	1975	1994	1991	1967

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1967 - 1999	
ANNUAL TOTAL	21155.8		15901.1			
ANNUAL MEAN	58.0		43.6		40.4	
HIGHEST ANNUAL MEAN					87.1	1969
LOWEST ANNUAL MEAN					17.3	1994
HIGHEST DAILY MEAN	1440	Sep 21	773	Oct 22	3470	May 21 1969
LOWEST DAILY MEAN	6.5	Mar 4	4.2	May 1	2.2	Aug 15 1991
ANNUAL SEVEN-DAY MINIMUM	7.2	Feb 27	4.3	Apr 27	2.5	Aug 10 1991
INSTANTANEOUS PEAK FLOW			6180	Oct 22	22000	Sep 21 1998
INSTANTANEOUS PEAK STAGE			13.98	Oct 22	19.30	Sep 21 1998
INSTANTANEOUS LOW FLOW			3.9	May 2	1.6	Mar 13 1977
ANNUAL RUNOFF (AC-FT)	41960		31540		29300	
ANNUAL RUNOFF (CFSM)	7.93		5.96		5.53	
ANNUAL RUNOFF (INCHES)	107.66		80.92		75.17	
10 PERCENT EXCEEDS	115		102		80	
50 PERCENT EXCEEDS	28		24		17	
90 PERCENT EXCEEDS	9.8		6.4		6.6	

e Estimated

50064200 RIO GRANDE NEAR EL VERDE, PR--Continued



50065500 RIO MAMEYES NEAR SABANA, PR

LOCATION.--Lat 18°19'46", long 65°45'04", Hydrologic Unit 21010005, on left bank, at bridge on Highway 988, 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.--6.88 mi^2 (17.82 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1967 to December 1973, June 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 275 ft (84 m), from topographic map.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	42	274	72	108	20	20	15	13	77	37	42
2	38	103	e244	59	73	19	46	15	13	108	40	65
3	42	54	e460	55	48	19	27	14	24	40	127	38
4	34	40	e288	48	60	18	20	18	27	31	77	35
5	33	35	422	47	52	18	20	15	21	39	94	31
6	31	31	166	55	40	17	16	14	21	37	53	34
7	48	31	108	38	37	17	17	13	19	44	47	31
8	50	33	86	40	35	17	47	e432	e106	57	47	41
9	31	74	83	44	33	16	50	58	36	97	41	37
10	29	61	71	109	33	30	21	26	32	42	42	35
11	27	166	130	65	36	19	17	21	23	34	49	40
12	56	150	109	42	54	16	16	20	42	65	49	29
13	34	222	96	63	49	16	15	19	47	e159	56	111
14	126	100	85	147	36	16	14	18	24	129	40	61
15	45	64	53	e526	31	15	14	17	21	116	53	36
16	51	50	74	127	30	15	14	25	24	57	67	32
17	38	43	48	71	27	15	14	17	172	77	70	37
18	38	39	41	78	26	15	15	16	47	49	57	81
19	47	38	39	58	26	14	15	34	35	38	78	69
20	80	39	62	46	25	14	15	26	104	35	43	62
21	127	66	46	46	24	14	16	19	40	33	43	43
22	e451	50	38	48	23	13	16	16	29	34	114	33
23	128	55	71	103	23	27	23	16	32	55	e234	30
24	59	70	51	57	22	264	60	29	26	48	67	35
25	67	51	64	56	23	115	21	27	23	49	47	49
26	e132	44	99	57	22	82	16	17	23	73	62	73
27	e109	41	135	42	21	34	19	15	25	55	79	96
28	66	e360	279	130	21	59	35	15	30	45	58	163
29	47	112	214	43	---	27	24	15	37	35	69	54
30	44	159	77	39	---	20	17	14	33	e314	51	52
31	51	---	64	39	---	18	---	14	---	50	38	---
TOTAL	2198	2423	4077	2450	1038	1019	680	1030	1149	2122	2029	1575
MEAN	70.9	80.8	132	79.0	37.1	32.9	22.7	33.2	38.3	68.5	65.5	52.5
MAX	451	360	460	526	108	264	60	432	172	314	234	163
MIN	27	31	38	38	21	13	14	13	13	31	37	29
AC-FT	4360	4810	8090	4860	2060	2020	1350	2040	2280	4210	4020	3120
CFSM	10.3	11.7	19.1	11.5	5.39	4.78	3.29	4.83	5.57	9.95	9.51	7.63
IN.	11.88	13.10	22.04	13.25	5.61	5.51	3.68	5.57	6.21	11.47	10.97	8.52

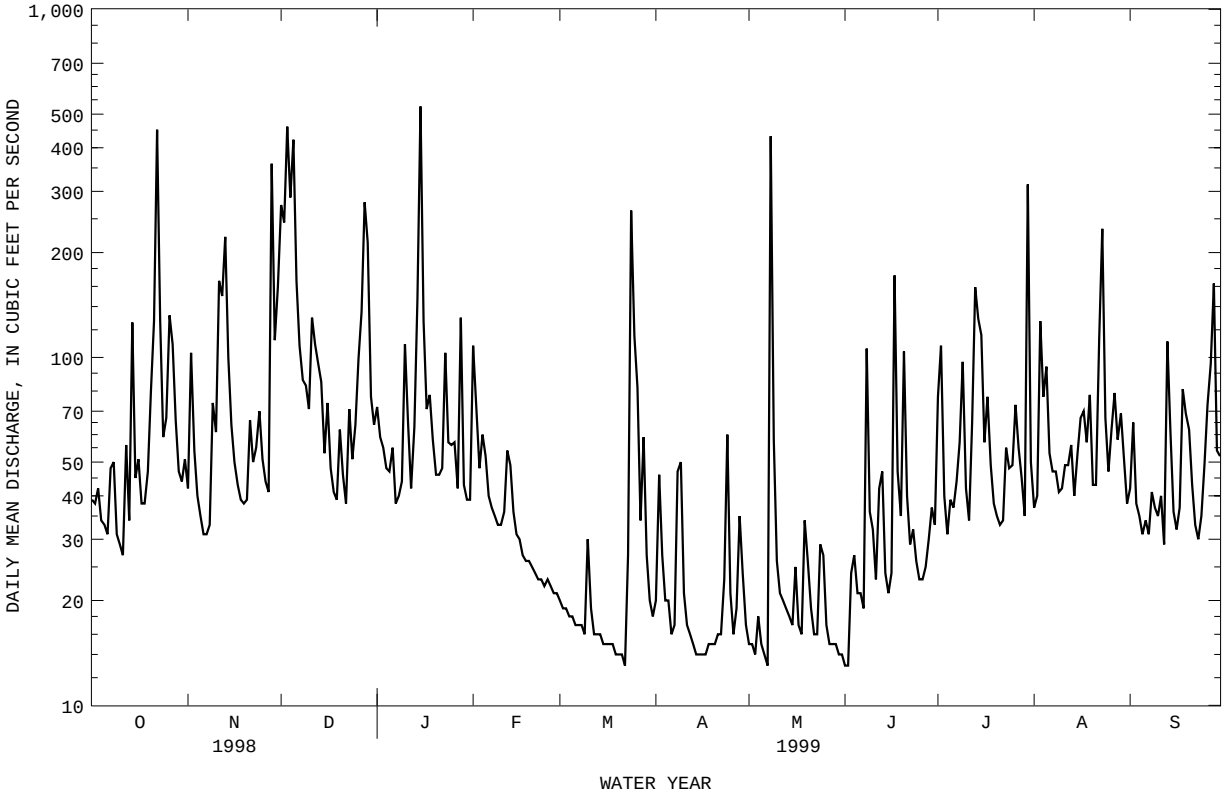
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1999, BY WATER YEAR (WY)

MEAN	64.3	80.1	60.1	55.5	41.8	37.3	40.1	63.1	54.1	50.3	54.3	63.6
MAX	240	191	164	105	68.0	79.7	83.1	147	112	93.4	81.4	166
(WY)	1971	1985	1971	1969	1988	1990	1973	1970	1970	1969	1988	1989
MIN	20.3	36.3	16.6	25.0	21.7	18.1	14.5	18.7	12.4	20.3	20.4	26.6
(WY)	1969	1974	1990	1985	1968	1968	1984	1973	1985	1994	1994	1986

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1967 - 1999	
ANNUAL TOTAL	26559		21790			
ANNUAL MEAN	72.8		59.7		56.0	
HIGHEST ANNUAL MEAN					78.0	1971
LOWEST ANNUAL MEAN					33.1	1994
HIGHEST DAILY MEAN	1480	Sep 21	526	Jan 15	2780	Sep 18 1989
LOWEST DAILY MEAN	15	Mar 12	13	Mar 22	6.9	Apr 20 1970
ANNUAL SEVEN-DAY MINIMUM	18	Jan 21	14	May 27	9.4	Jun 12 1985
INSTANTANEOUS PEAK FLOW			11200	May 8	20500	Sep 18 1989
INSTANTANEOUS PEAK STAGE			10.60	May 8	13.19	Sep 18 1989
INSTANTANEOUS LOW FLOW			10	May 30	5.1	Apr 8 1970
ANNUAL RUNOFF (AC-FT)	52680		43220		40550	
ANNUAL RUNOFF (CFSM)	10.6		8.68		8.14	
ANNUAL RUNOFF (INCHES)	143.60		117.82		110.55	
10 PERCENT EXCEEDS	128		113		101	
50 PERCENT EXCEEDS	42		41		34	
90 PERCENT EXCEEDS	21		16		16	

e Estimated

50065500 RIO MAMEYES NEAR SABANA, PR--Continued



50065500 RIO MAMEYES NEAR SABANA, PR--Continued

PERIOD OF RECORD.-- Water years 1992 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1992 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler, since 1993.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 484 mg/L September 10, 1996; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, 5,390 tons (4,890 tonnes) September 21, 1998; Minimum daily mean, 0.03 tons (0.02 tonne) October 05, 1994.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, e166 mg/L December 3, 1998 ; Minimum daily mean, 1 mg/L severals day.

SEDIMENT LOADS: Maximum daily mean, e1,130 tons (1,030 tonnes) July 30, 1999 ; Minimum daily mean, 0.04 tons (.03 tonne) severals day.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	39	8	.89	42	16	1.8	274	72	65
2	38	6	.61	103	40	24	e244	e60	e55
3	42	4	.47	54	10	1.8	e460	e166	e358
4	34	3	.30	40	6	.82	e288	e72	e58
5	33	4	.33	35	5	.62	422	153	224
6	31	5	.38	31	4	.47	166	51	23
7	48	14	2.7	31	4	.50	108	30	8.8
8	50	10	1.7	33	4	.50	86	20	4.6
9	31	4	.47	74	20	5.1	83	20	4.5
10	29	4	.40	61	14	2.4	71	13	2.6
11	27	4	.36	166	59	41	130	18	14
12	56	14	2.5	150	49	34	109	25	10
13	34	5	.60	222	60	49	96	22	6.4
14	126	49	33	100	23	6.8	85	21	4.8
15	45	10	1.3	64	9	1.6	53	10	1.6
16	51	10	1.6	50	3	.35	74	18	4.0
17	38	6	.74	43	5	.59	48	9	1.2
18	38	6	.74	39	10	1.1	41	8	.93
19	47	10	1.6	38	11	1.1	39	7	.79
20	80	20	4.6	39	10	1.0	62	14	2.6
21	127	38	21	66	14	2.9	46	7	.84
22	e451	e129	e436	50	10	1.5	38	4	.38
23	128	29	14	55	12	2.0	71	11	3.4
24	59	13	2.0	70	15	3.1	51	10	1.6
25	67	16	3.8	51	10	1.5	64	15	2.9
26	e132	e52	e99	44	7	.83	99	24	7.5
27	e109	e30	e15	41	7	.81	135	20	15
28	66	14	2.7	e360	e104	e422	279	128	267
29	47	10	1.2	112	21	6.5	214	69	86
30	44	9	1.0	159	39	20	77	5	1.1
31	51	14	2.2	---	---	---	64	2	.40
TOTAL	2198	---	653.19	2423	---	635.69	4077	---	1235.94

50065500 RIO MAMEYES NEAR SABANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	72	16	3.3	108	36	17	20	1	.05
2	59	13	2.2	73	17	3.6	19	1	.06
3	55	10	1.6	48	9	1.2	19	2	.08
4	48	3	.36	60	13	2.2	18	2	.09
5	47	5	.65	52	10	1.6	18	2	.10
6	55	10	1.8	40	8	.84	17	2	.09
7	38	6	.72	37	7	.73	17	2	.09
8	40	7	.84	35	7	.65	17	2	.09
9	44	8	1.1	33	7	.58	16	2	.11
10	109	26	11	33	6	.56	30	5	.46
11	65	13	2.5	36	7	.67	19	4	.22
12	42	8	.92	54	10	1.8	16	3	.15
13	63	17	3.6	49	10	1.4	16	3	.11
14	147	69	164	36	7	.74	16	2	.09
15	e526	e83	e480	31	7	.54	15	2	.07
16	127	26	12	30	6	.46	15	1	.05
17	71	16	3.1	27	5	.37	15	1	.04
18	78	14	3.1	26	4	.31	15	1	.06
19	58	4	.67	26	4	.27	14	2	.08
20	46	4	.50	25	3	.22	14	3	.13
21	46	6	.74	24	3	.19	14	5	.19
22	48	10	1.4	23	3	.16	13	8	.29
23	103	24	7.5	23	2	.14	27	9	.64
24	57	6	1.0	22	2	.12	264	78	93
25	56	10	1.6	23	2	.11	115	29	14
26	57	13	2.2	22	2	.09	82	21	5.4
27	42	8	.91	21	1	.08	34	7	.59
28	130	46	31	21	1	.06	59	15	3.0
29	43	9	1.1	---	---	---	27	3	.27
30	39	8	.88	---	---	---	20	2	.11
31	39	7	.78	---	---	---	18	2	.10
TOTAL	2450	---	743.07	1038	---	36.69	1019	---	119.81

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	20	2	.12	15	2	.07	13	2	.07
2	46	10	2.8	15	1	.05	13	2	.07
3	27	6	.43	14	1	.04	24	7	.51
4	20	4	.21	18	2	.11	27	4	.39
5	20	3	.16	15	3	.11	21	5	.26
6	16	2	.10	14	2	.09	21	4	.22
7	17	15	.13	13	2	.07	19	3	.17
8	47	16	3.2	e432	e71	e440	e106	e43	e114
9	50	12	2.1	58	16	3.5	36	8	.87
10	21	4	.24	26	3	.21	32	7	.64
11	17	3	.12	21	2	.10	23	4	.24
12	16	2	.08	20	2	.08	42	15	2.9
13	15	1	.05	19	1	.07	47	11	1.8
14	14	1	.04	18	1	.05	24	5	.32
15	14	1	.05	17	1	.05	21	4	.25
16	14	2	.06	25	4	.31	24	4	.26
17	14	2	.07	17	3	.12	172	42	28
18	15	2	.09	16	2	.10	47	10	1.3
19	15	3	.10	34	9	1.1	35	7	.66
20	15	3	.13	26	4	.33	104	30	8.8
21	16	4	.16	19	3	.16	40	6	.65
22	16	3	.14	16	3	.11	29	3	.23
23	23	4	.26	16	2	.09	32	2	.18
24	60	20	4.5	29	7	.66	26	2	.14
25	21	5	.27	27	4	.36	23	2	.13
26	16	4	.20	17	2	.12	23	2	.12
27	19	4	.21	15	2	.08	25	2	.13
28	35	9	1.0	15	2	.08	30	3	.31
29	24	4	.26	15	2	.08	37	7	.76
30	17	2	.10	14	2	.08	33	6	.54
31	---	---	---	14	2	.08	---	---	---
TOTAL	680	---	17.38	1030	---	448.46	1149	---	164.92

50065500 RIO MAMEYES NEAR SABANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	77	22	6.2	37	7	.69	42	9	1.0
2	108	26	12	40	10	1.4	65	18	3.9
3	40	9	1.0	127	44	27	38	12	1.3
4	31	8	.68	77	20	4.3	35	6	.60
5	39	7	.72	94	25	9.8	31	4	.31
6	37	6	.60	53	13	1.9	34	2	.18
7	44	5	.57	47	12	1.6	31	1	.10
8	57	2	.33	47	12	1.5	41	7	.94
9	97	18	6.0	41	11	1.2	37	9	.94
10	42	9	1.0	42	10	1.1	35	7	.70
11	34	7	.61	49	9	1.2	40	9	.99
12	65	15	2.9	49	8	1.1	29	6	.47
13	e159	e60	e52	56	8	1.2	111	26	11
14	129	29	15	40	7	.80	61	13	2.2
15	116	25	10	53	15	2.6	36	7	.69
16	57	10	8.0	67	8	1.9	32	6	.48
17	77	20	4.5	70	10	3.4	37	6	.72
18	49	11	1.4	57	13	2.1	81	21	5.3
19	38	6	.64	78	17	5.0	69	17	3.4
20	35	4	.36	43	7	.81	62	17	3.4
21	33	2	.20	43	7	.82	43	9	1.0
22	34	2	.18	114	40	24	33	6	.57
23	55	11	2.4	e234	e130	e287	30	5	.44
24	48	10	1.3	67	10	2.0	35	7	.76
25	49	10	1.4	47	7	.83	49	10	1.4
26	73	23	7.4	62	13	3.4	73	21	5.2
27	55	12	1.9	79	20	4.6	96	24	7.3
28	45	5	.68	58	13	2.1	163	44	45
29	35	2	.19	69	16	3.5	54	14	2.1
30	e314	e129	e1130	51	12	1.7	52	11	1.9
31	50	14	2.0	38	10	.99	---	---	---
TOTAL	2122	---	1272.16	2029	---	401.54	1575	---	104.29
YEAR	21790		5833.14						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
26...	1625	2330	1050	6620	91
MAR					
25...	1703	205	59	33	80
JUL					
30...	1720	1570	2490	10600	81
30...	1755	2200	1300	7720	89

50065500 RIO MAMEYES NEAR SABANA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
JUL							
30...	1710	1230	2810	9320	32	44	59
30...	1730	10900	1990	58700	30	42	58

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
JUL							
30...	74	83	85	92	97	99	100
30...	73	83	86	94	98	99	100

50066000 RIO MAMEYES AT MAMEYES, PR

LOCATION.--Lat 18°22'27", long 65°45'50", Htdrologic Unit 21010005, on right bank, at bridge on Highway 3, 3.1 mi (5.0 km), southwest from Luquillo, 0.4 mi (0.6 km) downstream from Quebrada Anón, and 2.9 mi (4.7 km) east from Escuela Juán González.

WATER-DISCHARGE RECORDS

DRAINAGE AREA.--13.4 mi^2 (34.7 km^2).

GAGE.--Water-stage recorder. Elevation of gage is 16.4 ft (5.0 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Discharges above 5,000 ft^3/s (141.6 m^3/s), are based on a rating curve extension and are rated poor. Low flow affected by water supply intake about 1,000 ft (305 m), upstream from staiton. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	59	473	157	141	16	19	9.9	11	146	e43	52
2	45	172	513	114	95	e15	51	9.1	9.7	165	e48	98
3	49	79	985	101	52	e15	31	9.1	19	36	e246	51
4	42	50	584	85	62	e14	18	9.8	31	24	e187	41
5	39	47	892	79	59	e14	18	10	28	24	e209	37
6	38	38	295	111	43	e13	15	8.1	20	21	e62	36
7	49	36	177	70	39	e13	14	8.6	22	25	e44	40
8	81	41	134	69	37	e13	49	507	106	43	e40	50
9	40	97	139	70	35	13	67	80	62	103	e37	53
10	36	81	109	172	35	30	22	25	32	36	e46	44
11	34	414	250	113	36	20	16	20	22	27	e43	51
12	67	277	182	72	52	13	15	17	55	65	e32	37
13	40	601	149	99	47	12	14	e16	75	381	e76	200
14	222	230	143	374	35	12	13	e14	24	223	41	125
15	52	111	88	567	29	11	12	13	15	168	50	50
16	57	79	111	222	e27	e10	12	e20	18	58	121	39
17	45	66	78	100	e25	9.8	e11	13	254	79	102	43
18	43	58	68	115	e24	9.9	e11	12	59	49	79	117
19	139	54	66	93	e23	9.2	e11	29	34	34	160	131
20	124	53	105	66	22	9.1	11	e22	150	30	59	105
21	205	94	83	62	21	9.0	11	16	47	27	60	74
22	1290	79	66	58	20	9.5	9.7	14	28	28	190	41
23	329	76	134	140	19	16	17	12	31	50	632	37
24	105	116	111	78	19	391	62	e23	22	45	159	40
25	107	86	116	84	19	94	e19	29	17	50	82	85
26	217	66	190	82	19	78	e11	14	15	97	98	181
27	186	60	254	59	17	29	13	12	16	69	162	292
28	123	753	850	223	17	62	31	11	17	43	95	390
29	198	183	559	60	---	31	22	11	27	32	101	70
30	74	227	170	53	---	20	12	10	26	e528	80	50
31	71	---	122	48	---	19	---	10	---	e178	49	---
TOTAL	4194	4383	8196	3796	1069	1030.5	637.7	1014.6	1292.7	2884	3433	2660
MEAN	135	146	264	122	38.2	33.2	21.3	32.7	43.1	93.0	111	88.7
MAX	1290	753	985	567	141	391	67	507	254	528	632	390
MIN	34	36	66	48	17	9.0	9.7	8.1	9.7	21	32	36
AC-FT	8320	8690	16260	7530	2120	2040	1260	2010	2560	5720	6810	5280

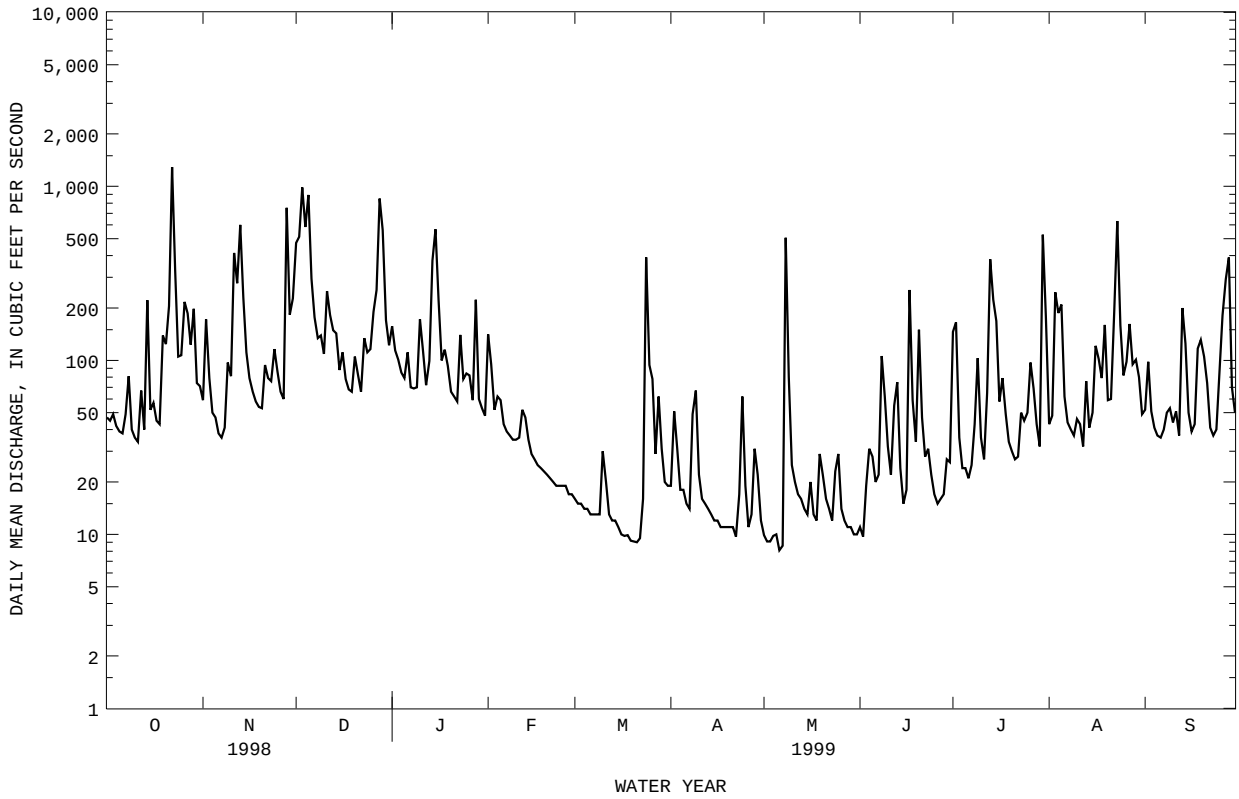
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1999, BY WATER YEAR (WY)

MEAN	129	127	141	98.8	43.8	56.9	59.0	80.9	64.6	75.6	94.2	149
MAX	135	146	264	122	49.5	80.6	96.8	129	86.2	93.0	111	274
(WY)	1999	1999	1999	1999	1998	1998	1998	1998	1998	1999	1998	1998
MIN	123	109	18.4	75.1	38.2	33.2	21.3	32.7	43.1	58.1	60.5	84.4
(WY)	1998	1998	1998	1998	1999	1999	1999	1999	1999	1998	1997	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1997 - 1999	
ANNUAL TOTAL	45957		34590.5			
ANNUAL MEAN	126		94.8		97.8	
HIGHEST ANNUAL MEAN					101	1998
LOWEST ANNUAL MEAN					94.8	1999
HIGHEST DAILY MEAN	2660	Sep 21	1290	Oct 22	2660	Sep 21 1998
LOWEST DAILY MEAN	14	Jul 13	8.1	May 6	7.7	Dec 29 1997
ANNUAL SEVEN-DAY MINIMUM	19	Feb 25	9.2	May 1	9.2	May 1 1999
INSTANTANEOUS PEAK FLOW			16400	Jul 30	18400	Sep 21 1998
INSTANTANEOUS PEAK STAGE			13.73	Jul 30	14.18	Sep 21 1998
ANNUAL RUNOFF (AC-FT)	91160		68610		70870	
10 PERCENT EXCEEDS	229		202		188	
50 PERCENT EXCEEDS	58		49		45	
90 PERCENT EXCEEDS	27		13		16	

e Estimated

50066000 RIO MAMEYES AT MAMEYES, PR--Continued



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 km^2).

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. Low-flow affected by Puerto Rico Aqueduct and Sewer Authority Water Intake 1.0 mi (1.6 km) upstream, and purification plant 0.2 mi (0.32 km). Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

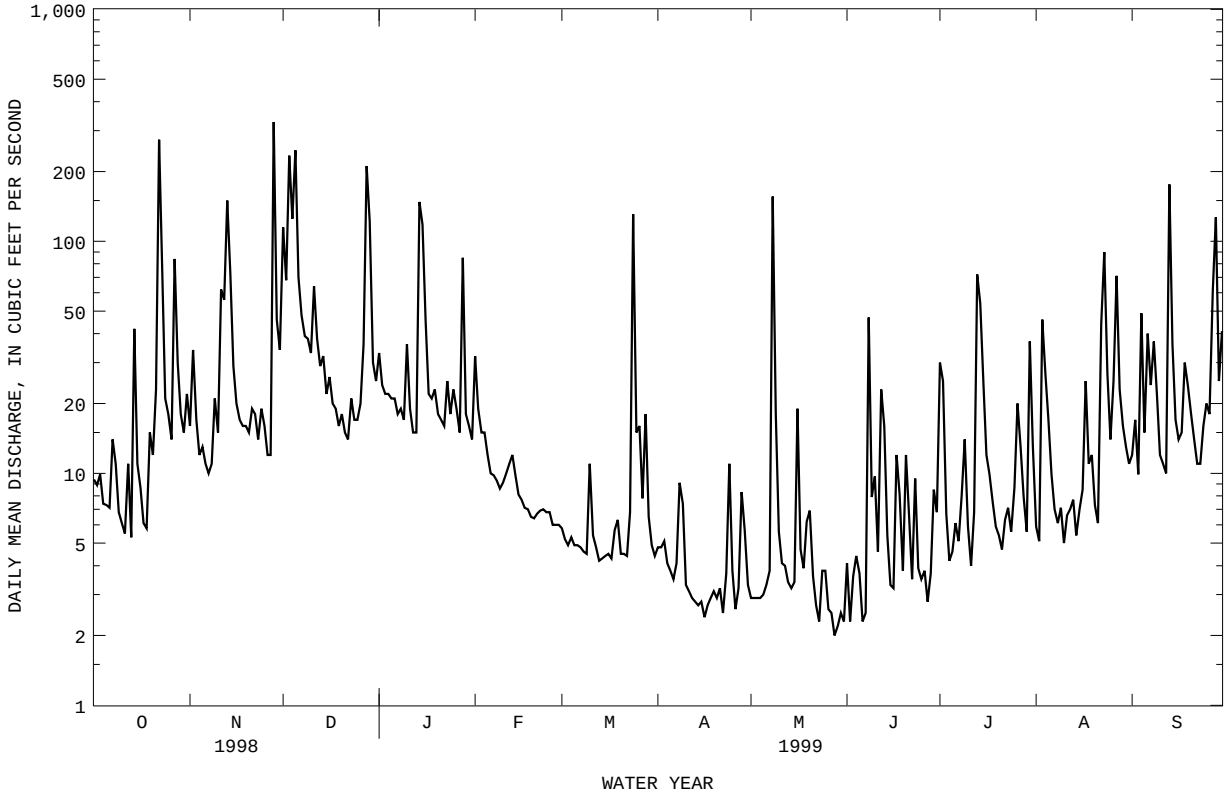
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	16	115	33	32	5.8	4.8	2.9	4.1	30	5.9	12
2	8.9	34	68	24	19	5.2	4.8	2.9	2.3	25	5.1	17
3	9.9	17	234	22	15	4.9	5.1	2.9	3.6	6.7	46	9.9
4	7.4	12	125	22	15	5.3	4.1	2.9	4.4	4.2	27	49
5	7.3	13	247	21	12	4.9	3.8	3.0	3.7	4.6	17	15
6	7.1	11	70	21	10	4.9	3.5	3.3	2.3	6.1	9.9	40
7	14	10	48	18	9.8	4.8	4.1	3.8	2.5	5.1	7.0	24
8	11	11	39	19	9.3	4.6	9.1	156	47	8.0	6.1	37
9	6.8	21	38	17	8.6	4.5	7.4	18	7.9	14	7.1	22
10	6.1	15	33	36	9.1	11	3.3	5.6	9.7	5.9	5.0	12
11	5.5	62	64	19	10	5.4	3.1	4.1	4.6	4.0	6.6	11
12	11	56	38	15	11	4.8	2.9	4.0	23	6.8	7.0	10
13	5.3	150	29	15	12	4.2	2.8	3.4	16	72	7.7	176
14	42	73	32	148	9.8	4.3	2.7	3.2	5.4	54	5.4	36
15	11	29	22	118	8.1	4.4	2.8	3.4	3.3	25	7.0	17
16	8.7	20	26	46	7.7	4.5	2.4	19	3.2	12	8.5	14
17	6.1	17	20	22	7.1	4.3	2.7	4.7	12	9.9	25	15
18	5.8	16	19	21	7.0	5.7	2.9	3.9	8.1	7.5	11	30
19	15	16	16	23	6.5	6.3	3.1	6.2	3.8	5.9	12	24
20	12	15	18	18	6.4	4.5	2.9	6.9	12	5.4	7.3	18
21	23	19	15	17	6.7	4.5	3.2	3.6	6.6	4.7	6.1	14
22	274	18	14	16	6.9	4.4	2.5	2.7	3.5	6.3	44	11
23	77	14	21	25	7.0	6.8	3.7	2.3	9.5	7.1	90	11
24	21	19	17	18	6.8	131	11	3.8	3.9	5.6	27	16
25	18	16	17	23	6.8	15	3.8	3.8	3.5	8.7	14	20
26	14	12	20	19	6.0	16	2.6	2.6	3.8	20	25	18
27	84	12	36	15	6.0	7.8	3.2	2.5	2.8	13	71	61
28	30	327	211	85	6.0	18	8.3	2.0	3.7	7.9	23	127
29	18	46	122	18	---	6.5	5.7	2.2	8.5	5.6	16	25
30	15	34	30	16	---	4.9	3.3	2.5	6.8	37	13	41
31	22	---	25	14	---	4.4	---	2.3	---	13	11	---
TOTAL	806.3	1131	1829	944	277.6	323.6	125.6	290.4	231.5	441.0	573.7	932.9
MEAN	26.0	37.7	59.0	30.5	9.91	10.4	4.19	9.37	7.72	14.2	18.5	31.1
MAX	274	327	247	148	32	131	11	156	47	72	90	176
MIN	5.3	10	14	14	6.0	4.2	2.4	2.0	2.3	4.0	5.0	9.9
AC-FT	1600	2240	3630	1870	551	642	249	576	459	875	1140	1850
CFSM	6.57	9.52	14.9	7.69	2.50	2.64	1.06	2.37	1.95	3.59	4.67	7.85
IN.	7.57	10.62	17.18	8.87	2.61	3.04	1.18	2.73	2.17	4.14	5.39	8.76

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1999, BY WATER YEAR (WY)

MEAN	23.9	33.2	25.9	16.6	13.1	11.3	11.3	30.4	19.9	16.5	18.1	25.5
MAX	66.4	79.7	64.1	48.5	23.2	36.0	33.5	63.9	50.6	36.0	39.9	74.2
(WY)	1986	1988	1982	1996	1997	1987	1990	1982	1987	1996	1995	1996
MIN	6.48	8.15	3.92	6.12	2.94	2.71	2.20	4.65	3.64	5.84	3.09	7.23
(WY)	1983	1981	1990	1986	1983	1994	1984	1994	1997	1986	1994	1987

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1980 - 1999	
ANNUAL TOTAL	10318.2		7906.6			
ANNUAL MEAN	28.3		21.7		20.5	
HIGHEST ANNUAL MEAN					31.9	1996
LOWEST ANNUAL MEAN					7.85	1994
HIGHEST DAILY MEAN	472	Sep 21	327	Nov 28	1100	Sep 10 1996
LOWEST DAILY MEAN	3.3	Aug 5	2.0	May 28	.96	Apr 10 1983
ANNUAL SEVEN-DAY MINIMUM	4.3	Jul 30	2.6	May 25	1.0	Apr 6 1983
INSTANTANEOUS PEAK FLOW			3310	May 8	9600	Jan 5 1992
INSTANTANEOUS PEAK STAGE			14.56	May 8	19.74	Jan 5 1992
INSTANTANEOUS LOW FLOW					.86	Apr 17 1983
ANNUAL RUNOFF (AC-FT)	20470		15680		14860	
ANNUAL RUNOFF (CFSM)	7.14		5.47		5.18	
ANNUAL RUNOFF (INCHES)	96.93		74.27		70.40	
10 PERCENT EXCEEDS	57		43		39	
50 PERCENT EXCEEDS	12		11		9.0	
90 PERCENT EXCEEDS	5.5		3.3		2.8	

50067000 RIO SABANA AT SABANA, PR--Continued



50070500 RIO FAJARDO ABOVE FAJARDO, PR

LOCATION.--Lat 18°16'21", long 65°43'18", Hydrologic Unit 21010005, on right bank, 4.1 mi (6.6 km) from Plaza de Naguabo, 0.5 mi (0.8 km) northeast from Escuela Sonadora, 1.5 mi (2.4 km) southwest of Colonia Paraíso, and 2.5 mi (4.0 km) norht from Escuela Segunda Unidad Mariana.

DRAINAGE AREA.--3.69 mi^2 (9.56 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Oct. 1, 1995 to Nov. 8, 1995 (estimated discharge). Nov. 9, 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is 328 ft (100 m) above mean sea level, from topographic map.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	43	e290	52	39	11	9.3	8.4	10	e41	20	23
2	33	72	e138	62	26	10	15	7.9	10	e92	24	23
3	33	49	e470	49	22	10	9.9	7.7	12	e30	30	21
4	34	45	e240	47	23	10	8.9	8.5	17	e22	26	24
5	37	42	e189	45	21	9.7	8.6	8.2	13	e23	35	22
6	35	40	96	46	19	9.7	8.3	8.1	12	e35	28	26
7	33	39	71	42	18	9.5	8.3	8.3	11	e18	26	27
8	32	38	65	42	17	9.5	12	38	22	e21	26	22
9	31	39	64	46	16	9.2	13	16	14	e37	23	20
10	34	43	60	64	16	10	9.2	12	15	e19	21	20
11	37	65	64	44	19	9.1	8.8	11	13	e20	21	20
12	51	56	69	39	21	8.6	8.5	11	23	e56	21	19
13	43	73	58	41	20	8.5	8.4	11	16	e142	22	62
14	e84	52	59	63	16	8.4	8.3	11	13	e194	21	29
15	46	e42	50	75	15	8.5	8.0	10	12	e106	23	22
16	59	e47	49	54	15	8.4	7.8	12	13	e38	26	21
17	44	e40	46	42	14	8.4	7.9	11	28	e34	34	22
18	41	e40	44	40	13	8.5	8.1	10	16	e28	27	24
19	40	e36	44	32	13	8.2	8.0	12	14	e22	26	33
20	50	e37	58	29	13	8.2	8.3	13	20	e19	27	24
21	85	e42	46	29	13	8.2	8.3	12	14	e19	28	22
22	133	e37	44	35	12	8.3	7.5	11	13	20	55	20
23	76	e34	54	35	12	8.5	9.2	12	e31	21	56	19
24	53	e120	46	29	12	26	14	16	e23	20	30	19
25	56	e52	54	31	12	14	8.7	13	e19	19	26	22
26	63	e35	58	27	12	13	8.5	11	e18	28	33	23
27	e90	e31	63	27	12	9.5	9.0	11	e17	21	37	30
28	53	e400	91	41	11	12	10	11	e18	28	28	57
29	46	e84	79	25	---	9.8	12	11	e34	18	27	26
30	44	e79	52	24	---	8.8	9.5	11	e24	31	26	37
31	51	---	52	22	---	8.7	---	10	---	21	23	---
TOTAL	1579	1852	2863	1279	472	310.2	281.3	364.1	515	1243	876	779
MEAN	50.9	61.7	92.4	41.3	16.9	10.0	9.38	11.7	17.2	40.1	28.3	26.0
MAX	133	400	470	75	39	26	15	38	34	194	56	62
MIN	31	31	44	22	11	8.2	7.5	7.7	10	18	20	19
AC-FT	3130	3670	5680	2540	936	615	558	722	1020	2470	1740	1550
CFSM	13.8	16.7	25.0	11.2	4.57	2.71	2.54	3.18	4.65	10.9	7.66	7.04
IN.	15.92	18.67	28.86	12.89	4.76	3.13	2.84	3.67	5.19	12.53	8.83	7.85

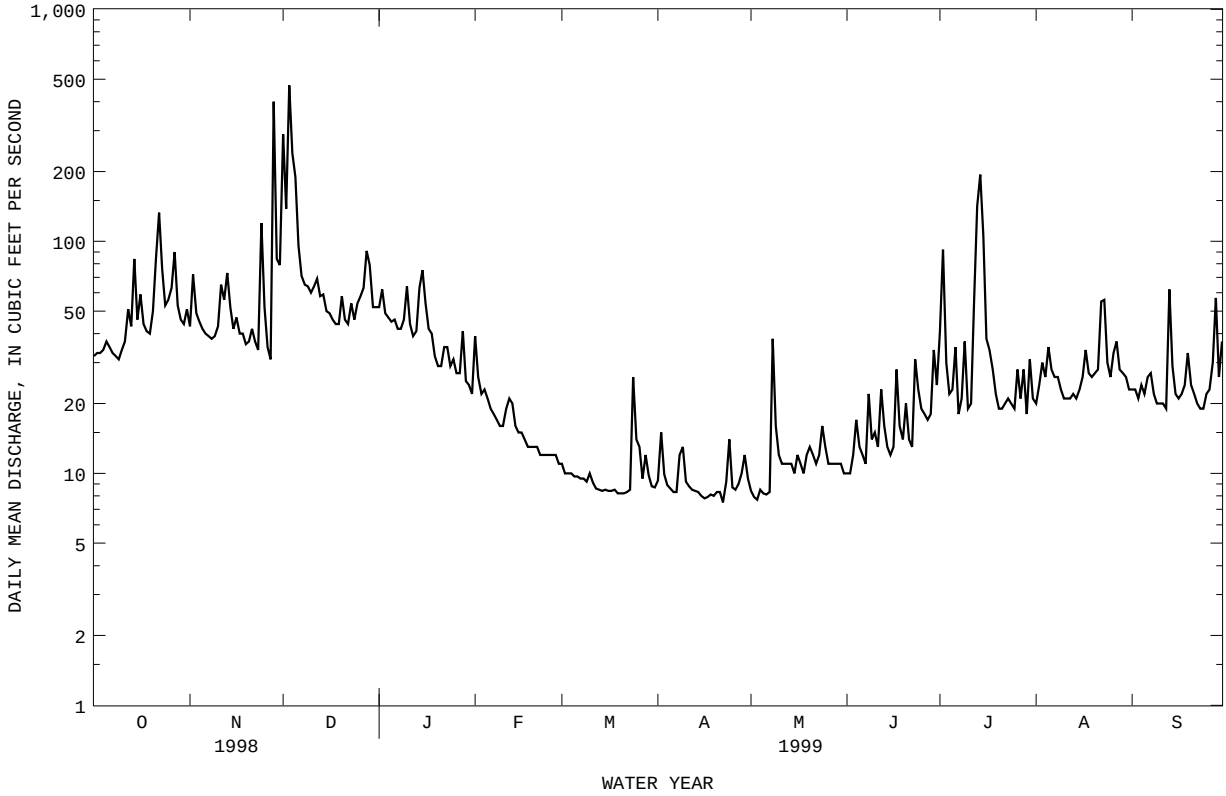
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1999, BY WATER YEAR (WY)

MEAN	29.5	40.6	41.1	40.7	20.8	12.5	13.9	19.6	26.6	29.5	29.2	57.0
MAX	50.9	61.7	92.4	49.9	33.6	14.5	22.2	30.2	50.3	42.4	41.1	121
(WY)	1999	1999	1999	1996	1997	1997	1998	1996	1996	1996	1996	1996
MIN	20.4	20.1	17.4	33.3	14.8	10.0	9.38	11.7	12.2	15.1	18.7	26.0
(WY)	1997	1996	1998	1998	1998	1999	1999	1999	1997	1997	1997	1999

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1996 - 1999	
ANNUAL TOTAL	13348.8		12413.6			
ANNUAL MEAN	36.6		34.0		30.1	
HIGHEST ANNUAL MEAN					37.5	1996
LOWEST ANNUAL MEAN					23.9	1997
HIGHEST DAILY MEAN	470	Dec 3	470	Dec 3	1700	Sep 10 1996
LOWEST DAILY MEAN	9.2	Feb 3	7.5	Apr 22	7.0	Apr 21 1997
ANNUAL SEVEN-DAY MINIMUM	10	Feb 27	8.0	Apr 16	7.2	Apr 20 1997
INSTANTANEOUS PEAK FLOW			Not determined	Nov 28	5110	Sep 10 1996
INSTANTANEOUS PEAK STAGE			Not determined	Nov 28	10.72	Sep 10 1996
INSTANTANEOUS LOW FLOW			7.0	Apr 22	7.0	Dec 7 1995
ANNUAL RUNOFF (AC-FT)	26480		24620		21800	
ANNUAL RUNOFF (CFSM)	9.91		9.22		8.16	
ANNUAL RUNOFF (INCHES)	134.57		125.15		110.82	
10 PERCENT EXCEEDS	64		61		54	
50 PERCENT EXCEEDS	25		23		18	
90 PERCENT EXCEEDS	12		8.8		9.6	

e Estimated

50070500 RIO FAJARDO ABOVE FAJARDO, PR--Continued



50070500 RIO FAJARDO ABOVE FAJARDO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1996 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1995 to current year .

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1995.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1,020 mg/L September 21, 1998; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, e5,320 tons (e4,830 tonnes) September 21, 1998; Minimum daily mean, 0.01 tons (0.01 tonnes)several years.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, 450 mg/L December 3, 1998; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS : Maximum daily mean, 250 tons (227 tonnes) December 3, 1998; Minimum daily mean 0.02 ton (0.02 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	32	2	.20	43	11	1.3	e290	e250	e150
2	33	3	.27	72	52	38	e138	e138	e69
3	33	3	.27	49	20	2.7	e470	e450	e250
4	34	3	.27	45	8	.93	e240	e210	e90
5	37	3	.28	42	5	.60	e189	e196	e102
6	35	2	.22	40	4	.43	96	36	10
7	33	2	.18	39	4	.37	71	3	.67
8	32	2	.17	38	3	.34	65	3	.53
9	31	2	.17	39	3	.34	64	3	.60
10	34	2	.18	43	9	1.3	60	6	.95
11	37	2	.22	65	49	11	64	10	1.7
12	51	14	4.0	56	34	6.6	69	182	46
13	43	3	.44	73	41	10	58	18	2.8
14	e84	e108	e52	52	22	3.4	59	27	4.5
15	46	22	2.7	e42	e13	e1.5	50	9	1.2
16	59	22	4.9	e47	e5	e.57	49	2	.28
17	44	6	.70	e40	e6	e.70	46	2	.25
18	41	4	.45	e40	e4	e.37	44	2	.25
19	40	3	.32	e36	e4	e.36	44	3	.32
20	50	22	3.5	e37	e2	e.23	58	33	6.4
21	85	75	33	e42	e5	e.60	46	4	.52
22	133	138	69	e37	e5	e.33	44	3	.31
23	76	25	6.2	e34	e6	e.34	54	6	.89
24	53	21	3.0	e120	e90	e48	46	6	.78
25	56	25	4.5	e52	e22	e3.4	54	4	.59
26	63	35	15	e35	e5	e.34	58	4	.63
27	e90	e87	e46	e31	e4	e.27	63	14	2.6
28	53	7	1.1	e400	e360	e200	91	86	38
29	46	4	.54	e84	e108	e52	79	57	15
30	44	4	.45	e79	e25	e6.2	52	9	1.3
31	51	20	3.6	---	---	---	52	3	.46
TOTAL	1579	---	253.83	1852	---	392.52	2863	---	798.53

50070500 RIO FAJARDO ABOVE FAJARDO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	52	4	.50	39	19	3.8	11	7	.19
2	62	14	3.5	26	9	.68	10	2	.06
3	49	7	.89	22	3	.20	10	2	.04
4	47	3	.33	23	3	.16	10	1	.03
5	45	2	.24	21	2	.12	9.7	1	.03
6	46	2	.24	19	2	.10	9.7	1	.03
7	42	2	.17	18	2	.09	9.5	1	.04
8	42	1	.12	17	2	.09	9.5	2	.05
9	46	2	.25	16	2	.09	9.2	2	.05
10	64	26	7.2	16	2	.09	10	2	.07
11	44	8	.94	19	4	.23	9.1	3	.07
12	39	3	.31	21	11	.69	8.6	3	.06
13	41	3	.33	20	20	1.1	8.5	2	.05
14	63	26	16	16	24	1.1	8.4	1	.03
15	75	41	12	15	20	.82	8.5	1	.03
16	54	25	4.1	15	14	.57	8.4	1	.03
17	42	8	.88	14	6	.21	8.4	2	.04
18	40	2	.24	13	2	.08	8.5	2	.04
19	32	2	.17	13	1	.04	8.2	2	.04
20	29	2	.16	13	2	.08	8.2	2	.04
21	29	2	.15	13	5	.16	8.2	2	.04
22	35	17	2.6	12	9	.31	8.3	2	.05
23	35	19	1.9	12	14	.45	8.5	2	.05
24	29	14	1.1	12	9	.30	26	19	2.1
25	31	8	.67	12	6	.19	14	5	.24
26	27	5	.38	12	4	.14	13	4	.15
27	27	4	.30	12	5	.17	9.5	3	.09
28	41	26	6.2	11	7	.20	12	4	.12
29	25	4	.27	---	---	---	9.8	2	.06
30	24	2	.13	---	---	---	8.8	1	.03
31	22	2	.12	---	---	---	8.7	1	.02
TOTAL	1279	---	62.39	472	---	12.26	310.2	---	3.97

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	9.3	1	.03	8.4	9	.20	10	7	.21
2	15	168	28	7.9	8	.18	10	6	.16
3	9.9	3	.07	7.7	8	.16	12	5	.17
4	8.9	2	.04	8.5	5	.11	17	7	.34
5	8.6	1	.03	8.2	2	.05	13	9	.33
6	8.3	1	.02	8.1	1	.03	12	9	.27
7	8.3	1	.02	8.3	1	.03	11	7	.22
8	12	3	.15	38	75	36	22	15	2.2
9	13	4	.15	16	62	2.7	14	3	.10
10	9.2	2	.06	12	50	1.7	15	3	.17
11	8.8	2	.05	11	32	1.0	13	4	.14
12	8.5	2	.04	11	10	.29	23	13	2.6
13	8.4	2	.04	11	3	.08	16	21	.92
14	8.3	1	.03	11	1	.03	13	15	.54
15	8.0	1	.03	10	1	.03	12	10	.33
16	7.8	1	.02	12	4	.13	13	6	.21
17	7.9	1	.02	11	3	.07	28	17	1.5
18	8.1	1	.03	10	2	.06	16	6	.27
19	8.0	1	.03	12	2	.07	14	5	.18
20	8.3	1	.03	13	2	.07	20	8	.56
21	8.3	2	.04	12	2	.06	14	2	.09
22	7.5	2	.03	11	2	.06	13	2	.07
23	9.2	2	.05	12	2	.06	e31	e0	e.99
24	14	5	.27	16	5	.32	e23	e1	e.09
25	8.7	2	.05	13	4	.13	e19	e1	e.05
26	8.5	2	.05	11	3	.08	e18	e1	e.05
27	9.0	2	.05	11	2	.06	e17	e1	e.05
28	10	4	.13	11	3	.08	e18	e1	e.05
29	12	9	.29	11	4	.12	e34	e10	e1.6
30	9.5	9	.23	11	5	.16	e24	e13	e.92
31	---	---	---	10	7	.19	---	---	---
TOTAL	281.3	---	30.08	364.1	---	44.31	515	---	15.38

50070500 RIO FAJARDO ABOVE FAJARDO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	e41	e17	e3.2	20	8	.42	23	1	.06
2	e92	172	e101	24	10	.88	23	1	.06
3	e30	e15	e1.3	30	15	1.3	21	1	.07
4	e22	e10	e.60	26	8	.60	24	1	.09
5	e23	e10	e.79	35	16	1.8	22	2	.10
6	e35	e9	e1.3	28	4	.33	26	9	.98
7	e18	e4	e.19	26	2	.12	27	5	.41
8	e21	e4	e.23	26	1	.10	22	2	.12
9	e37	e22	e2.7	23	1	.07	20	1	.07
10	e19	e15	e.95	21	1	.07	20	1	.06
11	e20	e6	e.32	21	3	.16	20	1	.07
12	e56	e7	e1.1	21	6	.34	19	2	.09
13	e142	e123	e67	22	9	.54	62	68	21
14	e194	e244	e246	21	5	.29	29	6	.47
15	e106	e9	e3.0	23	4	.30	22	3	.18
16	e38	e1	e.10	26	17	1.2	21	2	.09
17	e34	e1	e.09	34	20	2.9	22	1	.06
18	e28	e1	e.07	27	10	.77	24	3	.19
19	e22	e1	e.06	26	5	.34	33	242	47
20	e19	e1	e.05	27	7	.56	24	4	.28
21	e19	e1	e.05	28	12	.92	22	2	.14
22	20	1	.06	55	49	16	20	1	.08
23	21	1	.07	56	38	9.8	19	1	.05
24	20	1	.08	30	9	.78	19	1	.07
25	19	2	.09	26	3	.24	22	2	.09
26	28	27	5.3	33	11	1.6	23	4	.29
27	21	4	.22	37	20	2.2	30	13	1.1
28	28	12	1.1	28	8	.58	57	63	39
29	18	5	.23	27	4	.27	26	14	.96
30	31	29	10	26	2	.13	37	26	5.1
31	21	9	.52	23	1	.08	---	---	---
TOTAL	1243	---	447.77	876	---	45.69	779	---	118.33
YEAR	12413.6		2225.06						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
14...	0700	84	19	4.3	95
JAN					
23...	0700	34	36	3.3	96
FEB					
01...	1700	97	33	8.6	80
APR					
02...	1700	36	27	2.6	97
MAY					
08...	1824	101	114	31	88
JUL					
26...	1549	112	157	47	89
30...	1950	47	64	8.1	91
SEP					
13...	0604	259	284	199	83

RIO FAJARDO BASIN

50070500 RIO FAJARDO ABOVE FAJARDO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
MAY							
08...	1708	289	1530	1200	29	34	48

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
MAY							
08...	64	74	80	92	98	100	100

50071000 RIO FAJARDO NEAR 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 km^2).

WATER-DISCHARGE RECORDS

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 except those for estimated daily discharges, which are poor. Low flow affected by diversions for water supply about 0.25 mi (0.40 km) upstream from gaging station (estimated mean daily discharges is 9.0 ft^3/s (0.255 m^3/s). Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	66	666	111	180	18	13	7.0	59	42	26	36
2	55	257	310	127	85	16	88	5.9	17	117	42	30
3	53	122	1090	93	47	16	28	5.2	12	28	180	25
4	51	68	554	79	56	18	16	6.7	53	19	69	143
5	47	71	666	68	54	15	12	18	33	21	154	32
6	46	51	295	69	39	13	11	7.7	16	33	74	247
7	43	44	164	53	37	14	9.5	12	17	16	47	175
8	47	48	125	50	39	13	30	414	234	19	43	60
9	38	44	117	56	35	14	64	79	54	37	30	41
10	38	53	91	306	38	27	15	20	123	21	25	32
11	38	203	113	104	49	19	12	16	33	18	24	29
12	133	155	148	59	81	14	10	14	117	60	22	26
13	63	501	86	60	63	13	10	12	75	196	22	907
14	649	315	105	307	43	11	8.7	11	24	289	17	205
15	90	96	63	570	37	11	7.7	8.9	18	122	19	62
16	232	69	59	198	38	11	7.5	23	16	43	43	44
17	80	60	51	80	28	11	7.0	11	141	36	130	42
18	66	50	48	87	27	11	6.9	8.1	48	29	51	44
19	58	45	46	56	27	10	6.0	16	22	23	42	444
20	118	72	135	50	25	10	6.0	19	67	20	36	105
21	527	82	60	50	25	9.9	7.7	12	29	19	48	52
22	1050	71	52	153	23	9.8	7.1	9.6	19	20	553	35
23	488	110	99	134	23	11	17	12	37	26	487	31
24	202	221	71	68	21	231	65	40	21	26	111	36
25	198	70	121	119	21	56	13	26	17	29	58	42
26	e230	50	150	64	19	50	7.3	13	15	174	236	55
27	e690	45	276	56	19	19	6.9	11	14	63	385	169
28	170	919	680	175	19	34	15	11	16	54	86	672
29	88	152	555	49	---	22	23	13	33	26	81	97
30	78	133	125	42	---	12	13	9.5	22	126	61	244
31	115	---	111	40	---	11	---	9.9	---	45	35	---
TOTAL	5837	4243	7232	3533	1198	750.7	543.3	881.5	1402	1797	3237	4162
MEAN	188	141	233	114	42.8	24.2	18.1	28.4	46.7	58.0	104	139
MAX	1050	919	1090	570	180	231	88	414	234	289	553	907
MIN	38	44	46	40	19	9.8	6.0	5.2	12	16	17	25
AC-FT	11580	8420	14340	7010	2380	1490	1080	1750	2780	3560	6420	8260
CFSM	12.6	9.49	15.7	7.65	2.87	1.63	1.22	1.91	3.14	3.89	7.01	9.31
IN.	14.57	10.59	18.06	8.82	2.99	1.87	1.36	2.20	3.50	4.49	8.08	10.39

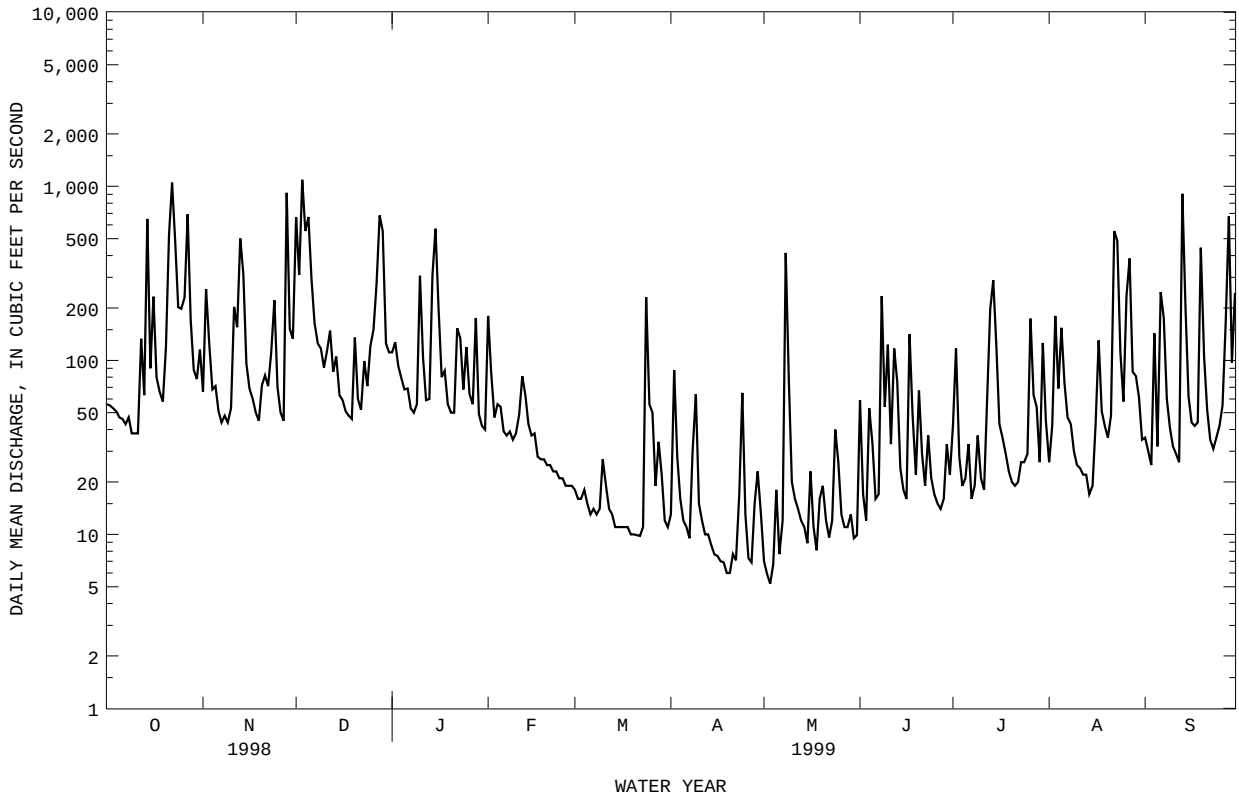
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1999, BY WATER YEAR (WY)

MEAN	94.6	107	83.1	50.7	39.4	35.1	43.4	88.4	59.1	50.9	58.0	90.5
MAX	260	295	237	150	80.4	109	129	399	166	132	159	421
(WY)	1971	1975	1976	1996	1982	1987	1963	1979	1962	1969	1979	1989
MIN	19.1	26.0	14.9	15.4	10.8	9.70	4.02	17.7	10.0	11.4	9.70	18.9
(WY)	1969	1994	1990	1977	1983	1977	1984	1973	1985	1994	1994	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1961 - 1999	
ANNUAL TOTAL	39080		34816.5			
ANNUAL MEAN	107		95.4		67.1	
HIGHEST ANNUAL MEAN					140	1979
LOWEST ANNUAL MEAN					19.0	1994
HIGHEST DAILY MEAN	1090	Dec 3	1090	Dec 3	8800	Sep 18 1989
LOWEST DAILY MEAN	11	Aug 5	5.2	May 3	1.0	May 6 1984
ANNUAL SEVEN-DAY MINIMUM	13	Jan 28	6.9	Apr 16	1.5	Apr 18 1984
INSTANTANEOUS PEAK FLOW			6110	Nov 28	21700	Sep 18 1989
INSTANTANEOUS PEAK STAGE			9.45	Nov 28	20.00	Sep 18 1989
INSTANTANEOUS LOW FLOW					.86	May 3 1984
ANNUAL RUNOFF (AC-FT)	77520		69060		48630	
ANNUAL RUNOFF (CFSM)	7.19		6.40		4.51	
ANNUAL RUNOFF (INCHES)	97.57		86.92		61.21	
10 PERCENT EXCEEDS	247		225		131	
50 PERCENT EXCEEDS	47		45		33	
90 PERCENT EXCEEDS	16		11		11	

e Estimated

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued



50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1982 to September 1986 and October 1995 to current year.

INSTRUMENTATION.--USDH-48 sediment sampler and automatic sediment sampler since October 1983.

EXTREMES FOR PERIOD OF RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 2,210 mg/L October 6, 1985; Minimum daily mean, 1 mg/L several years.
SEDIMENT LOADS: Maximum daily mean, 22,100 tons (20,000 tonnes) October 6, 1985; Minimum daily mean, 0.01 tons (0.01 tonnes) May 06, 1996.

EXTREMES FOR CURRENT YEAR 1998.--
SEDIMENT CONCENTRATION: Maximum daily mean, 378 mg/L November 28, 1998; minimum daily mean, 0.5 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 4,250 tons (3,850 tonnes) Novenver 28, 1998; minimum daily 0.02 tons (0.02 tonnes) several days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)
DEC										
16...	1330	66	127	7.5	27.0	3.0	8.2	102	<10	K45
MAR										
08...	1610	12	139	7.8	28.5	2.2	7.9	100	<10	<10
JUN										
02...	1400	13	120	7.5	30.8	3.4	6.8	91	13	190
SEP										
27...	1025	84	94	7.2	26.0	9.7	6.6	82	<10	K1500

DATE	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
DEC										
16...	K45	33	7.0	3.7	11	.8	1.4	35	<1.0	3.1
MAR										
08...	60	--	--	--	--	--	--	44	--	--
JUN										
02...	300	30	6.4	3.5	11	.9	1.4	36	<1.0	4.5
SEP										
27...	3000	23	4.9	2.6	8.1	.7	1.1	23	--	3.3

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
16...	13	<.10	28	88	15.7	1	<.010	.180	.050	--
MAR										
08...	--	--	--	--	--	2	<.010	.130	<.010	--
JUN										
02...	14	<.10	24	86	3.13	1	<.010	.270	.080	--
SEP										
27...	11	<.10	19	64	14.4	8	<.010	.140	.020	.22

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
16...	<.32	--	--	.040	<1	<100	<10	<1	<1	<10
MAR										
08...	<.20	--	--	<.020	--	--	--	--	--	--
JUN										
02...	<.20	--	--	<.020	<1	20	30	<1	<1	<12
SEP										
27...	.24	.38	1.7	.020	--	--	--	--	--	--

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
16...	460	<1	23	<.10	<1	<1	<10	<.010	<4	<.02
MAR										
08...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	330	<1	15	<.10	<1	<1	<40	<.010	<4	.05
SEP										
27...	--	--	--	--	--	--	--	--	--	--

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	56	11	1.6	66	8	1.5	666	147	294
2	55	5	.66	257	74	198	310	72	62
3	53	3	.47	122	28	12	1090	544	2520
4	51	4	.53	68	6	1.1	554	149	265
5	47	5	.61	71	6	1.1	666	181	358
6	46	4	.55	51	5	.72	295	80	67
7	43	4	.46	44	8	.89	164	38	18
8	47	4	.47	48	8	1.0	125	23	7.7
9	38	3	.36	44	8	.98	117	20	6.5
10	38	3	.34	53	10	1.5	91	15	3.6
11	38	3	.37	203	57	43	113	21	7.1
12	133	34	23	155	45	29	148	51	29
13	63	8	1.8	501	129	243	86	18	4.2
14	649	129	454	315	69	78	105	27	8.4
15	90	11	2.8	96	14	3.9	63	18	3.1
16	232	59	79	69	7	1.4	59	16	2.5
17	80	7	1.5	60	5	.89	51	13	1.9
18	66	5	.96	50	6	.74	48	13	1.6
19	58	6	.93	45	6	.77	46	11	1.4
20	118	30	14	72	15	3.6	135	46	24
21	527	56	146	82	15	3.5	60	15	2.4
22	1050	92	343	71	22	4.4	52	12	1.7
23	488	88	134	110	25	18	99	26	8.1
24	202	20	12	221	60	44	71	19	4.1
25	198	39	25	70	11	2.2	121	26	9.6
26	e230	e44	e63	50	6	.86	150	34	14
27	e690	e154	e1010	45	7	.86	276	40	46
28	170	20	12	919	578	4250	680	112	489
29	88	8	1.9	152	40	20	555	41	131
30	78	12	2.8	133	30	13	125	7	2.5
31	115	28	12	---	---	---	111	8	2.3
TOTAL	5837	---	2346.11	4243	---	4979.91	7232	---	4395.7

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

WATER-QUALITY RECORDS

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	111	22	7.3	180	56	54	18	6	.28
2	127	23	10	85	18	5.8	16	5	.21
3	93	21	5.2	47	5	.65	16	6	.26
4	79	17	3.7	56	4	.63	18	7	.35
5	68	6	1.1	54	5	.65	15	8	.34
6	69	9	1.6	39	6	.61	13	5	.18
7	53	10	1.5	37	6	.55	14	4	.17
8	50	11	1.4	39	5	.54	13	5	.17
9	56	10	1.4	35	5	.45	14	6	.21
10	306	166	441	38	4	.46	27	7	.54
11	104	26	7.9	49	8	1.6	19	6	.33
12	59	16	2.5	81	15	5.4	14	4	.16
13	60	14	2.4	63	14	2.8	13	4	.14
14	307	333	1620	43	10	1.2	11	4	.11
15	570	425	1490	37	7	.66	11	3	.10
16	198	104	59	38	4	.46	11	3	.09
17	80	36	8.0	28	4	.30	11	3	.10
18	87	21	5.2	27	4	.29	11	4	.12
19	56	12	1.9	27	4	.29	10	5	.13
20	50	11	1.5	25	4	.27	10	5	.16
21	50	10	1.4	25	4	.27	9.9	6	.17
22	153	41	46	23	4	.25	9.8	7	.20
23	134	30	13	23	4	.25	11	9	.26
24	68	16	3.0	21	4	.23	231	64	63
25	119	30	13	21	4	.22	56	15	3.3
26	64	16	2.7	19	4	.21	50	12	1.9
27	56	12	1.8	19	5	.24	19	6	.30
28	175	76	73	19	6	.29	34	9	.93
29	49	11	1.5	---	---	---	22	5	.34
30	42	10	1.1	---	---	---	12	3	.10
31	40	9	.96	---	---	---	11	3	.10
TOTAL	3533	---	3830.06	1198	---	79.57	750.7	---	74.75

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	13	4	.13	7.0	1	.02	59	15	8.5
2	88	23	20	5.9	1	.02	17	5	.26
3	28	8	.66	5.2	2	.02	12	3	.09
4	16	4	.18	6.7	2	.04	53	11	2.5
5	12	4	.13	18	5	.34	33	9	.99
6	11	4	.12	7.7	2	.06	16	4	.16
7	9.5	4	.10	12	3	.11	17	3	.15
8	30	7	2.5	414	172	872	234	45	110
9	64	12	3.7	79	25	7.9	54	15	2.9
10	15	2	.10	20	5	.27	123	49	39
11	12	2	.06	16	3	.14	33	21	1.9
12	10	1	.04	14	3	.12	117	33	44
13	10	1	.03	12	3	.10	75	26	7.7
14	8.7	1	.03	11	3	.09	24	4	.29
15	7.7	1	.02	8.9	3	.07	18	2	.12
16	7.5	1	.03	23	7	.50	16	2	.09
17	7.0	1	.03	11	7	.21	141	32	19
18	6.9	1	.03	8.1	4	.10	48	6	1.1
19	6.0	2	.03	16	4	.20	22	1	.06
20	6.0	2	.03	19	6	.28	67	19	7.6
21	7.7	2	.04	12	4	.12	29	11	.85
22	7.1	2	.04	9.6	3	.08	19	10	.52
23	17	4	.19	12	3	.10	37	12	1.3
24	65	17	6.7	40	12	3.1	21	8	.46
25	13	3	.13	26	9	.70	17	5	.21
26	7.3	2	.04	13	3	.10	15	4	.15
27	6.9	2	.04	11	2	.05	14	3	.13
28	15	4	.16	11	1	.04	16	3	.14
29	23	4	.28	13	5	.17	33	6	.82
30	13	3	.11	9.5	4	.10	22	6	.41
31	---	---	---	9.9	4	.09	---	---	---
TOTAL	543.3	---	35.68	881.5	---	887.24	1402	---	251.40

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

WATER-QUALITY RECORDS

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	42	7	1.4	26	3	.19	36	2	.23
2	117	25	16	42	11	3.8	30	1	.08
3	28	5	.36	180	67	48	25	1	.07
4	19	4	.23	69	33	6.7	143	46	75
5	21	5	.34	154	39	28	32	8	.72
6	33	5	.67	74	22	4.5	247	49	138
7	16	1	.05	47	11	1.5	175	47	49
8	19	2	.09	43	10	1.2	60	13	2.2
9	37	5	.62	30	6	.44	41	12	1.4
10	21	2	.11	25	3	.23	32	5	.44
11	18	4	.20	24	3	.18	29	4	.34
12	60	14	2.5	22	2	.14	26	5	.34
13	196	35	28	22	2	.12	907	236	1190
14	289	70	96	17	2	.09	205	37	35
15	122	30	11	19	2	.10	62	8	1.3
16	43	6	.71	43	13	2.1	44	11	1.3
17	36	5	.59	130	24	30	42	15	1.7
18	29	8	.61	51	14	2.3	44	14	1.7
19	23	5	.29	42	12	1.4	444	111	331
20	20	4	.22	36	9	1.1	105	27	8.5
21	19	4	.18	48	12	1.7	52	15	2.4
22	20	3	.17	553	116	495	35	11	1.0
23	26	4	.33	487	129	254	31	14	1.2
24	26	6	.40	111	18	5.8	36	18	1.7
25	29	7	.55	58	10	1.5	42	19	2.1
26	174	41	74	236	64	144	55	14	2.4
27	63	7	1.4	385	107	161	169	40	23
28	54	10	1.9	86	21	5.1	672	150	659
29	26	5	.36	81	20	4.8	97	24	6.6
30	126	29	45	61	29	4.9	244	55	113
31	45	12	1.8	35	18	1.7	---	---	---
TOTAL	1797	---	286.08	3237	---	1211.59	4162	---	2650.72
YEAR	34816.5		21028.81						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
21...	1530	651	108	190	98
NOV					
28...	1321	4130	1730	19300	91
JAN					
14...	2330	3420	2330	21500	91
16...	1430	179	125	60	95
FEB					
09...	1700	34	14	1.3	87
JUN					
01...	1730	373	63	63	94

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 mi^2 (60.6 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)
DEC										
16...	1530	71	159	7.4	28.0	2.6	7.8	99	<10	K7500
MAR										
08...	1325	17	168	8.3	28.6	2.8	8.9	113	<10	K150
JUN										
03...	1400	13	167	9.2	33.6	20	9.8	132	23	220
SEP										
27...	1210	90	112	7.6	26.7	19	7.8	98	<10	2800

DATE	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
DEC										
16...	900	41	8.9	4.5	13	.9	1.6	43	<1.0	4.4
MAR										
08...	250	--	--	--	--	--	--	40	--	--
JUN										
03...	80	36	7.9	3.9	14	1	1.4	36	<1.0	5.5
SEP										
27...	4800	27	5.8	3.0	9.2	.8	1.3	29	--	3.6

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
16...	17	<.10	26	101	19.3	3	<.010	.280	.090	.14
MAR										
08...	--	--	--	--	--	<1	<.010	.030	<.010	--
JUN										
03...	16	<.10	22	93	3.18	1	<.010	<.020	.010	--
SEP										
27...	12	<.10	20	72	17.5	15	<.010	.140	.030	.19

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
16...	.23	.51	2.3	.030	<1	<100	10	<1	<1	<10
MAR										
08...	<.20	--	--	<.020	--	--	--	--	--	--
JUN										
03...	<.20	--	--	<.020	<1	30	30	<1	<1	E10
SEP										
27...	.22	.36	1.6	.030	--	--	--	--	--	--

50072500 RIO FAJARDO BELOW FAJARDO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
16...	440	<1	47	<.10	<1	<1	<10	<.010	<1	<.02
MAR										
08...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	250	<1	25	<.10	<1	<1	<40	<.010	4	.03
SEP										
27...	--	--	--	--	--	--	--	--	--	--

50074950 QUEBRADA GUABA NEAR NAGUABO, PR

LOCATION.--Lat 18°17'02", long 65°47'20", Hydrologic Unit 21010005, on right bank, off Highway 191 at El Yunque Caribbean National Forest, 4.8 mi (7.7 km) southeast of Campamento Eliza Colberg, 1.3 mi (2.1 km) southeast of Mt. Britton, 2.0 mi (3.2 km) northwest of Pico del Este and 7.3 mi (11.7 km) southeast of Río Grande Plaza.

DRAINAGE AREA.--0.05 mi^2 (0.13 km^2).

PERIOD OF RECORD.--June 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,100 ft (640 m), from topographic map.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.46	.43	3.4	.50	.70	.20	.21	.12	.06	.27	.24	.47
2	.43	.74	2.8	.50	.43	.20	.44	.12	.06	.58	.52	.55
3	e.42	.44	3.1	.47	.38	.19	.26	.12	.26	.22	.57	.44
4	e.40	.41	1.7	.40	.39	.18	.22	.26	.15	.20	.43	.41
5	e.40	.38	1.9	.38	.35	.18	.21	.14	.09	.24	.89	.40
6	e.37	.37	1.2	.38	.32	.17	.20	.12	.08	.19	.51	.37
7	.35	e.42	.94	.34	.31	.17	.19	.12	.08	.20	.44	.36
8	.33	e.45	.83	.34	.29	.16	.37	.71	2.5	.26	.40	.36
9	.34	.58	.81	.40	.28	.17	.47	.20	.17	.40	.34	.35
10	.33	.58	.83	.62	.31	.19	.25	.12	.12	.24	.34	.35
11	.36	1.3	1.0	.39	.33	.15	.20	.11	.12	.26	.33	.37
12	.72	1.5	1.1	.33	.48	.15	.18	.11	.43	.29	.33	.33
13	.32	.89	.83	.38	.38	.14	.17	.11	.26	.42	.31	.93
14	1.0	.64	.69	1.9	.31	.13	.17	.10	.17	.85	.29	.47
15	.29	.56	.59	.73	.30	.13	e.17	.10	.24	.65	.33	.37
16	.58	.52	.62	.40	.29	.13	e.16	.10	.37	.32	.36	.33
17	.32	.49	.55	.41	.27	.12	e.16	.09	1.3	.35	.47	.35
18	.30	.48	.52	.38	.28	.12	e.16	.09	.33	.27	1.1	.40
19	.28	.47	.51	.34	.28	.11	e.15	.14	.26	.24	.82	.49
20	.48	.50	.79	.34	.27	.11	e.15	.14	1.3	.25	.57	.68
21	1.6	.61	.64	.35	.26	.10	e.15	.10	.39	.28	.57	.37
22	4.8	.49	.55	.39	.25	.10	e.15	.09	.31	.22	2.5	.32
23	1.2	.58	.63	.50	.25	.15	e.24	.10	.30	.43	1.3	.30
24	.71	.68	.46	.43	.24	1.5	.41	.13	.22	.48	.56	.31
25	.75	.51	.62	.38	.23	.52	.17	.10	.21	.34	.49	.41
26	.56	.45	.75	.35	.22	.32	.15	.08	.19	.38	.82	.66
27	1.1	.49	.79	.33	.21	.22	.14	.07	.19	.31	.70	.56
28	.53	1.8	2.0	.97	.21	.36	.14	.07	.18	.36	.59	2.3
29	.46	.69	.91	.34	---	.24	.13	.07	.27	.27	.81	.59
30	.45	1.5	.53	.31	---	.20	.13	.07	.19	.34	.49	.54
31	.55	---	.52	.30	---	.19	---	.06	---	.27	.45	---
TOTAL	21.19	19.95	33.11	14.58	8.82	7.00	6.30	4.06	10.80	10.38	18.87	15.14
MEAN	.68	.67	1.07	.47	.31	.23	.21	.13	.36	.33	.61	.50
MAX	4.8	1.8	3.4	1.9	.70	1.5	.47	.71	2.5	.85	2.5	2.3
MIN	.28	.37	.46	.30	.21	.10	.13	.06	.06	.19	.24	.30
AC-FT	42	40	66	29	17	14	12	8.1	21	21	37	30
CFSM	5.70	5.54	8.90	3.92	2.62	1.88	1.75	1.09	3.00	2.79	5.07	4.21
IN.	6.57	6.18	10.26	4.52	2.73	2.17	1.95	1.26	3.35	3.22	5.85	4.69

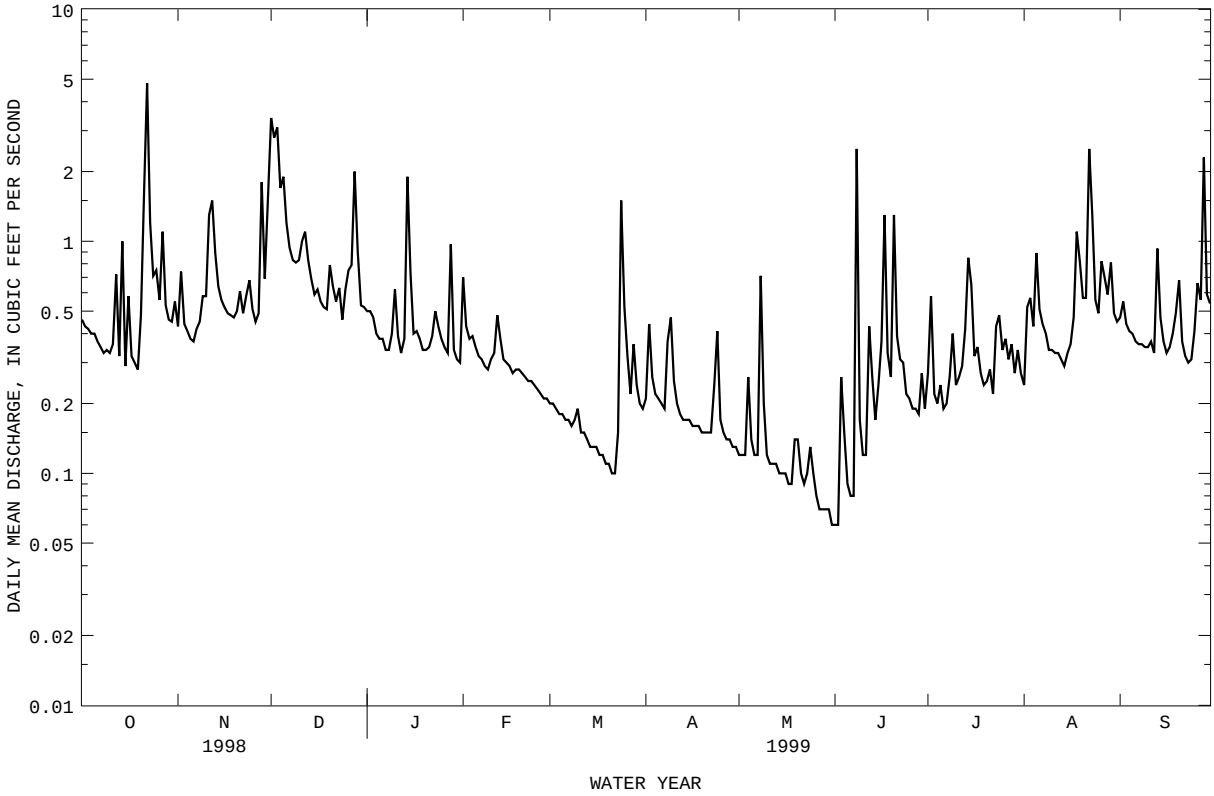
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1999, BY WATER YEAR (WY)

MEAN	.46	.53	.49	.50	.40	.25	.26	.36	.37	.48	.42	.65
MAX	.89	.76	1.07	.67	.60	.30	.33	.61	.50	1.18	.61	1.42
(WY)	1998	1993	1999	1997	1994	1995	1994	1993	1996	1992	1999	1996
MIN	.25	.32	.22	.28	.30	.16	.21	.13	.29	.22	.19	.34
(WY)	1993	1995	1994	1994	1998	1998	1999	1999	1998	1994	1993	1993

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1992 - 1999	
ANNUAL TOTAL	197.49		170.20			
ANNUAL MEAN	.54		.47		.42	
HIGHEST ANNUAL MEAN					.49	1998
LOWEST ANNUAL MEAN					.32	1994
HIGHEST DAILY MEAN	14	Sep 21	4.8	Oct 22	23	Sep 10 1996
LOWEST DAILY MEAN	.08	Feb 24	.06	May 31	.06	May 31 1999
ANNUAL SEVEN-DAY MINIMUM	.10	Feb 20	.07	May 27	.07	May 27 1999
INSTANTANEOUS PEAK FLOW			82	Jun 8	104	Sep 21 1998
INSTANTANEOUS PEAK STAGE			10.42	Jun 8	10.78	Sep 21 1998
INSTANTANEOUS LOW FLOW			.06	May 28	.05	May 1 1997
ANNUAL RUNOFF (AC-FT)	392		338		307	
ANNUAL RUNOFF (CFSM)	4.51		3.89		3.53	
ANNUAL RUNOFF (INCHES)	61.22		52.76		47.92	
10 PERCENT EXCEEDS	.93		.83		.73	
50 PERCENT EXCEEDS	.35		.35		.30	
90 PERCENT EXCEEDS	.12		.12		.15	

e Estimated

50074950 QUEBRADA GUABA NEAR NAGUABO, PR--Continued



50075000 RIO ICACOS NEAR NAGUABO, PR

LOCATION.--Lat 18°16'38", long 65°47'09", Hydrologic Unit 21010005, in Caribbean National Forest, at 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 km^2).

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. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e9.9	11	127	18	41	5.6	6.5	e5.0	3.5	11	7.6	9.7
2	10	e35	101	16	20	5.2	15	4.9	3.5	28	19	16
3	11	e12	115	15	15	e5.1	7.4	5.1	13	6.5	23	7.1
4	9.6	10	59	12	19	5.1	e6.0	8.1	7.4	e5.5	14	5.9
5	9.6	9.3	86	12	14	e5.6	e5.9	e5.3	e4.9	7.3	34	5.3
6	9.2	8.6	42	13	e12	5.6	5.2	4.6	e4.1	5.4	19	5.7
7	11	9.1	26	8.7	e11	5.4	5.8	4.5	e3.5	5.4	14	6.3
8	10	12	22	9.3	e11	5.1	16	e41	53	8.8	13	7.3
9	8.8	e22	22	16	10	5.1	18	9.1	5.3	16	9.4	6.6
10	8.0	22	21	32	11	6.3	7.5	5.3	e9.0	6.4	8.6	6.5
11	8.3	59	e37	16	e11	5.0	6.2	4.9	4.7	6.6	10	7.6
12	30	58	36	9.8	e22	e5.4	5.7	4.8	17	e9.5	8.3	5.8
13	9.9	47	31	16	18	e5.2	5.4	4.6	11	16	9.6	39
14	51	19	23	47	12	e5.1	e5.2	e4.5	4.8	34	7.5	15
15	9.0	e14	15	54	e10	5.1	e5.3	e4.3	6.3	e30	12	8.8
16	30	12	20	18	9.8	5.0	e5.2	e4.2	11	e11	14	7.4
17	11	11	14	15	9.0	e4.8	5.0	e4.1	53	16	18	9.6
18	10	10	12	15	9.1	4.6	5.0	4.0	11	e8.9	37	16
19	8.2	11	11	9.2	9.0	e5.0	5.1	e6.1	6.6	5.5	28	16
20	25	14	28	7.7	8.8	5.1	e5.3	5.7	41	5.8	16	20
21	55	22	17	9.7	e7.5	5.0	e5.1	e4.2	9.6	6.4	17	8.9
22	144	15	14	11	e6.9	5.1	5.3	4.0	e7.6	5.4	83	6.6
23	32	22	20	22	6.4	6.0	9.9	e4.3	e9.2	14	56	5.9
24	14	25	13	14	6.3	64	e14	7.1	e5.5	18	e22	6.7
25	e23	16	24	15	6.3	22	6.8	5.3	e4.7	e13	e16	14
26	27	12	34	e11	6.6	15	5.7	e4.2	4.5	e14	e27	25
27	e49	13	36	7.7	5.7	7.7	e5.7	3.9	4.6	e9.1	e21	23
28	17	78	86	e44	5.7	e14	5.8	e3.9	4.7	e11	16	72
29	13	31	47	14	---	8.3	5.4	3.7	6.4	e7.0	24	14
30	13	63	14	13	---	e6.3	5.1	3.6	4.7	26	11	12
31	21	---	16	12	---	5.7	---	e3.5	---	10	7.3	---
TOTAL	697.5	703.0	1169	533.1	334.1	263.5	215.5	187.8	335.1	377.5	622.3	409.7
MEAN	22.5	23.4	37.7	17.2	11.9	8.50	7.18	6.06	11.2	12.2	20.1	13.7
MAX	144	78	127	54	41	64	18	41	53	34	83	72
MIN	8.0	8.6	11	7.7	5.7	4.6	5.0	3.5	3.5	5.4	7.3	5.3
AC-FT	1380	1390	2320	1060	663	523	427	373	665	749	1230	813
CFSM	17.9	18.6	29.9	13.6	9.47	6.75	5.70	4.81	8.87	9.66	15.9	10.8
IN.	20.59	20.76	34.51	15.74	9.86	7.78	6.36	5.54	9.89	11.15	18.37	12.10

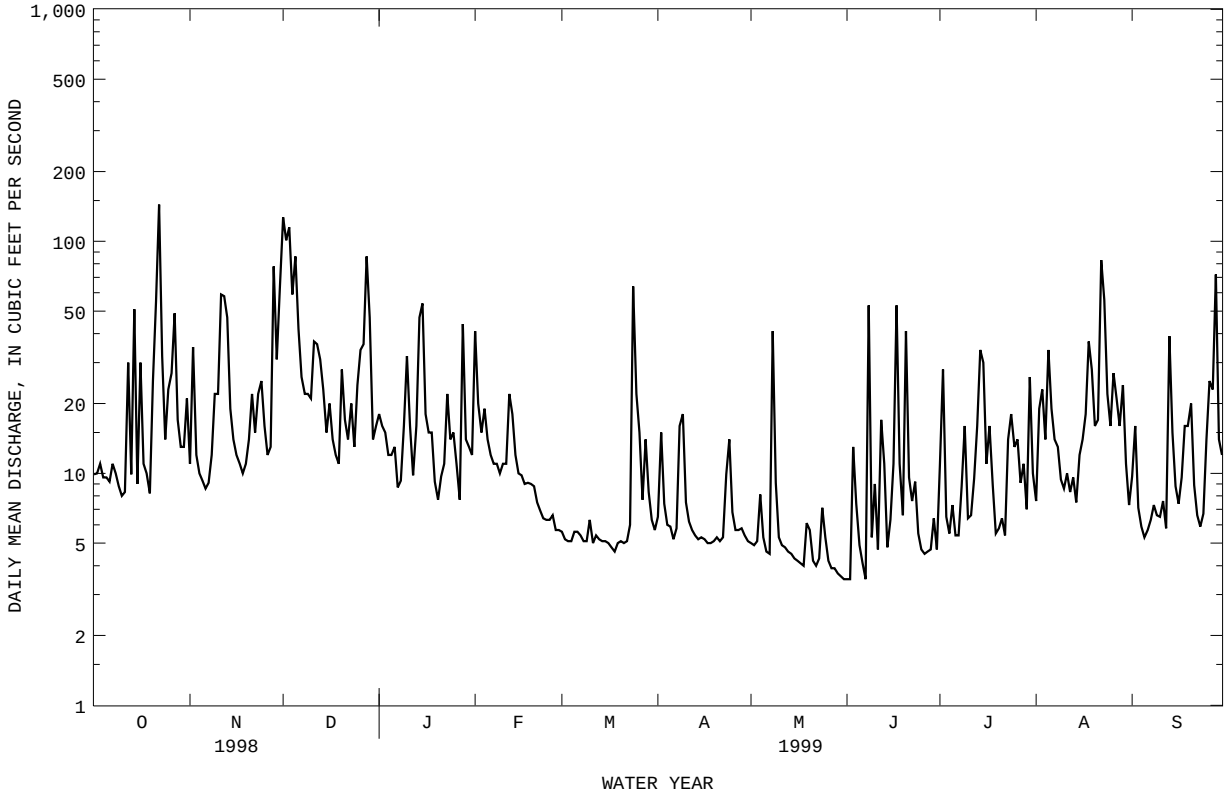
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1999, BY WATER YEAR (WY)

MEAN	15.8	19.3	16.0	14.3	14.2	10.4	11.9	16.0	12.6	13.7	15.1	18.5
MAX	32.1	46.8	37.7	28.4	44.0	26.2	34.4	26.4	23.7	38.9	24.5	51.7
(WY)	1986	1951	1999	1996	1950	1949	1950	1948	1996	1952	1945	1996
MIN	4.78	8.00	4.99	6.65	4.86	3.90	4.77	6.06	5.19	7.21	5.91	7.03
(WY)	1993	1948	1990	1994	1983	1951	1984	1999	1985	1994	1993	1986

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1945 - 1999	
ANNUAL TOTAL	7132.6		5848.1			
ANNUAL MEAN	19.5		16.0		14.8	
HIGHEST ANNUAL MEAN					21.0	1952
LOWEST ANNUAL MEAN					8.00	1994
HIGHEST DAILY MEAN	254	Sep 21	144	Oct 22	737	Sep 10 1996
LOWEST DAILY MEAN	4.1	Apr 11	3.5	May 31	1.5	Mar 22 1946
ANNUAL SEVEN-DAY MINIMUM	4.6	Feb 27	3.7	May 27	2.0	Apr 7 1946
INSTANTANEOUS PEAK FLOW			771	Jun 8	2860	Apr 21 1983
INSTANTANEOUS PEAK STAGE			5.64	Jun 8	8.96	Apr 21 1983
INSTANTANEOUS LOW FLOW			3.1	Jun 2	2.5	Jul 6 1997
ANNUAL RUNOFF (AC-FT)	14150		11600		10730	
ANNUAL RUNOFF (CFSM)	15.5		12.7		11.8	
ANNUAL RUNOFF (INCHES)	210.58		172.66		159.72	
10 PERCENT EXCEEDS	38		34		30	
50 PERCENT EXCEEDS	11		10		8.5	
90 PERCENT EXCEEDS	5.7		5.0		4.6	

e Estimated

50075000 RIO ICACOS NEAR NAGUABO, PR--Continued



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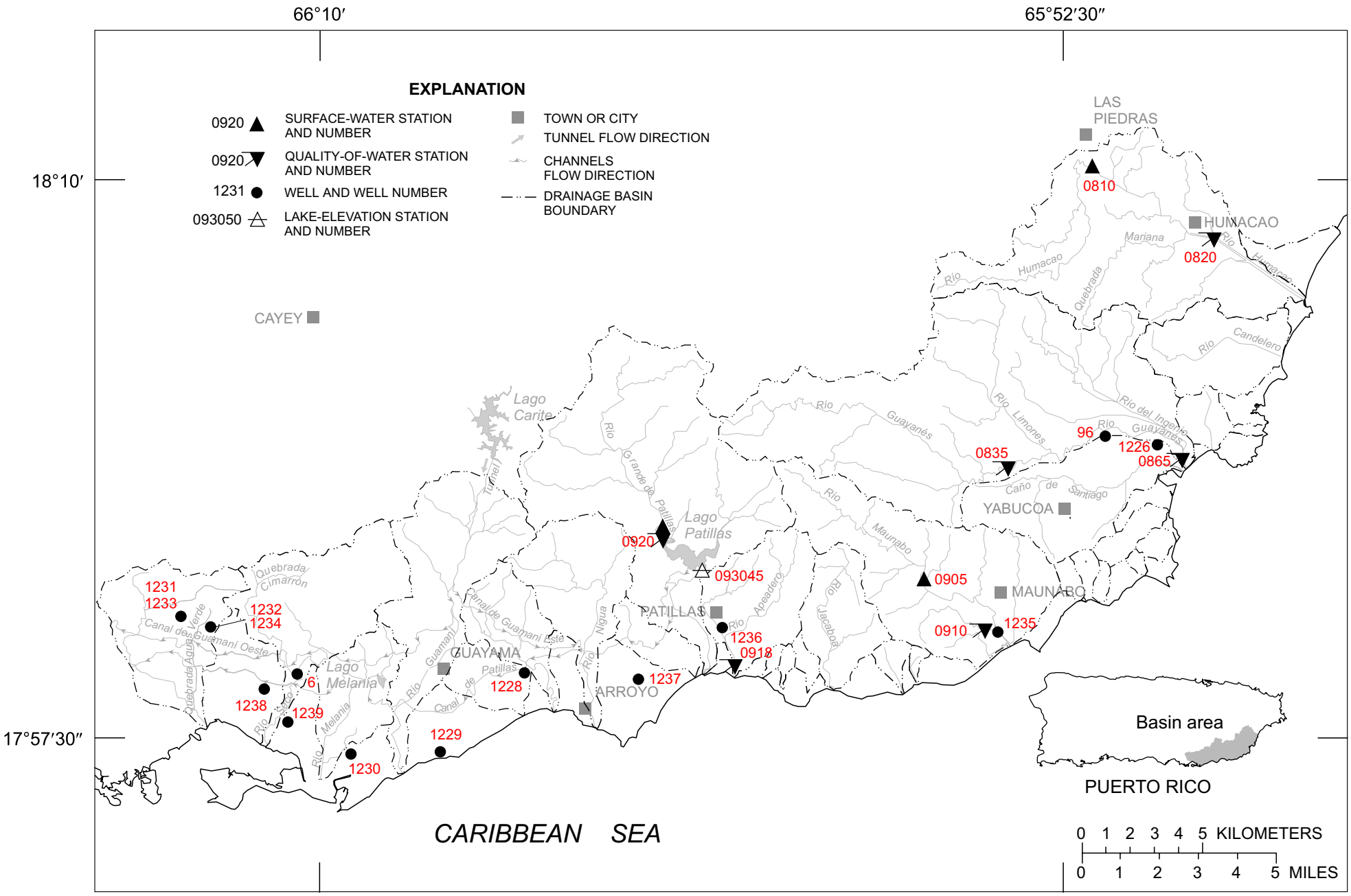


Figure 20. Southeastern river basins -- Río Humacao to Quebrada Aguas Verdes basins.

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^2 (17.22 km^2).

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 and crest-stage gage. 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 for estimated daily discharges, and above 1,000 ft^3/s (28.3 m^3/s), which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	23	201	30	24	15	11	7.2	5.5	84	13	11
2	42	22	73	28	24	15	12	6.8	6.2	230	13	10
3	43	21	86	30	23	14	13	6.8	6.4	31	18	10
4	37	21	109	38	23	14	13	7.1	e12	18	15	10
5	36	22	56	27	24	14	10	6.4	e8.2	15	14	9.7
6	34	61	47	25	21	14	10	6.3	e7.2	14	13	9.6
7	33	24	53	24	21	13	9.9	13	e6.4	16	25	11
8	32	21	37	24	21	13	9.8	19	12	28	16	13
9	30	20	36	26	21	13	10	14	11	17	14	9.9
10	30	20	34	63	21	13	9.9	8.6	12	13	13	9.6
11	29	108	45	36	21	12	9.8	8.0	8.9	21	13	15
12	29	68	32	e27	25	12	9.5	8.1	19	14	12	10
13	28	220	31	e26	24	12	9.3	e9.7	24	15	12	200
14	90	86	43	e25	23	11	8.9	e7.6	10	95	11	39
15	33	46	32	200	21	11	8.8	e6.8	11	36	18	24
16	28	44	32	77	19	11	8.4	e6.1	65	25	16	20
17	33	48	43	43	19	11	7.9	6.5	55	71	12	18
18	28	37	32	46	19	11	8.2	6.6	61	29	12	18
19	47	34	e31	31	18	11	8.2	6.8	154	21	18	21
20	235	36	e30	30	18	11	7.9	16	24	18	21	17
21	138	41	e29	30	18	11	8.0	7.9	15	18	13	16
22	873	32	29	30	18	11	7.7	8.1	13	18	14	14
23	144	31	30	34	17	16	8.7	9.4	12	26	20	15
24	52	39	28	31	16	17	12	8.0	9.6	18	25	16
25	e38	33	29	28	16	14	8.5	7.8	8.6	18	16	16
26	e38	30	27	29	16	17	7.6	6.4	8.0	15	13	18
27	e60	31	45	27	16	12	7.4	6.0	8.0	15	13	20
28	35	39	81	26	16	12	8.6	6.3	7.7	14	18	92
29	29	32	142	25	---	12	8.5	5.8	8.9	14	14	51
30	28	30	47	24	---	14	7.7	5.6	9.5	14	12	21
31	25	---	31	23	---	11	---	5.5	---	14	13	---
TOTAL	2403	1320	1601	1163	563	398	280.2	254.2	619.1	995	470	764.8
MEAN	77.5	44.0	51.6	37.5	20.1	12.8	9.34	8.20	20.6	32.1	15.2	25.5
MAX	873	220	201	200	25	17	13	19	154	230	25	200
MIN	25	20	27	23	16	11	7.4	5.5	5.5	13	11	9.6
AC-FT	4770	2620	3180	2310	1120	789	556	504	1230	1970	932	1520
CFSM	11.7	6.62	7.77	5.64	3.02	1.93	1.40	1.23	3.10	4.83	2.28	3.83
IN.	13.44	7.38	8.96	6.51	3.15	2.23	1.57	1.42	3.46	5.57	2.63	4.28

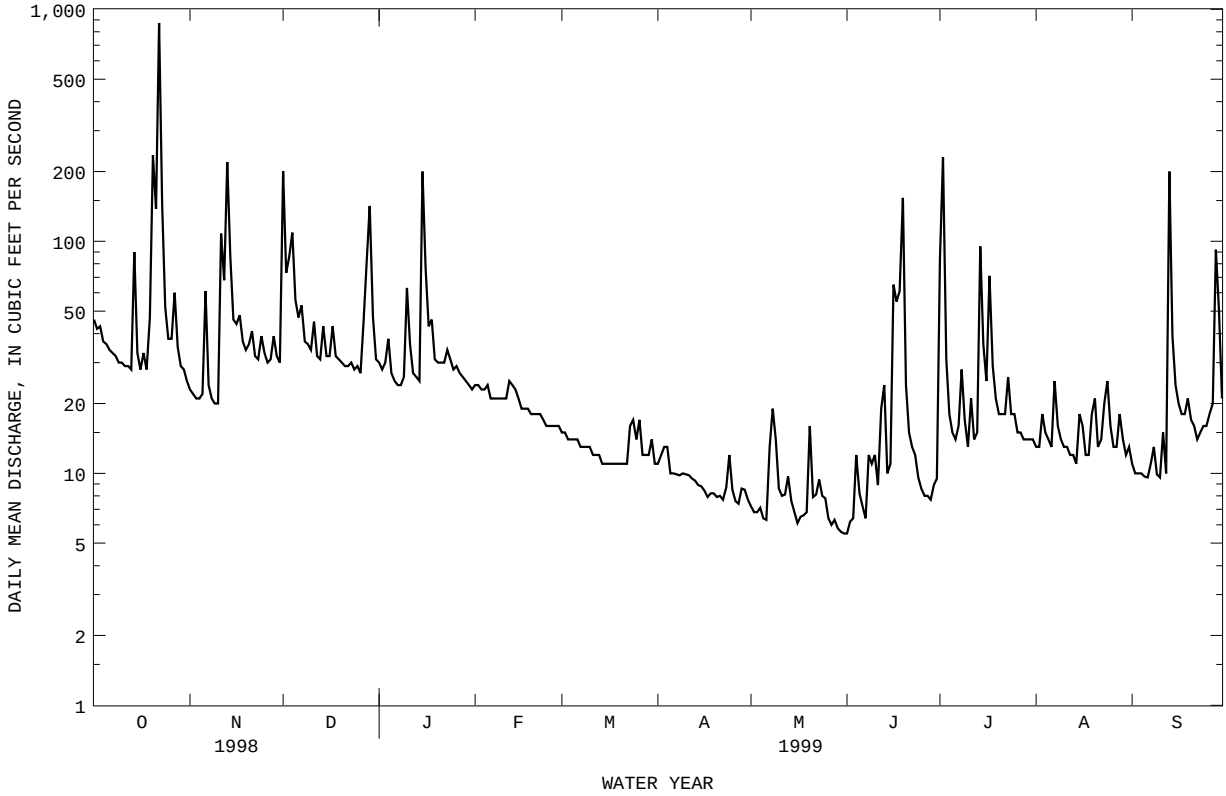
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1999, BY WATER YEAR (WY)

MEAN	32.9	36.9	30.4	21.4	16.5	11.9	9.72	13.7	17.4	20.3	20.5	38.0
MAX	77.5	126	112	37.5	22.2	16.4	15.1	42.2	41.1	38.1	34.7	121
(WY)	1999	1988	1988	1999	1997	1989	1997	1992	1996	1993	1996	1996
MIN	12.8	13.4	11.5	10.5	11.0	8.87	5.88	7.26	5.91	7.95	9.45	10.0
(WY)	1995	1996	1992	1995	1977	1996	1977	1990	1977	1990	1974	1990

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1974 - 1999	
ANNUAL TOTAL	12486.5		10831.3			
ANNUAL MEAN	34.2		29.7		22.6	
HIGHEST ANNUAL MEAN					37.6	1988
LOWEST ANNUAL MEAN					12.1	1990
HIGHEST DAILY MEAN	873	Oct 22	873	Oct 22	2010	Sep 10 1996
LOWEST DAILY MEAN	9.0	Aug 6	5.5	May 31	2.2	Jul 15 1974
ANNUAL SEVEN-DAY MINIMUM	9.1	Aug 2	5.8	May 27	2.8	Jul 19 1974
INSTANTANEOUS PEAK FLOW			5540	Oct 22	20800	Sep 6 1960
INSTANTANEOUS PEAK STAGE			10.50	Oct 22	34.40	Sep 6 1960
ANNUAL RUNOFF (AC-FT)	24770		21480		16380	
ANNUAL RUNOFF (CFSM)	5.14		4.46		3.40	
ANNUAL RUNOFF (INCHES)	69.85		60.59		46.20	
10 PERCENT EXCEEDS	56		47		33	
50 PERCENT EXCEEDS	18		18		14	
90 PERCENT EXCEEDS	10		8.0		7.3	

e Estimated

50081000 RIO HUMACAO AT LAS PIEDRAS, PR--Continued



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 Humacao.

DRAINAGE AREA.--17.3 mi^2 (44.8 km^2).

PERIOD OF RECORD.--Water years 1958-66, 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
17...	1130	118	216	7.4	27.5	110	6.8	85	<10	37000	7300
MAR											
02...	1300	20	335	7.9	29.7	73	7.4	96	<10	450	670
MAY											
21...	1630	8.1	321	7.6	31.7	25	6.8	93	<10	21000	3400

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
17...	64	17	5.2	17	.9	2.1	69	<1.0	6.8	19
MAR										
02...	--	--	--	--	--	--	98	--	--	--
MAY										
21...	95	26	7.5	27	1	1.9	100	<1.0	11	31

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
17...	<.10	32	141	44.9	158	.814	.016	.830	.110	1.3
MAR										
02...	--	--	--	--	58	.690	.010	.700	.040	.18
MAY										
21...	.11	37	201	4.40	13	.420	.010	.430	.080	--

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
17...	1.4	2.2	9.9	.190	1	<100	20	<1	2	15
MAR										
02...	.22	.92	4.1	.160	--	--	--	--	--	--
MAY										
21...	E.28	--	--	E.080	<1	20	80	<1	<1	<12

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)
DEC										
17...	6600	5	430	<.10	<1	<1	40	<.010	<4	<.02
MAR										
02...	--	--	--	--	--	--	--	--	--	--
MAY										
21...	110	<1	8	<.10	<1	<1	E20	<.010	6	.05

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^2 (44.6 km^2).

PERIOD OF RECORD.--Water years 1958-62, 1968-70, 1980 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
17...	1430	89	180	7.1	26.0	28	6.5	80	<10	4600	2500
MAR											
03...	1630	32	183	7.6	27.4	24	6.8	85	<10	510	260
MAY											
20...	1635	30	170	7.4	29.9	23	6.5	86	<10	2000	530

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
17...	49	12	4.3	14	.9	1.9	52	<1.0	4.4	13
MAR										
03...	--	--	--	--	--	--	65	--	--	--
MAY										
20...	49	12	4.4	15	.9	1.7	56	<1.0	3.5	14

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
17...	<.10	33	114	27.4	26	.658	.012	.670	.040	.28
MAR										
03...	--	--	--	--	41	--	<.010	.350	.040	--
MAY										
20...	.15	33	117	9.42	48	.550	.010	.560	.040	--

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
17...	.32	.99	4.4	.060	<1	<100	10	<1	<1	<10
MAR										
03...	<.20	--	--	<.020	--	--	--	--	--	--
MAY										
20...	E.32	--	--	E.080	<1	60	30	<1	<1	E9

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)
DEC										
17...	1700	<1	94	<.10	<1	<1	10	<.010	<4	.02
MAR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
20...	2100	<1	140	<.10	<1	<1	<40	<.010	<4	<.02

RIO GUAYANES BASIN

50083500 RIO GUAYANES AT YABUCOA, PR--Contined

WATER-QUALITY RECORDS

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLORDANE, TECHNICAL TOTAL (UG/L) (39350)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DIAZINON, TOTAL (UG/L) (39570)	DIELDRIN TOTAL (UG/L) (39380)	ENDOSULFAN I TOTAL (UG/L) (39388)
MAY 1999										
20...	1635	<.100	<.010	<.100	<.010	<.010	<.010	<.010	<.010	<.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TRITHION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)
MAY 1999										
20...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010

DATE	PARATHION, TOTAL (UG/L) (39540)	PCNS UNFILT RECOVER (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)	TOXAPHENE, TOTAL (UG/L) (39400)	TOTAL TRITHION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	2,4-DP TOTAL (UG/L) (82183)	SILVEX, TOTAL (UG/L) (39760)
MAY 1999									
20...	<.010	<.100	<.100	<1.00	<.010	.043	<.010	<.010	<.010

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 mi^2 (88.1 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616)	STREPTOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC										
21...	1230	284	7.4	25.0	17	5.3	64	14	3200	1130
MAR										
02...	1540	317	7.9	26.5	6.5	6.2	75	10	340	640
MAY										
21...	1330	302	7.9	31.1	13	2.4	32	<10	250	92

DATE	HARDNESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
DEC										
21...	83	21	7.4	25	1	3.5	97	<1.0	8.1	27
MAR										
02...	--	--	--	--	--	--	100	--	--	--
MAY										
21...	63	16	5.8	25	1	2.3	72	<1.0	4.9	24

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
DEC										
21...	.16	32	184	50	.694	.026	.720	.140	.41	.55
MAR										
02...	--	--	--	11	--	<.010	.440	.060	.26	.32
MAY										
21...	.21	37	158	16	--	<.010	.250	.030	--	<.20

DATE	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOVERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)
DEC										
21...	1.3	5.6	.130	<1	<100	20	<1	<1	<10	2700
MAR										
02...	.76	3.4	.050	--	--	--	--	--	--	--
MAY										
21...	--	--	E.070	<1	50	30	<1	<1	<12	1200

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	CYANIDE TOTAL (MG/L AS CN) (00720)	PHENOLS TOTAL (UG/L) (32730)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L) (38260)
DEC									
21...	<1	510	<.10	<1	<1	<10	<.010	<4	.03
MAR									
02...	--	--	--	--	--	--	--	--	--
MAY									
21...	<1	180	<.10	<1	<1	<40	<.010	<4	.22

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 Lizas, about 1.0 mi (1.6 km) downstream from Quebrada Coroco, and about 3.0 mi (4.8 km) northwest of Maunabo.

DRAINAGE AREA.--5.38 mi^2 (13.93 km^2).

PERIOD OF RECORD.--February 1971 to January 1985, February 1991 to current year.

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

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	e31	47	38	19	10	8.8	5.4	e3.2	8.6	4.2	6.8
2	28	29	40	39	18	9.9	56	5.3	3.2	55	4.1	5.8
3	38	38	116	32	18	10	15	5.5	3.2	10	5.7	5.5
4	36	33	100	29	18	11	10	5.3	3.8	6.0	7.5	5.4
5	26	31	223	27	17	11	7.8	4.5	4.2	4.6	60	5.3
6	23	32	60	25	16	9.7	6.8	4.3	3.5	4.2	11	5.5
7	22	35	46	25	16	9.4	6.3	4.1	3.6	5.8	18	5.4
8	21	29	40	31	16	9.2	6.7	4.5	3.6	8.2	14	11
9	20	26	38	36	15	9.0	6.9	5.1	3.4	6.6	8.6	9.8
10	20	27	38	53	16	8.9	6.4	4.4	3.8	4.6	7.4	5.7
11	19	40	39	36	15	8.8	6.4	4.2	3.5	4.7	8.8	5.9
12	20	43	32	29	16	8.9	6.3	4.4	4.1	9.6	6.8	6.0
13	20	44	29	27	15	8.9	6.2	6.4	6.4	9.6	6.9	40
14	42	41	45	39	14	8.5	6.0	4.5	5.1	20	6.8	126
15	19	36	28	108	14	8.7	6.2	4.1	4.5	57	9.0	22
16	25	40	27	61	13	8.7	6.2	4.0	9.1	13	12	13
17	18	34	26	36	13	8.6	6.5	3.9	36	16	8.4	11
18	17	32	24	32	13	8.3	6.5	3.8	12	11	6.4	94
19	19	e29	24	28	13	8.5	6.5	3.8	18	6.9	8.4	34
20	104	29	23	27	12	8.6	5.8	8.9	22	5.9	6.8	15
21	87	34	27	27	12	8.5	5.9	4.3	9.6	5.4	6.0	12
22	379	e27	22	26	12	8.7	5.4	4.1	6.4	4.6	38	10
23	95	e31	21	27	11	e8.7	6.5	4.1	6.2	5.2	50	9.8
24	118	28	21	24	11	e54	7.6	4.3	4.6	4.6	21	11
25	57	26	26	23	11	e13	5.8	4.0	4.2	5.0	12	13
26	47	24	22	22	11	11	5.4	3.7	3.9	4.5	9.5	14
27	e47	30	34	21	11	11	5.4	3.5	4.1	5.2	7.6	44
28	40	29	75	21	11	11	5.3	3.6	4.1	5.7	15	125
29	36	26	89	20	---	10	5.3	3.5	3.9	4.1	17	27
30	35	25	65	19	---	10	5.4	3.4	3.7	4.8	9.5	20
31	33	---	43	19	---	9.2	---	3.4	---	5.2	8.1	---
TOTAL	1537	959	1490	1007	397	339.7	251.3	138.3	206.9	321.6	414.5	718.9
MEAN	49.6	32.0	48.1	32.5	14.2	11.0	8.38	4.46	6.90	10.4	13.4	24.0
MAX	379	44	223	108	19	54	56	8.9	36	57	60	126
MIN	17	24	21	19	11	8.3	5.3	3.4	3.2	4.1	4.1	5.3
AC-FT	3050	1900	2960	2000	787	674	498	274	410	638	822	1430
CFSM	9.22	5.94	8.93	6.04	2.64	2.04	1.56	.83	1.28	1.93	2.49	4.45
IN.	10.63	6.63	10.30	6.96	2.75	2.35	1.74	.96	1.43	2.22	2.87	4.97

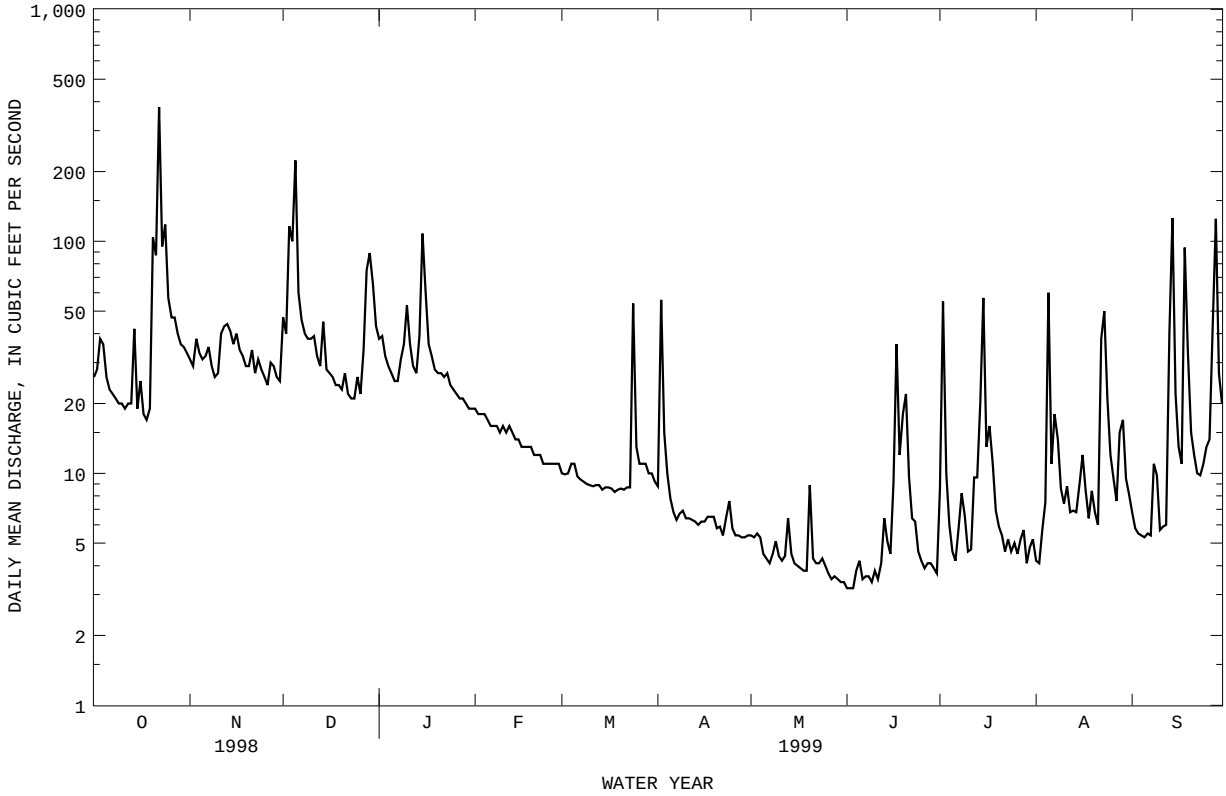
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1999, BY WATER YEAR (WY)

MEAN	28.9	31.1	19.2	15.2	12.8	10.0	7.53	12.6	17.3	17.1	22.8	29.7
MAX	52.6	88.9	48.1	40.2	24.5	18.9	13.4	25.1	47.1	40.2	131	94.6
(WY)	1979	1978	1999	1998	1982	1976	1998	1979	1979	1993	1979	1996
MIN	10.4	7.46	8.74	7.79	6.10	4.32	3.92	4.46	4.40	3.70	6.18	7.99
(WY)	1994	1982	1994	1981	1979	1979	1979	1999	1974	1974	1974	1980

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1971 - 1999	
ANNUAL TOTAL	10756.7		7781.2			
ANNUAL MEAN	29.5		21.3		18.8	
HIGHEST ANNUAL MEAN					36.7	1979
LOWEST ANNUAL MEAN					10.8	1994
HIGHEST DAILY MEAN	670	Sep 22	379	Oct 22	2480	Aug 31 1979
LOWEST DAILY MEAN	6.1	Aug 5	3.2	Jun 1	2.2	Jul 16 1974
ANNUAL SEVEN-DAY MINIMUM	7.5	Aug 2	3.4	May 28	2.8	Jul 11 1974
INSTANTANEOUS PEAK FLOW			2080	Dec 5	9950	Sep 20 1994
INSTANTANEOUS PEAK STAGE			9.73	Dec 5	17.46	Sep 20 1994
ANNUAL RUNOFF (AC-FT)	21340		15430		13610	
ANNUAL RUNOFF (CFSM)	5.48		3.96		3.49	
ANNUAL RUNOFF (INCHES)	74.38		53.80		47.45	
10 PERCENT EXCEEDS	44		40		34	
50 PERCENT EXCEEDS	17		11		11	
90 PERCENT EXCEEDS	8.9		4.2		5.3	

e Estimated

50090500 RIO MAUNABO AT LIZAS, PR--Continued



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 mi^2 (32.1 km^2).

PERIOD OF RECORD.--Water years 1958-66, 1975 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
21...	0945	63	237	7.4	24.5	32	7.6	90	<10	K16000	K20000
MAR											
03...	1315	18	277	8.0	30.2	23	7.9	102	<10	400	<110
MAY											
20...	1325	20	245	7.6	30.3	45	6.9	90	<10	20000	K11000

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
21...	70	17	6.5	18	.9	2.0	72	<1.0	8.0	22
MAR										
03...	--	--	--	--	--	--	89	--	--	--
MAY										
20...	74	18	7.1	20	1	1.8	77	<1.0	10	22

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
21...	<.10	32	149	25.2	67	.849	.011	.860	.060	.48
MAR										
03...	--	--	--	--	34	--	<.010	.330	.030	--
MAY										
20...	.13	30	155	8.32	201	.350	.010	.360	.040	--

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
21...	.54	1.4	6.2	.080	<1	<100	10	<1	<1	<10
MAR										
03...	<.20	--	--	.020	--	--	--	--	--	--
MAY										
20...	E.67	--	--	E.180	<1	90	30	<1	2	24

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)
DEC										
21...	2000	1	83	<.10	<1	<1	10	<.010	<4	.03
MAR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
20...	6700	2	200	<.10	<1	<1	E20	.308	<4	<.08

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 mi^2 (12.8 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
22...	1040	9.0	398	7.5	25.1	2.4	7.4	87	10	2200	<10
MAR											
10...	1610	1.1	545	7.8	29.6	4.0	5.6	72	23	20	73
MAY											
28...	1410	1.3	730	7.8	34.6	11	5.1	70	58	3000	4300
SEP											
23...	1125	1.6	461	7.7	31.8	.71	6.1	84	29	280	4600

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
22...	120	26	12	33	1	2.1	141	<1.0	13	34
MAR										
10...	--	--	--	--	--	--	166	--	--	--
MAY										
28...	100	26	8.8	58	3	10	200	E1.0	48	61
SEP										
23...	84	20	8.4	39	2	4.9	152	--	17	40

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
22...	.12	31	237	5.76	3	.536	.044	.580	1.80	.00
MAR										
10...	--	--	--	--	4	1.95	.750	2.70	15.0	1.0
MAY										
28...	.14	30	362	1.28	13	.270	.830	1.10	32.0	--
SEP										
23...	.16	28	248	1.08	<1	.140	.080	.220	14.0	.00

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
22...	1.8	2.4	11	.340	<1	<100	20	<1	<1	<10
MAR										
10...	16	19	83	E1.90	--	--	--	--	--	--
MAY										
28...	E32	--	--	E4.30	<1	10	180	<1	<1	12
SEP										
23...	14	14	63	1.60	--	--	--	--	--	--

50091800 RIO CHICO AT PROVIDENCIA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
22...	160	<1	28	<.10	<1	<1	<10	<.010	<4	.05
MAR										
10...	--	--	--	--	--	--	--	--	--	--
MAY										
28...	300	<1	72	<.10	<1	1	E30	<.010	<4	.28
SEP										
23...	--	--	--	--	--	--	--	--	--	--

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR

LOCATION.--Lat 18°02'04", long 66°01'58", Hydrologic Unit 21010004, on left bank, 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 km^2).

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 discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e153	73	306	167	43	24	18	14	13	15	20	17
2	e143	73	274	119	41	23	43	14	11	251	22	17
3	e173	61	542	100	39	23	30	14	11	47	27	15
4	e201	55	655	82	38	22	21	18	11	25	28	14
5	e94	60	938	73	38	22	17	15	15	20	46	14
6	e77	59	372	65	36	21	16	14	13	18	23	12
7	e64	68	212	59	35	21	16	14	12	26	27	12
8	e56	48	136	57	34	20	16	55	16	56	37	13
9	e47	44	116	58	34	20	17	30	15	149	22	15
10	e46	41	96	96	37	20	16	16	25	48	19	14
11	e43	81	105	86	34	20	16	14	16	30	18	13
12	e45	195	79	64	46	19	16	15	14	35	17	15
13	e41	490	69	55	41	19	15	17	18	63	17	704
14	e131	257	67	51	35	18	15	13	25	191	16	626
15	e46	137	57	323	33	18	15	13	15	122	17	151
16	e63	90	57	215	33	18	15	12	19	66	17	71
17	e43	140	56	140	31	18	14	11	212	176	16	89
18	e40	77	47	96	31	17	14	11	40	96	15	258
19	e44	61	45	82	30	18	16	11	39	49	31	209
20	641	53	43	75	29	18	15	12	178	39	25	83
21	185	51	40	67	28	18	15	11	54	36	21	55
22	1230	43	37	59	28	17	15	10	28	33	53	43
23	899	40	36	59	27	18	17	9.8	25	36	62	35
24	447	50	37	59	26	41	20	11	20	27	36	46
25	234	41	50	52	26	25	17	9.8	17	27	26	61
26	149	35	35	49	26	22	15	9.4	15	22	21	45
27	336	44	41	47	25	20	15	8.7	15	21	20	164
28	246	52	307	46	24	20	14	8.5	15	20	25	689
29	130	35	676	43	---	22	14	9.1	14	19	24	344
30	99	33	312	41	---	20	14	9.9	14	22	23	144
31	87	---	215	40	---	19	---	12	---	23	18	---
TOTAL	6233	2587	6058	2625	928	641	517	442.2	935	1808	789	3988
MEAN	201	86.2	195	84.7	33.1	20.7	17.2	14.3	31.2	58.3	25.5	133
MAX	1230	490	938	323	46	41	43	55	212	251	62	704
MIN	40	33	35	40	24	17	14	8.5	11	15	15	12
AC-FT	12360	5130	12020	5210	1840	1270	1030	877	1850	3590	1560	7910
CFSM	11.0	4.71	10.7	4.63	1.81	1.13	.94	.78	1.70	3.19	1.39	7.26
IN.	12.67	5.26	12.31	5.34	1.89	1.30	1.05	.90	1.90	3.68	1.60	8.11

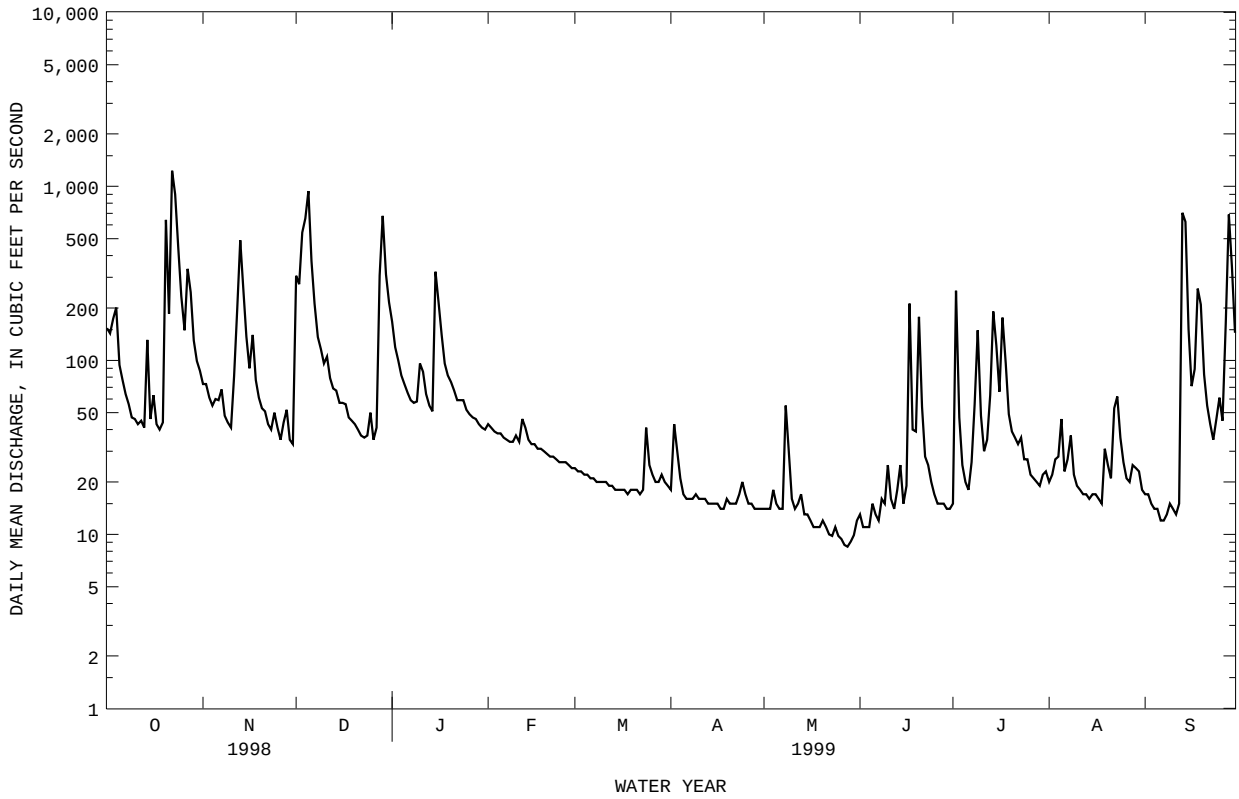
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1999, BY WATER YEAR (WY)

MEAN	100	87.8	54.0	36.8	29.2	25.2	22.3	49.1	62.4	63.2	68.7	99.1
MAX	593	393	195	125	94.6	51.2	44.4	172	200	164	231	432
(WY)	1971	1978	1999	1992	1982	1998	1998	1969	1979	1979	1979	1998
MIN	14.4	16.1	8.63	14.0	7.09	6.74	9.98	10.3	13.1	14.1	17.2	12.1
(WY)	1968	1968	1968	1973	1973	1968	1968	1974	1974	1974	1994	1967

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1966 - 1999	
ANNUAL TOTAL	39685		27551.2			
ANNUAL MEAN	109		75.5		57.7	
HIGHEST ANNUAL MEAN					117	1979
LOWEST ANNUAL MEAN					19.8	1994
HIGHEST DAILY MEAN	4500	Sep 22	1230	Oct 22	4780	Sep 16 1975
LOWEST DAILY MEAN	18	Jul 11	8.5	May 28	4.8	May 9 1968
ANNUAL SEVEN-DAY MINIMUM	19	Jul 9	9.5	May 23	5.0	Apr 10 1968
INSTANTANEOUS PEAK FLOW			2640	Sep 13	30900	Jan 5 1992
INSTANTANEOUS PEAK STAGE			9.27	Sep 13	unknown	Jan 5 1992
INSTANTANEOUS LOW FLOW					4.6	May 13 1968
ANNUAL RUNOFF (AC-FT)	78720		54650		41800	
ANNUAL RUNOFF (CFSM)	5.94		4.12		3.15	
ANNUAL RUNOFF (INCHES)	80.67		56.01		42.84	
10 PERCENT EXCEEDS	205		174		97	
50 PERCENT EXCEEDS	39		34		28	
90 PERCENT EXCEEDS	24		14		12	

e Estimated

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR--Continued



50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
DEC												
22...	1300	37	169	7.2	26.4	.72	7.8	97	<10	K120	K45	50
MAR												
10...	1350	21	184	8.7	26.7	24	8.2	102	<10	220	K180	--
MAY												
28...	1200	8.8	198	8.4	30.0	10	5.4	71	<10	82	K140	62
SEP												
23...	1240	36	168	8.1	30.5	.78	7.3	99	<10	130	K69	48

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
DEC												
22...	12	5.1	13	.8	.63	54	<1.0	9.9	13	<.10	24	110
MAR												
10...	--	--	--	--	--	56	--	--	--	--	--	--
MAY												
28...	15	6.2	17	.9	.55	71	<1.0	15	13	.17	23	132
SEP												
23...	11	4.8	13	.8	.63	52	--	11	12	.10	25	109

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
DEC												
22...	11.0	<1	<.010	.120	.020	<.20	<.020	<1	<100	20	<1	<1
MAR												
10...	--	22	<.010	.030	.010	<.20	E.060	--	--	--	--	--
MAY												
28...	3.14	4	<.010	.020	<.010	<.20	<.020	<1	10	30	<1	<1
SEP												
23...	10.5	<1	<.010	.100	.010	<.20	<.020	--	--	--	--	--

DATE	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	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)
DEC											
22...	<10	70	<1	<10	<.10	<1	<1	<10	<.010	<4	<.02
MAR											
10...	--	--	--	--	--	--	--	--	--	--	--
MAY											
28...	<12	220	<1	18	<.10	<1	<1	<40	<.010	<4	<.02
SEP											
23...	--	--	--	--	--	--	--	--	--	--	--

50093045 LAGO PATILLAS AT DAMSITE NEAR PATILLAS, PR

LOCATION.--Lat 18°01'15",long 66°01'19",Hydrologic Unit 21010004, on right bank, in a concrete tower at Damsite, 1.05 mi (1.69 km) northeast from Patillas plaza, 0.45 mi (0.72 km) northeast from Escuela Segunda Unidad de Real and 2.30 mi (3.70 km) from Escuela Segunda Unidad de Jesús María Rodríguez.

DRAINAGE AREA.--25.2 mi^2 (65.3 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--March 1995 to current year.

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

REMARKS.--Lago Patillas was completed in 1914. The dam is a semihydraulic earthfill structure about 147 ft (45 m) height, a top width of 15 ft (4.6 m), maximum pool elevation of 230 ft (70.1 m), a base width of 625 ft (190 m), a crest lenght of 1,067 ft (325 m) and has maximum pool storage of 17,073 ac-ft (21.05 hm^3). The Patillas Dam is owned by the Puerto Rico Electric Power Authority (P.R.E.P.A) and its primary purpose is for irrigation of lands served by the Patillas irrigation canal. Gage-height and precipitation satellite telemetry at station. New capacity table based on U.S. Geological Survey Water-Resources Investigations Report 99-4030, April,1997.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 225.92 ft (68.86 m) Sept. 10, 1996; minimum elevation, 211.19 ft (64.37 m), May 29, 1995, July 19, 1997.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximun elevation, 223.41 ft (68.10 m), Dec. 28; minimum elevation, 213.68 ft (65.13 m), June 16.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 99-4030,Puerto Rico-1997)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
147	0	192	4,281
163	819	209	7,629
179	2,294	222	11,220

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	221.85	221.49	221.78	221.76	221.73	221.19	220.18	218.13	214.68	216.05	220.78	221.50
2	221.79	221.37	221.07	221.29	221.72	221.17	220.49	218.02	214.58	217.76	220.65	221.43
3	221.87	221.29	221.53	220.91	221.84	221.14	220.59	217.87	214.47	217.92	220.59	221.34
4	221.81	221.21	222.07	221.14	221.89	221.12	220.57	217.85	214.38	217.95	220.62	221.27
5	221.73	221.19	221.21	221.59	221.78	221.09	220.54	217.77	214.32	217.92	221.01	221.20
6	221.65	221.36	221.23	221.94	221.59	221.04	220.48	217.66	214.22	217.90	220.96	221.12
7	221.57	221.74	221.61	221.97	221.43	221.02	220.43	217.53	214.11	217.90	221.08	221.05
8	221.49	221.93	222.01	221.99	221.40	220.98	220.33	217.59	214.02	218.12	221.15	221.01
9	221.39	221.91	221.98	221.93	221.46	220.96	220.27	217.60	213.94	218.83	221.14	220.98
10	221.30	221.84	221.88	221.98	221.56	220.97	220.18	217.50	214.00	218.99	221.16	220.90
11	221.20	221.99	221.83	221.31	221.59	220.87	220.11	217.35	213.90	219.09	221.12	220.87
12	221.19	222.04	221.65	221.28	221.76	220.80	220.01	217.35	213.86	219.23	221.09	220.88
13	221.33	221.70	221.50	221.61	221.84	220.73	219.95	217.28	213.80	219.56	221.00	221.14
14	222.01	221.12	221.45	221.94	221.83	220.67	219.83	217.19	213.81	220.60	220.92	221.20
15	221.81	220.97	221.60	222.03	221.82	220.60	219.72	217.04	213.74	221.66	220.86	221.35
16	221.69	221.28	221.86	221.98	221.79	220.49	219.64	216.95	213.74	221.91	220.95	221.61
17	221.53	221.89	221.97	221.24	221.70	220.44	219.56	216.76	214.81	221.71	220.90	221.99
18	221.41	221.89	221.86	220.83	221.62	A	219.42	216.59	214.99	220.46	220.83	221.96
19	221.42	221.66	221.77	221.13	221.39	A	219.36	216.44	215.26	220.29	220.93	221.03
20	220.61	221.48	221.70	221.59	221.30	A	219.26	216.38	216.23	220.41	220.93	221.19
21	220.69	221.35	221.65	221.94	221.23	A	219.18	216.24	216.46	220.52	220.83	221.40
22	221.41	221.22	221.61	221.98	221.20	A	219.03	216.05	216.53	220.32	221.07	221.54
23	221.95	221.09	221.56	221.86	221.22	A	218.96	215.91	216.57	220.70	221.51	221.62
24	221.09	221.16	221.64	221.76	221.21	220.31	218.91	215.86	216.53	220.76	221.63	221.80
25	221.41	221.17	221.88	221.67	221.20	220.33	218.84	215.67	216.44	220.79	221.70	221.97
26	221.98	221.16	221.91	221.66	221.20	220.30	218.73	215.63	216.37	220.83	221.69	221.94
27	221.64	221.25	222.00	221.81	221.20	220.30	218.59	215.48	216.33	220.79	221.65	222.05
28	221.52	221.37	221.71	221.91	221.20	220.30	218.53	215.31	216.24	220.73	221.70	221.26
29	221.97	221.38	222.06	221.89	---	220.28	218.41	215.14	216.15	220.69	221.67	221.62
30	221.82	221.47	221.61	221.83	---	220.26	218.25	214.95	216.06	220.84	221.64	222.02
31	221.66	---	221.98	221.78	---	220.21	---	214.78	---	220.82	221.58	---
MAX	222.01	222.04	222.07	222.03	221.89	---	220.59	218.13	216.57	221.91	221.70	222.05
MIN	220.61	220.97	221.07	220.83	221.20	---	218.25	214.78	213.74	216.05	220.59	220.87

A No gage-height record

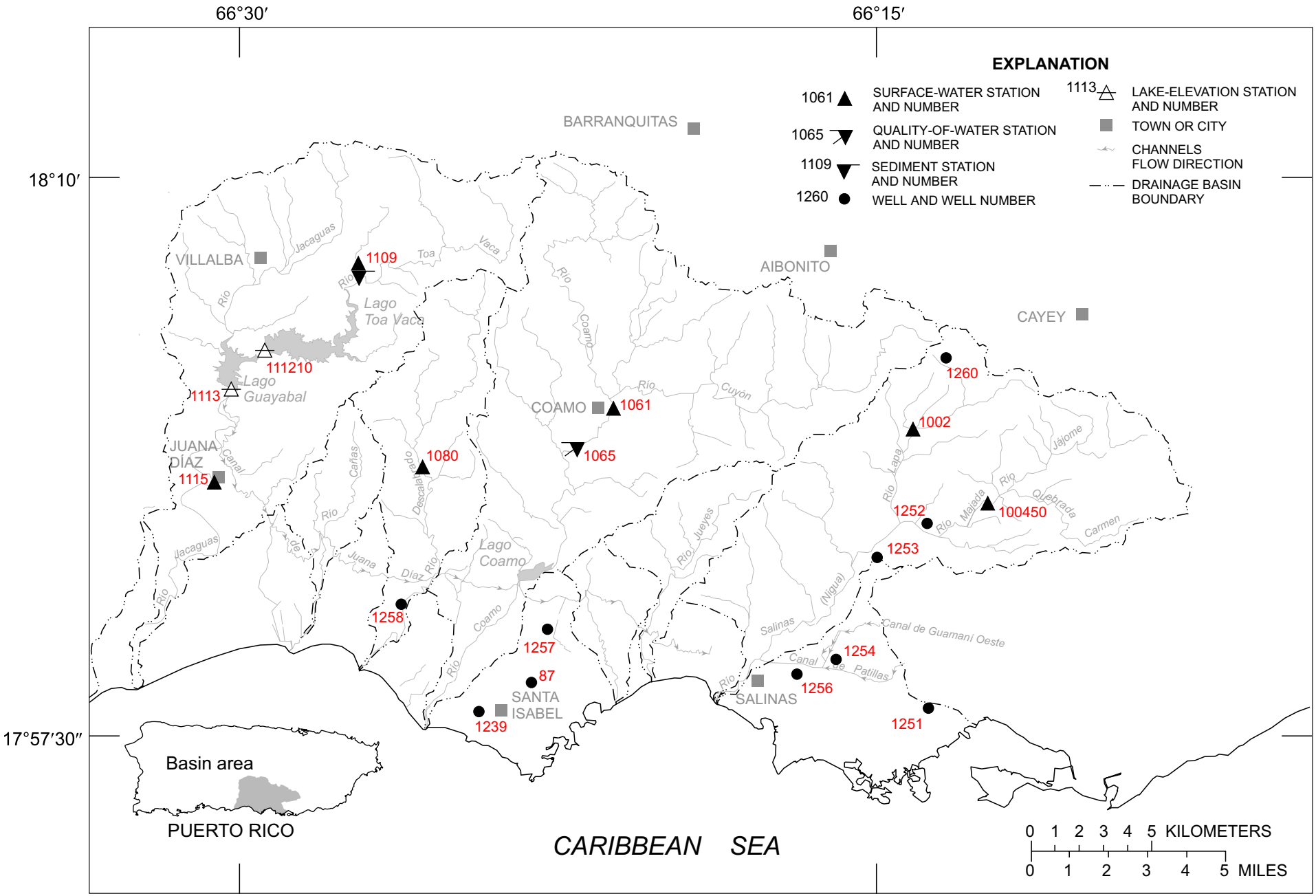


Figure 21. South coast river basins -- Río Salinas to Río Jacaguas basins.

50100200 RIO LAPAS 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 mi^2 (25.69 km^2).

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 poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e22	e16	e10	e11	5.5	3.3	1.9	1.8	2.4	.77	.96	1.3
2	e19	e16	e11	e10	5.7	3.5	1.9	1.7	1.7	4.9	.87	1.2
3	e17	e17	e13	e9.0	5.5	3.2	2.5	1.7	1.4	2.3	.79	1.2
4	e15	e17	e15	e8.0	5.2	3.1	2.9	1.7	1.3	1.3	.78	1.2
5	e13	e17	e14	e7.6	5.2	2.9	2.1	1.8	1.3	.99	.73	2.0
6	e12	e18	e13	e7.4	5.0	2.8	1.9	1.8	1.3	.82	.76	1.7
7	e11	e20	e12	e8.6	4.7	2.8	1.8	2.1	1.2	.69	.74	1.5
8	e11	e19	e11	e8.4	4.5	2.8	1.8	7.1	10	.83	.87	1.4
9	e10	e18	e11	e8.8	4.5	2.9	1.8	7.4	4.7	1.1	.85	3.0
10	e10	e17	e11	e9.0	4.5	2.9	1.8	6.3	2.7	.78	.73	1.9
11	e9.8	e17	e11	e8.6	4.4	2.7	1.8	4.0	2.0	.88	.73	1.8
12	e10	e18	e10	e7.4	4.3	2.6	1.9	3.2	1.7	.84	.72	1.6
13	e9.7	e40	e10	e7.2	4.3	2.6	1.9	2.8	1.5	.81	.71	66
14	e12	e35	e9.9	e10	4.1	2.5	1.9	2.6	1.3	1.0	.73	69
15	e11	e30	e9.8	e17	3.9	2.5	2.0	2.6	1.2	.99	.77	7.1
16	e11	e20	e9.7	e12	3.6	2.4	2.0	2.5	1.2	.92	.79	4.7
17	e11	e17	e9.6	e10	3.4	2.4	2.0	2.3	1.1	.84	.77	3.5
18	e10	e16	e9.6	e9.0	3.3	2.4	2.1	2.1	1.1	.96	e2.5	23
19	e10	e15	e10	e8.0	3.2	2.3	2.2	2.0	.97	.89	e.83	27
20	e12	e15	e9.8	e7.8	3.1	2.2	2.2	1.8	1.3	.93	.84	14
21	e11	e15	e9.4	e7.2	3.1	2.3	2.1	1.7	1.3	.93	.89	7.3
22	e115	e14	e9.0	e7.0	3.1	2.3	1.9	1.7	1.1	.83	27	5.6
23	e70	e13	e8.8	e6.9	3.0	2.2	1.9	1.6	.93	.81	12	4.9
24	e35	e12	e8.6	e6.8	2.9	2.7	1.9	1.8	.91	.81	4.8	4.4
25	e25	e12	e8.2	e6.7	2.8	2.9	1.9	1.7	.89	.84	2.4	4.0
26	e20	e11	e8.0	e6.6	2.8	2.4	1.9	1.6	.90	.86	1.8	3.6
27	e22	e11	e7.9	e6.4	3.2	2.3	1.8	1.6	.91	.79	1.5	4.2
28	e20	e11	e40	e6.3	3.1	2.1	1.9	1.7	.91	.79	1.5	34
29	e19	e10	e80	6.4	---	2.1	1.9	1.7	.95	.79	2.0	27
30	e18	e10	e30	6.0	---	2.1	1.8	1.6	.86	.88	1.8	11
31	e17	---	e15	5.7	---	2.0	---	1.7	---	.99	1.6	---
TOTAL	618.5	517	445.3	256.8	111.9	80.2	59.4	77.7	51.03	32.86	74.76	340.1
MEAN	20.0	17.2	14.4	8.28	4.00	2.59	1.98	2.51	1.70	1.06	2.41	11.3
MAX	115	40	80	17	5.7	3.5	2.9	7.4	10	4.9	27	69
MIN	9.7	10	7.9	5.7	2.8	2.0	1.8	1.6	.86	.69	.71	1.2
AC-FT	1230	1030	883	509	222	159	118	154	101	65	148	675
CFSM	2.00	1.72	1.44	.83	.40	.26	.20	.25	.17	.11	.24	1.13
IN.	2.30	1.92	1.66	.96	.42	.30	.22	.29	.19	.12	.28	1.27

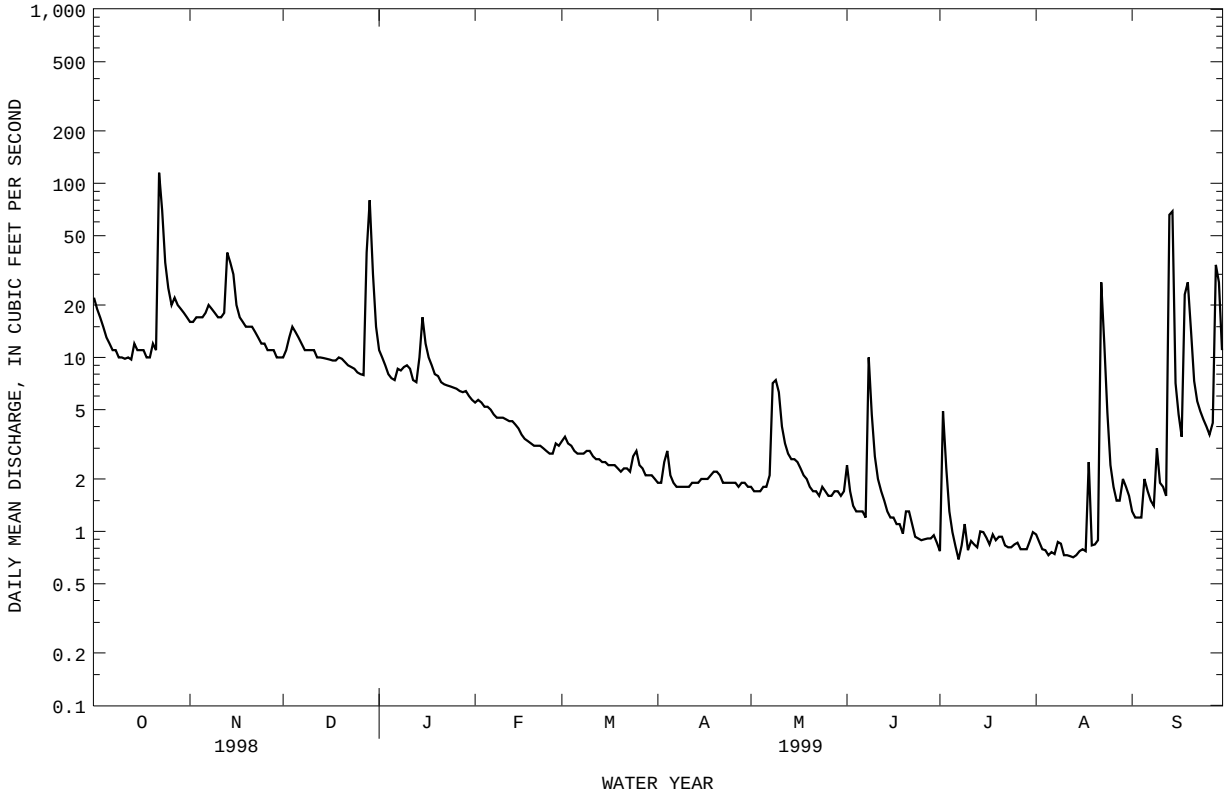
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

MEAN	17.9	7.73	3.25	8.15	3.47	1.17	1.41	4.25	2.14	1.73	3.32	20.9
MAX	76.1	28.4	14.4	68.8	12.4	2.59	4.18	36.6	10.4	7.80	12.8	81.2
(WY)	1991	1991	1999	1992	1991	1999	1998	1992	1993	1993	1998	1996
MIN	1.46	1.07	.75	.47	.49	.44	.28	.086	.036	.009	.001	.052
(WY)	1992	1994	1995	1994	1990	1990	1990	1994	1994	1994	1994	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1988 - 1999	
ANNUAL TOTAL	4317.15		2665.55			
ANNUAL MEAN	11.8		7.30		6.29	
HIGHEST ANNUAL MEAN					14.1	1998
LOWEST ANNUAL MEAN					.57	1994
HIGHEST DAILY MEAN	560	Sep 22	115	Oct 22	1900	Sep 10 1996
LOWEST DAILY MEAN	.10	Feb 3	.69	Jul 7	.00	Jun 24 1994
ANNUAL SEVEN-DAY MINIMUM	.15	Jan 29	.74	Aug 10	.00	Jul 21 1994
INSTANTANEOUS PEAK FLOW			1,250	Sep 14	18100	Sep 10 1996
INSTANTANEOUS PEAK STAGE			9.52	Sep 14	18.65	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	8560		5290		4560	
ANNUAL RUNOFF (CFSM)	1.18		.73		.63	
ANNUAL RUNOFF (INCHES)	16.06		9.92		8.55	
10 PERCENT EXCEEDS	20		17		8.1	
50 PERCENT EXCEEDS	2.0		2.9		1.2	
90 PERCENT EXCEEDS	.54		.88		.13	

e Estimated

50100200 RIO LAPAS NEAR RABO DEL BUEY, PR--Continued



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 mi^2 (43.3 km^2).

PERIOD OF RECORD.--January 1973 to April 1979 (montly measurements only), September 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map.

REMARKS.-Records fair except those for estimated daily discharges, which are poor. Some regulation at low flow upstream from station by local residents for agricultural purposes.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	25	16	17	9.4	5.8	3.8	4.0	3.6	2.0	2.1	1.5
2	42	e27	18	15	9.4	6.0	3.4	3.1	2.4	12	2.1	2.0
3	40	e28	19	14	8.9	5.5	11	3.6	2.3	6.9	1.9	1.8
4	35	e28	25	13	8.9	5.2	6.3	4.6	2.3	3.8	1.8	1.6
5	28	e28	21	12	9.5	5.0	4.4	4.6	2.4	2.6	1.6	1.5
6	20	e28	18	12	8.9	4.8	4.0	3.5	2.4	2.5	1.6	1.5
7	19	32	16	14	8.6	4.8	4.6	3.7	2.2	2.4	1.6	1.4
8	18	30	14	14	8.5	4.8	4.3	14	4.5	2.9	1.5	1.3
9	18	29	14	14	8.2	4.9	3.8	5.9	3.4	5.1	1.3	1.4
10	17	28	14	15	8.5	5.0	3.9	4.3	3.3	3.9	1.2	1.5
11	16	28	13	14	7.9	4.9	4.0	4.2	4.7	2.7	1.3	1.6
12	17	30	13	12	8.2	4.6	3.7	3.3	3.1	2.5	1.1	1.2
13	16	68	12	12	9.2	4.6	4.3	3.3	2.8	2.7	1.2	39
14	19	57	12	12	8.5	4.6	4.6	3.4	2.7	2.9	1.2	68
15	18	41	12	29	8.2	4.4	4.3	2.8	2.5	4.2	1.1	9.8
16	18	29	12	21	8.5	4.3	4.1	2.7	2.2	4.4	1.1	6.3
17	18	28	11	16	7.9	4.0	4.4	2.8	2.3	7.1	1.1	4.5
18	17	25	11	14	8.1	4.0	4.0	2.8	2.1	8.0	1.0	67
19	17	24	12	13	7.8	3.9	4.0	3.0	2.8	4.5	.97	75
20	19	24	12	12	7.8	3.7	3.6	2.7	4.5	3.4	1.2	26
21	18	24	11	12	7.7	3.5	3.6	2.7	5.5	3.1	1.3	9.3
22	191	22	11	11	7.2	3.5	3.3	2.4	3.5	3.0	26	6.0
23	92	21	11	11	7.0	3.5	3.5	2.4	3.0	2.5	6.8	4.4
24	51	20	11	11	6.3	4.5	3.8	2.5	2.8	2.2	3.7	3.9
25	39	19	11	11	5.9	4.9	3.6	2.5	2.3	2.1	2.0	3.7
26	32	18	11	11	5.8	4.0	4.2	2.4	2.4	2.2	1.4	3.3
27	35	18	11	11	5.7	3.8	3.0	2.3	2.2	2.2	1.4	7.4
28	31	18	79	10	6.3	3.7	4.3	2.1	1.8	2.2	1.3	133
29	31	17	158	10	---	3.7	3.2	2.0	1.8	2.1	1.6	60
30	30	16	33	9.6	---	3.5	3.7	2.0	1.7	2.7	1.9	12
31	26	---	21	9.5	---	3.6	---	2.3	---	2.3	1.7	---
TOTAL	1035	830	663	412.1	222.8	137.0	126.7	107.9	85.5	113.1	77.07	556.9
MEAN	33.4	27.7	21.4	13.3	7.96	4.42	4.22	3.48	2.85	3.65	2.49	18.6
MAX	191	68	158	29	9.5	6.0	11	14	5.5	12	26	133
MIN	16	16	11	9.5	5.7	3.5	3.0	2.0	1.7	2.0	.97	1.2
AC-FT	2050	1650	1320	817	442	272	251	214	170	224	153	1100
CFSM	2.00	1.66	1.28	.80	.48	.26	.25	.21	.17	.22	.15	1.11
IN.	2.31	1.85	1.48	.92	.50	.31	.28	.24	.19	.25	.17	1.24

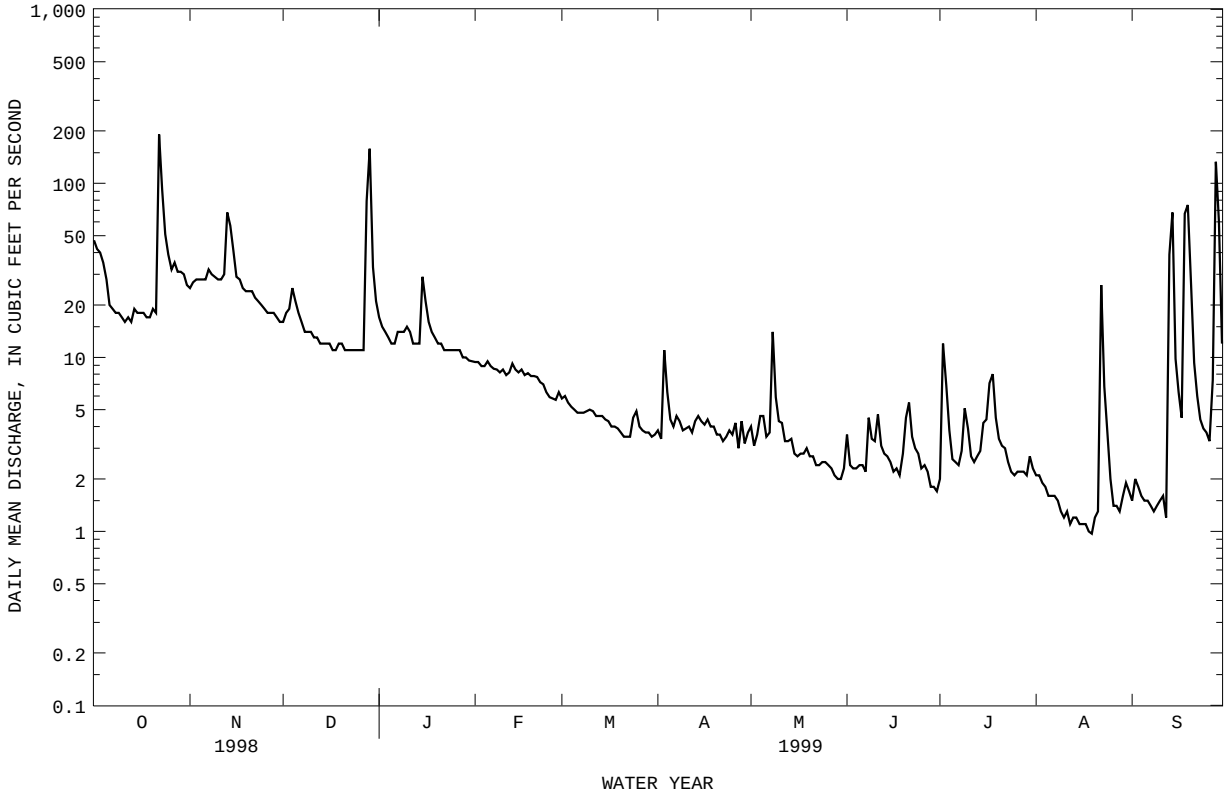
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1999, BY WATER YEAR (WY)

MEAN	16.1	11.0	5.22	9.45	3.69	2.27	2.12	3.79	3.15	3.14	4.13	27.3
MAX	76.4	34.5	21.4	68.8	12.1	4.42	6.19	25.5	12.1	12.9	23.4	109
(WY)	1991	1998	1999	1992	1991	1999	1998	1992	1992	1993	1998	1996
MIN	1.43	1.53	.62	.37	.63	.59	.30	.21	.042	.012	.010	.008
(WY)	1992	1994	1995	1995	1990	1990	1995	1994	1994	1997	1994	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1973 - 1999	
ANNUAL TOTAL	7141.09		4367.07			
ANNUAL MEAN	19.6		12.0		7.61	
HIGHEST ANNUAL MEAN					18.7	1998
LOWEST ANNUAL MEAN					.81	1994
HIGHEST DAILY MEAN	1080	Sep 22	191	Oct 22	2270	Sep 10 1996
LOWEST DAILY MEAN	.74	Feb 4	.97	Aug 19	.00	Oct 3 1994
ANNUAL SEVEN-DAY MINIMUM	1.0	Jul 30	1.1	Aug 13	.00	Oct 8 1994
INSTANTANEOUS PEAK FLOW			1190	Oct 22	17700	Sep 10 1996
INSTANTANEOUS PEAK STAGE			7.65	Oct 22	19.69	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	14160		8660		5510	
ANNUAL RUNOFF (CFSM)	1.17		.72		.46	
ANNUAL RUNOFF (INCHES)	15.91		9.73		6.19	
10 PERCENT EXCEEDS	31		28		11	
50 PERCENT EXCEEDS	3.9		4.9		2.0	
90 PERCENT EXCEEDS	1.5		1.8		.20	

e Estimated

50100450 RIO MAJADA AT LA PLENA, PR--Continued



50106100 RIO COAMO AT COAMO, PR

LOCATION.--Lat 18°05'00", long 66°21'16", Hydrologic Unit 21010004, on Highway 14 bridge, 0.8 mi (1.3 km) northeast from parque Atlético, 1.2 mi (1.9 km) southeast from (W.C.P.R.) Antena de Radio.

DRAINAGE AREA.--3.5 mi^2 (112.7 km^2).

PERIOD OF RECORD.--January 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 335 ft (110 m), from topographic map.

REMARKS.--Records poor. Low-flow is affected by domestic discharges about 200 ft (65.6 m), upstream from gaging station. Gage-height and precipitation satellite telemetry at station. The gage-height recovered for the instantaneous peak stage produced by Hurricane Georges was affected by backwater caused by the Hwy. 14 old bridge which is about 100 ft. (30.40 m) downstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e105	110	66	38	18	e21	4.1	4.3	34	7.6	4.8	2.6
2	e92	99	102	35	16	e43	30	3.9	263	44	5.4	3.5
3	e90	98	99	32	15	e38	53	3.6	92	28	5.0	19
4	e81	99	85	31	15	e27	25	3.5	44	11	5.7	7.1
5	e71	92	71	30	16	e20	13	4.0	26	7.1	7.2	4.8
6	e70	83	62	29	15	e16	11	16	18	7.0	5.6	82
7	e68	79	59	26	17	e15	9.7	9.0	14	6.7	4.7	46
8	e60	75	51	25	16	e21	9.4	25	30	8.0	4.3	18
9	e60	73	48	22	15	e14	9.1	28	80	16	4.3	184
10	e56	72	46	26	15	e13	8.3	29	122	12	4.4	43
11	e58	70	45	27	15	e12	8.6	21	130	7.7	4.8	8.4
12	e56	80	43	23	15	e11	8.6	12	106	7.1	5.2	4.6
13	e50	97	40	20	15	e11	8.0	10	67	7.7	5.2	283
14	e56	84	40	21	14	e11	6.9	8.8	47	8.3	8.7	e312
15	e52	81	40	51	14	e10	7.1	8.8	35	18	3.4	131
16	e47	70	36	35	14	e8.8	7.3	9.7	28	14	2.9	88
17	e47	64	36	28	14	e8.1	7.3	9.3	27	10	4.4	60
18	e45	57	35	24	15	e7.4	7.5	8.6	22	9.0	3.9	163
19	e44	56	32	22	14	e6.9	7.1	7.5	17	8.0	3.4	204
20	e43	53	37	21	14	e7.2	6.8	7.7	21	7.2	3.5	110
21	e113	50	34	21	14	e6.6	6.5	8.0	18	6.9	3.7	79
22	e259	51	32	19	14	e5.8	5.6	7.9	13	6.2	114	61
23	e129	48	31	19	12	e5.7	5.0	7.7	12	5.3	43	53
24	e84	57	29	19	11	e6.1	5.5	7.9	10	5.1	7.9	50
25	e79	57	30	19	11	e7.0	5.5	7.9	9.6	4.8	3.0	44
26	e130	50	28	20	12	e6.1	5.6	7.1	8.5	4.2	2.8	41
27	e340	52	25	19	12	e4.3	5.1	7.3	7.2	4.0	3.2	43
28	e260	59	41	22	e15	e3.8	5.5	8.0	8.0	4.1	2.5	75
29	130	59	105	20	---	e5.2	4.8	16	8.2	4.6	3.8	49
30	140	55	54	18	---	6.7	4.5	15	8.2	4.4	5.1	55
31	122	---	42	18	---	4.1	---	17	---	4.6	3.0	---
TOTAL	3037	2130	1524	780	403	382.8	301.4	339.5	1325.7	298.6	288.8	2324
MEAN	98.0	71.0	49.2	25.2	14.4	12.3	10.0	11.0	44.2	9.63	9.32	77.5
MAX	340	110	105	51	18	43	53	29	263	44	114	312
MIN	43	48	25	18	11	3.8	4.1	3.5	7.2	4.0	2.5	2.6
AC-FT	6020	4220	3020	1550	799	759	598	673	2630	592	573	4610
CFSM	2.25	1.63	1.13	.58	.33	.28	.23	.25	1.02	.22	.21	1.78
IN.	2.60	1.82	1.30	.67	.34	.33	.26	.29	1.13	.26	.25	1.99

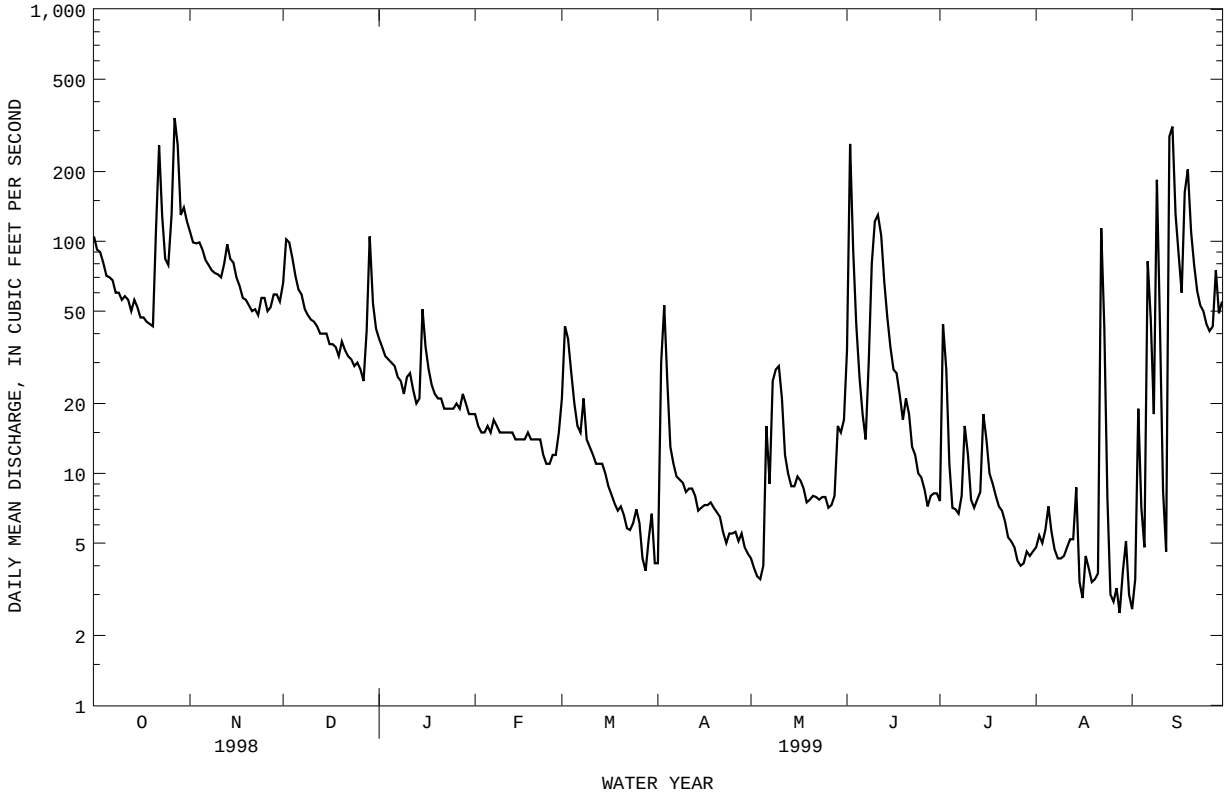
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1999, BY WATER YEAR (WY)

MEAN	57.8	29.5	19.3	18.1	10.9	6.34	11.3	17.6	16.1	7.17	10.4	52.7
MAX	274	71.0	83.8	79.0	25.5	12.3	27.6	69.6	76.1	15.5	29.7	291
(WY)	1991	1999	1988	1992	1998	1999	1987	1992	1987	1988	1998	1998
MIN	10.3	4.91	3.72	2.71	3.17	3.09	2.49	1.66	1.99	.78	1.28	1.61
(WY)	1989	1995	1989	1995	1989	1987	1995	1989	1989	1989	1994	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1987 - 1999	
ANNUAL TOTAL	19873.3		13134.8			
ANNUAL MEAN	54.4		36.0		21.2	
HIGHEST ANNUAL MEAN					40.9	1998
LOWEST ANNUAL MEAN					4.52	1994
HIGHEST DAILY MEAN	4530	Sep 22	340	Oct 27	4530	Sep 22 1998
LOWEST DAILY MEAN	2.0	Aug 1	2.5	Aug 28	.67	Aug 2 1989
ANNUAL SEVEN-DAY MINIMUM	2.3	Jul 30	3.3	Aug 26	.70	Jul 27 1989
INSTANTANEOUS PEAK FLOW			1750	Sep 9	52700	Sep 21 1998
INSTANTANEOUS PEAK STAGE			8.72	Sep 9	25.94	Sep 21 1998
ANNUAL RUNOFF (AC-FT)	39420		26050		15360	
ANNUAL RUNOFF (CFSM)	1.25		.83		.49	
ANNUAL RUNOFF (INCHES)	17.00		11.23		6.62	
10 PERCENT EXCEEDS	95		84		43	
50 PERCENT EXCEEDS	13		18		7.2	
90 PERCENT EXCEEDS	3.7		4.8		2.3	

e Estimated

50106100 RIO COAMO AT COAMO, PR--Continued



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 mi^2 (119.1 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)
DEC										
21...	1300	38	600	7.8	27.6	.32	11.1	138	<10	K160
MAR										
17...	1415	8.9	540	8.9	30.3	.68	13.7	178	<10	1700
MAY										
19...	1555	9.4	501	8.5	32.6	1.9	9.6	133	<10	60
SEP										
22...	1245	66	511	8.4	30.5	.90	6.8	91	<10	K710

DATE	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
DEC										
21...	K73	260	68	22	31	.8	2.7	226	<1.0	36
MAR										
17...	100	--	--	--	--	--	--	164	--	--
MAY										
19...	K150	180	41	18	34	1	2.1	154	<1.0	34
SEP										
22...	K220	200	53	16	26	.8	2.4	182	--	28

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
DEC										
21...	43	.18	31	370	37.9	1	4.08	.018	4.10	.030
MAR										
17...	--	--	--	--	--	1	2.28	.018	2.30	<.010
MAY										
19...	43	.20	32	297	7.49	<1	1.79	.010	1.80	.020
SEP										
22...	27	.17	32	292	52.2	<1	--	<.010	1.90	<.010

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
21...	<.20	--	--	.120	<1	<100	20	<1	<1	<10
MAR										
17...	E.23	--	--	E.060	--	--	--	--	--	--
MAY										
19...	<.20	--	--	E.050	<1	70	30	<1	<1	E8
SEP										
22...	.22	2.1	9.4	.140	--	--	--	--	--	--

50106500 RIO COAMO NEAR COAMO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
21...	20	<1	10	<.10	<1	<1	<10	<.010	<4	<.02
MAR										
17...	--	--	--	--	--	--	--	--	--	--
MAY										
19...	330	<1	64	<.10	<1	<1	<40	<.010	<4	.05
SEP										
22...	--	--	--	--	--	--	--	--	--	--

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 Díaz.

DRAINAGE AREA.--12.9 mi^2 (33.4 km^2).

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 poor. Some regulation at low flow by local resident upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e45	e54	e20	10	4.6	2.9	2.2	3.0	3.3	e1.4	.83	e3.7
2	e41	e64	e26	10	4.4	3.3	148	3.0	17	e3.2	.89	e6.8
3	e39	e76	e28	10	4.3	2.9	e243	2.9	5.7	e2.2	.88	e6.8
4	e35	e56	e21	9.8	4.1	2.6	e110	2.9	3.7	e1.5	.81	e4.7
5	e32	e43	e17	9.7	4.1	2.6	e19	2.9	3.4	e1.3	.82	e3.8
6	e30	e38	e15	9.7	3.8	2.7	e8.8	5.5	3.2	e1.3	e1.2	e10
7	e29	e35	e15	9.0	3.7	2.7	e5.5	3.8	3.2	e1.3	e.84	e7.8
8	e26	e31	e13	8.9	3.6	8.5	e4.3	15	2.9	e1.4	e.72	e7.2
9	e26	e29	e13	8.5	3.5	3.7	4.1	9.3	3.6	1.6	e.72	e33
10	e24	e27	12	9.3	3.5	2.9	4.0	e6.0	3.5	1.4	e.70	e12
11	e25	e25	11	9.5	3.3	2.6	4.4	e4.0	2.6	1.4	e.68	e5.9
12	e25	e28	11	8.8	3.3	2.4	3.9	e3.3	13	1.4	e.66	e5.0
13	e22	e30	11	8.5	3.1	2.3	3.7	e2.7	e6.0	1.7	e.68	e60
14	e24	e51	11	8.2	3.0	2.3	3.5	e2.6	e3.8	1.5	e1.7	e35
15	e22	e40	11	11	3.0	2.3	3.5	e2.5	e4.2	1.4	e1.3	e14
16	e21	e29	11	8.3	2.9	2.3	3.3	e2.5	e2.7	1.2	e2.2	e10
17	e20	e25	11	7.6	3.0	2.3	3.2	e2.6	e2.5	1.3	e1.1	e8.0
18	e20	e22	11	7.4	3.0	2.3	3.2	e2.5	e2.4	1.1	e.67	e9.0
19	e19	e21	10	7.2	3.1	2.3	3.2	e2.3	e2.0	1.1	e1.0	e12
20	e18	e20	10	7.0	3.2	2.3	3.2	2.3	e1.9	1.2	e.94	e12
21	e20	e20	10	6.7	3.3	3.2	3.1	2.4	e1.8	1.1	e1.0	e8.7
22	e100	e19	10	6.6	3.3	3.1	3.1	2.3	e1.8	1.1	e5.2	e7.0
23	e70	e18	10	6.2	3.2	2.3	3.1	2.3	e1.7	1.1	e5.4	e6.3
24	e36	e17	9.8	6.1	3.1	2.4	3.1	2.4	e1.7	1.1	e3.0	e5.8
25	e33	e16	10	5.7	3.1	2.4	3.1	2.3	e1.6	1.0	e2.1	e5.6
26	e56	e15	9.9	5.6	5.7	2.3	3.0	2.4	e1.6	.96	e5.8	e7.2
27	e148	e16	10	5.4	3.2	2.2	3.0	2.3	e1.4	.90	e6.4	e11
28	e120	e24	11	5.3	2.6	2.2	3.0	2.2	e1.5	.90	e4.1	e7.7
29	e72	e17	18	5.0	---	2.2	3.0	2.5	e1.5	.91	e7.8	e8.2
30	e66	e15	11	4.7	---	2.3	3.0	5.1	e1.4	.90	e8.2	e9.0
31	e98	---	10	4.7	---	2.3	---	2.9	---	.86	e5.0	---
TOTAL	1362	921	407.7	240.4	98.0	85.1	614.5	110.7	106.6	40.73	73.34	343.2
MEAN	43.9	30.7	13.2	7.75	3.50	2.75	20.5	3.57	3.55	1.31	2.37	11.4
MAX	148	76	28	11	5.7	8.5	243	15	17	3.2	8.2	60
MIN	18	15	9.8	4.7	2.6	2.2	2.2	2.2	1.4	.86	.66	3.7
AC-FT	2700	1830	809	477	194	169	1220	220	211	81	145	681
CFSM	3.41	2.38	1.02	.60	.27	.21	1.59	.28	.28	.10	.18	.89
IN.	3.93	2.66	1.18	.69	.28	.25	1.77	.32	.31	.12	.21	.99

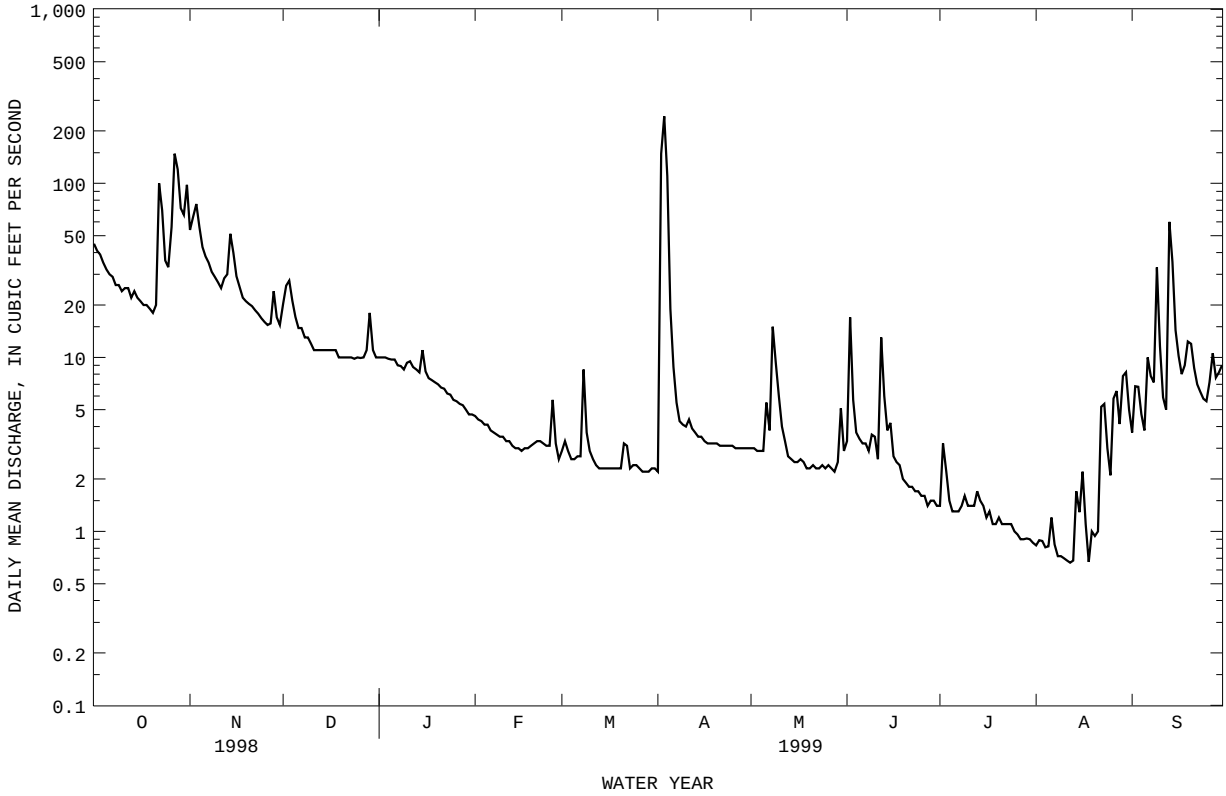
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1999, BY WATER YEAR (WY)

MEAN	27.8	15.0	5.24	4.77	3.66	1.96	5.13	14.1	4.81	2.54	4.15	36.8
MAX	117	41.0	24.5	36.4	23.9	8.93	20.5	62.2	25.2	10.5	13.1	395
(WY)	1986	1985	1988	1992	1995	1996	1999	1985	1987	1991	1996	1996
MIN	2.02	1.04	.19	.057	.020	.012	.000	.032	.000	.000	.19	.063
(WY)	1968	1995	1968	1968	1968	1968	1968	1968	1967	1967	1990	1967

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1966 - 1999	
ANNUAL TOTAL	6656.59		4403.27			
ANNUAL MEAN	18.2		12.1		11.1	
HIGHEST ANNUAL MEAN					41.7	1996
LOWEST ANNUAL MEAN					1.69	1994
HIGHEST DAILY MEAN	1700	Sep 22	243	Apr 3	10000	Sep 10 1996
LOWEST DAILY MEAN	.34	Feb 3	.66	Aug 12	.00	Jun 22 1966
ANNUAL SEVEN-DAY MINIMUM	.36	Jan 29	.71	Aug 7	.00	Jun 22 1966
INSTANTANEOUS PEAK FLOW			3480	Apr 2	30000	Oct 7 1985
INSTANTANEOUS PEAK STAGE			10.51	Apr 2	24.37	Oct 7 1985
INSTANTANEOUS LOW FLOW					.00	Jun 22 1966
ANNUAL RUNOFF (AC-FT)	13200		8730		8010	
ANNUAL RUNOFF (CFSM)	1.41		.94		.86	
ANNUAL RUNOFF (INCHES)	19.20		12.70		11.64	
10 PERCENT EXCEEDS	37		28		15	
50 PERCENT EXCEEDS	2.8		4.1		1.5	
90 PERCENT EXCEEDS	.66		1.3		.06	

e Estimated

50108000 RIO DESCALABRADO NEAR LOS LLANOS, PR--Continued



50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR

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.

DRAINAGE AREA.--14.2 mi^2 (36.77 km^2).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e55	65	25	9.1	5.5	8.2	4.7	7.6	14	10	3.9	16
2	e49	85	32	8.8	6.1	11	19	6.2	180	13	3.8	31
3	e48	94	34	8.5	5.6	6.4	83	5.4	42	e11	3.6	31
4	e42	61	26	8.3	5.4	5.1	35	4.9	21	9.0	3.6	21
5	e37	51	21	8.0	5.3	4.4	16	5.4	19	9.1	4.8	17
6	e37	45	18	7.9	5.2	4.2	11	8.9	16	8.5	3.8	44
7	e36	43	18	7.7	5.1	4.0	9.2	6.0	13	8.2	3.5	35
8	e32	37	16	7.5	5.0	8.5	8.1	12	30	10	3.1	32
9	e32	35	16	7.3	4.8	6.5	7.7	34	66	9.7	3.1	149
10	e30	33	15	7.9	4.9	4.9	7.3	24	71	8.3	3.1	52
11	e31	31	14	8.3	4.9	4.4	7.1	12	95	7.8	3.0	26
12	e30	35	14	7.2	4.7	4.3	6.7	9.0	64	7.6	2.9	21
13	e27	37	14	6.9	4.4	4.5	6.2	7.7	40	8.3	2.9	272
14	e30	63	13	8.3	4.2	4.1	5.6	6.6	28	7.5	7.6	159
15	e27	49	13	9.2	4.3	3.9	5.4	6.0	23	7.2	5.4	64
16	e25	36	12	21	4.6	3.9	5.3	5.5	20	6.4	9.5	45
17	25	31	12	18	4.2	3.7	4.9	5.2	18	5.7	4.5	35
18	24	e27	11	10	4.0	3.7	4.7	5.3	18	5.7	e2.9	40
19	23	e26	11	8.7	3.9	6.4	4.5	5.0	16	5.4	e4.5	55
20	23	25	11	8.1	3.9	9.5	4.2	4.8	17	5.3	e4.1	53
21	25	24	11	7.6	3.9	39	4.0	4.6	16	5.3	e4.5	39
22	125	23	10	7.2	3.8	12	4.0	6.1	14	5.0	e23	31
23	64	22	9.8	7.1	3.5	8.2	3.8	5.3	13	4.8	e23	e29
24	44	21	9.5	6.9	3.3	5.7	4.5	4.7	13	4.6	e13	e26
25	41	20	9.2	7.0	4.1	25	5.1	4.5	12	4.3	e9.0	e25
26	79	19	9.1	7.1	8.8	13	6.3	4.1	11	4.2	26	e32
27	182	19	8.9	6.8	4.4	7.3	7.7	4.0	11	4.2	28	e48
28	135	30	9.2	8.6	4.9	6.4	6.4	4.2	11	4.0	18	e34
29	87	21	21	6.5	---	5.8	19	18	11	3.9	35	e36
30	80	19	11	5.6	---	5.2	14	8.3	11	4.0	37	e40
31	121	---	9.5	5.6	---	4.9	---	12	---	4.1	22	---
TOTAL	1646	1127	464.2	262.7	132.7	244.1	330.4	257.3	934	212.1	322.1	1538
MEAN	53.1	37.6	15.0	8.47	4.74	7.87	11.0	8.30	31.1	6.84	10.4	51.3
MAX	182	94	34	21	8.8	39	83	34	180	13	37	272
MIN	23	19	8.9	5.6	3.3	3.7	3.8	4.0	11	3.9	2.9	16
AC-FT	3260	2240	921	521	263	484	655	510	1850	421	639	3050
CFSM	3.74	2.65	1.05	.60	.33	.55	.78	.58	2.19	.48	.73	3.61
IN.	4.31	2.95	1.22	.69	.35	.64	.87	.67	2.45	.56	.84	4.03

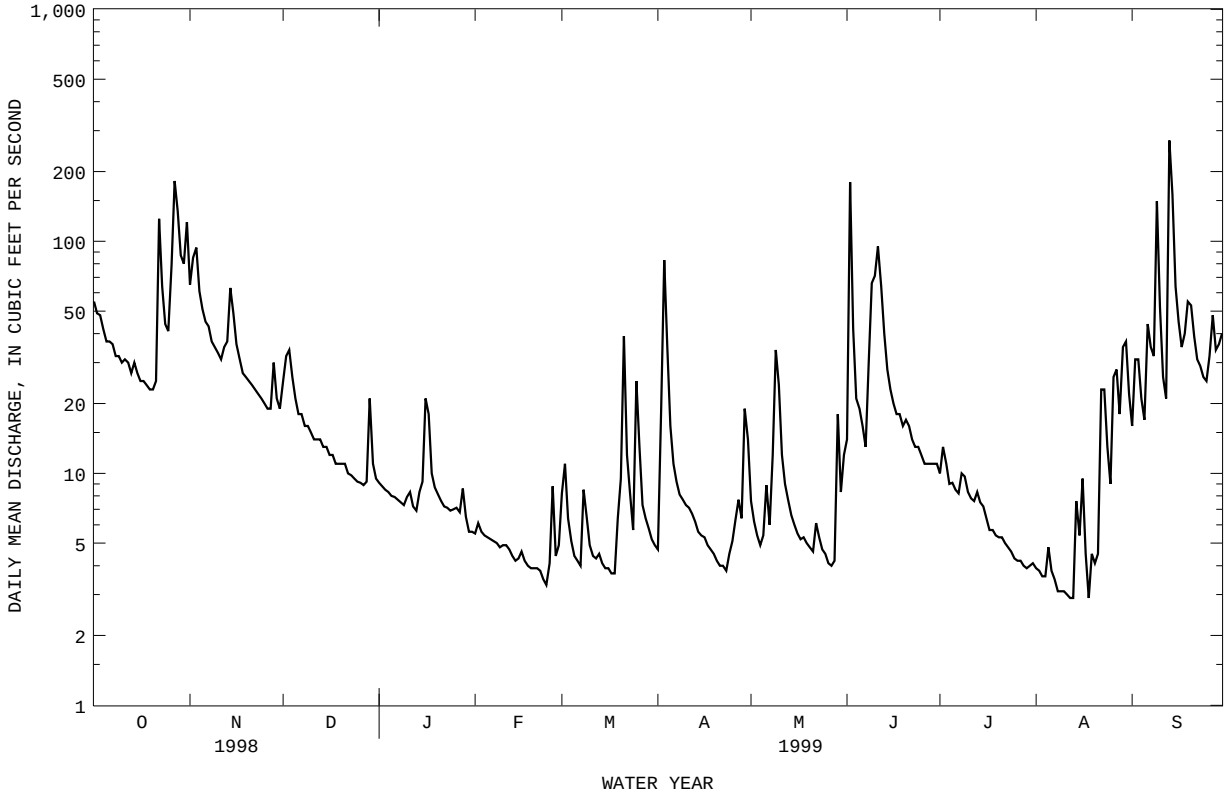
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)

MEAN	42.6	18.0	7.32	9.12	5.60	3.82	9.92	21.8	13.0	6.66	9.91	45.2
MAX	109	40.1	15.0	43.1	12.6	7.87	26.3	76.1	35.4	14.4	36.4	152
(WY)	1991	1991	1999	1992	1996	1999	1993	1995	1992	1992	1998	1998
MIN	4.61	2.19	1.42	1.79	2.38	1.67	1.46	1.42	1.23	.71	2.74	3.21
(WY)	1992	1992	1992	1995	1990	1990	1990	1997	1990	1990	1990	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1989 - 1999	
ANNUAL TOTAL	12587.2		7470.6			
ANNUAL MEAN	34.5		20.5		16.3	
HIGHEST ANNUAL MEAN					29.3	1998
LOWEST ANNUAL MEAN					4.02	1994
HIGHEST DAILY MEAN	1740	Sep 22	272	Sep 13	2050	Sep 10 1996
LOWEST DAILY MEAN	1.4	Mar 12	2.9	Aug 12	.45	Aug 7 1990
ANNUAL SEVEN-DAY MINIMUM	1.4	Mar 10	3.1	Aug 7	.61	Jul 9 1990
INSTANTANEOUS PEAK FLOW			1990	Jun 2	Not determined	Sep 21 1998
INSTANTANEOUS PEAK STAGE			7.90	Jun 2	20.60	Sep 21 1998
INSTANTANEOUS LOW FLOW			2.1	Aug 18	.42	Jul 14 1997
ANNUAL RUNOFF (AC-FT)	24970		14820		11830	
ANNUAL RUNOFF (CFSM)	2.43		1.44		1.15	
ANNUAL RUNOFF (INCHES)	32.97		19.57		15.63	
10 PERCENT EXCEEDS	63		43		35	
50 PERCENT EXCEEDS	13		9.5		4.7	
90 PERCENT EXCEEDS	1.9		4.1		1.4	

e Estimated

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued



50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1988 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: April 1988 to current year.

INSTRUMENTATION.-- USDH-48 and automatic sediment sampler since 1988.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected by a local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 11,800 mg/L September 22, 1998; Minimum daily mean, 1 mg/L several years.

SEDIMENT LOADS: Maximum daily mean, e93,300 tons (84,600 tonnes) September 12, 1998; Minimum daily mean, <0.01 ton (<0.01 tonne) several years.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATION: Maximum daily mean, 2,530 mg/L October 27, 1998; Minimum daily mean, 1 mg/L February 21-24, 1999.

SEDIMENT LOADS: Maximum daily mean, 4,890 tons (4,440 tonnes) October 27, 1998; Minimum daily mean, tons 0.01 (0.01 tonne) February 21-24,1999.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	e55	e26	e3.6	65	36	6.4	25	21	1.6
2	e49	e25	e3.4	85	320	159	32	23	2.2
3	e48	e25	e3.1	94	218	144	34	32	2.9
4	e42	e24	e2.7	61	57	9.4	26	32	2.2
5	e37	e24	e2.4	51	50	6.9	21	31	1.8
6	e37	e24	e2.3	45	44	5.3	18	31	1.5
7	e36	e23	e2.2	43	38	4.4	18	31	1.4
8	e32	e23	e2.0	37	39	3.9	16	30	1.3
9	e32	e22	e1.9	35	42	3.9	16	30	1.3
10	e30	e22	e1.8	33	44	3.9	15	30	1.2
11	e31	e21	e1.8	31	35	3.0	14	29	1.1
12	e30	e21	e1.7	35	29	2.7	14	29	1.1
13	e27	e21	e1.6	37	29	2.9	14	29	1.1
14	e30	e20	e1.6	63	300	151	13	28	1.0
15	e27	e20	e1.4	49	40	4.8	13	28	.96
16	e25	e20	e1.3	36	24	2.8	12	28	.91
17	25	19	1.3	31	23	2.0	12	27	.86
18	24	19	1.2	e27	e19	e1.1	11	27	.83
19	23	18	1.1	e26	e19	e1.1	11	27	.79
20	23	18	1.1	25	20	1.4	11	27	.79
21	25	21	1.5	24	19	1.3	11	26	.76
22	125	1530	805	23	19	1.2	10	26	.70
23	64	46	8.1	22	19	1.1	9.8	23	.60
24	44	33	3.9	21	18	1.0	9.5	19	.50
25	41	32	3.5	20	17	.93	9.2	17	.41
26	79	698	362	19	17	.87	9.1	14	.35
27	182	2530	4890	19	16	.85	8.9	12	.30
28	135	788	518	30	46	8.8	9.2	11	.27
29	87	78	21	21	18	1.0	21	17	1.0
30	80	241	226	19	17	.81	11	12	.35
31	121	298	167	---	---	---	9.5	12	.29
TOTAL	1646	---	7045.5	1127	---	537.76	464.2	---	32.37

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	9.1	11	.28	5.5	3	.04	8.2	10	.27
2	8.8	11	.26	6.1	3	.06	11	14	.44
3	8.5	11	.25	5.6	5	.07	6.4	9	.16
4	8.3	10	.23	5.4	6	.09	5.1	10	.14
5	8.0	10	.22	5.3	9	.12	4.4	14	.16
6	7.9	10	.21	5.2	11	.16	4.2	17	.19
7	7.7	10	.20	5.1	13	.19	4.0	9	.09
8	7.5	9	.19	5.0	15	.21	8.5	10	.28
9	7.3	9	.18	4.8	17	.22	6.5	5	.10
10	7.9	9	.19	4.9	15	.20	4.9	3	.04
11	8.3	9	.20	4.9	12	.16	4.4	2	.03
12	7.2	9	.17	4.7	10	.12	4.3	2	.02
13	6.9	8	.16	4.4	8	.09	4.5	2	.03
14	8.3	8	.18	4.2	6	.07	4.1	3	.03
15	9.2	11	.27	4.3	5	.06	3.9	3	.03
16	21	21	1.6	4.6	4	.05	3.9	3	.03
17	18	16	.85	4.2	3	.04	3.7	4	.04
18	10	12	.34	4.0	3	.03	3.7	4	.04
19	8.7	12	.28	3.9	2	.02	6.4	7	.18
20	8.1	11	.25	3.9	2	.02	9.5	10	.27
21	7.6	11	.23	3.9	1	.01	39	354	222
22	7.2	11	.21	3.8	1	.01	12	15	.42
23	7.1	11	.21	3.5	1	.01	8.2	10	.22
24	6.9	11	.20	3.3	1	.01	5.7	7	.10
25	7.0	10	.20	4.1	4	.06	25	52	11
26	7.1	10	.20	8.8	12	.37	13	15	.56
27	6.8	9	.17	4.4	6	.07	7.3	7	.14
28	8.6	5	.11	4.9	12	.15	6.4	5	.09
29	6.5	3	.06	---	---	---	5.8	4	.06
30	5.6	3	.04	---	---	---	5.2	4	.06
31	5.6	2	.03	---	---	---	4.9	4	.06
TOTAL	262.7	---	8.17	132.7	---	2.71	244.1	---	237.28

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	4.7	5	.06	7.6	7	.15	14	28	.64
2	19	69	13	6.2	5	.08	180	319	651
3	83	319	263	5.4	3	.05	42	39	4.7
4	35	28	2.9	4.9	4	.05	21	20	1.1
5	16	15	.64	5.4	5	.08	19	30	.91
6	11	11	.35	8.9	6	.18	16	16	.66
7	9.2	10	.24	6.0	5	.08	13	13	.46
8	8.1	10	.21	12	11	.55	30	94	21
9	7.7	9	.19	34	93	32	66	377	204
10	7.3	9	.17	24	22	1.5	71	230	97
11	7.1	9	.17	12	10	.34	95	343	348
12	6.7	8	.15	9.0	5	.12	64	105	41
13	6.2	8	.14	7.7	4	.09	40	31	3.4
14	5.6	8	.12	6.6	5	.08	28	23	1.7
15	5.4	8	.11	6.0	5	.08	23	20	1.2
16	5.3	7	.10	5.5	4	.06	20	19	1.0
17	4.9	7	.09	5.2	3	.04	18	19	.94
18	4.7	7	.09	5.3	2	.03	18	19	.88
19	4.5	7	.08	5.0	2	.03	16	18	.79
20	4.2	6	.07	4.8	3	.04	17	18	.81
21	4.0	6	.07	4.6	4	.05	16	17	.74
22	4.0	6	.06	6.1	6	.13	14	16	.62
23	3.8	6	.06	5.3	7	.10	13	9	.34
24	4.5	6	.07	4.7	5	.07	13	6	.20
25	5.1	5	.07	4.5	4	.05	12	4	.14
26	6.3	5	.09	4.1	4	.05	11	4	.11
27	7.7	8	.22	4.0	5	.05	11	3	.10
28	6.4	7	.13	4.2	5	.05	11	3	.09
29	19	90	15	18	20	1.4	11	4	.12
30	14	14	.56	8.3	9	.20	11	6	.16
31	---	---	---	12	89	8.9	---	---	---
TOTAL	330.4	---	298.21	257.3	---	46.68	934	---	1383.81

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	10	7	.20	3.9	3	.03	16	16	.60
2	13	7	.23	3.8	4	.04	31	70	15
3	e11	e5	e.15	3.6	4	.04	31	24	2.1
4	9.0	4	.10	3.6	4	.04	21	10	1.0
5	9.1	3	.08	4.8	6	.08	17	9	.69
6	8.5	3	.06	3.8	4	.04	44	200	86
7	8.2	2	.05	3.5	3	.03	35	24	2.4
8	10	6	.22	3.1	2	.02	32	89	31
9	9.7	10	.26	3.1	2	.02	149	1590	2150
10	8.3	7	.15	3.1	2	.02	52	1340	212
11	7.8	5	.10	3.0	2	.02	26	456	33
12	7.6	4	.08	2.9	2	.02	21	193	11
13	8.3	3	.07	2.9	2	.01	272	1990	2680
14	7.5	3	.07	7.6	50	2.2	159	1280	975
15	7.2	4	.07	5.4	64	.97	64	33	5.8
16	6.4	4	.07	9.5	160	15	45	25	3.1
17	5.7	4	.06	4.5	5	.06	35	24	2.3
18	5.7	3	.05	e2.9	e4	e.03	40	91	23
19	5.4	3	.04	e4.5	e5	e.06	55	230	98
20	5.3	3	.04	e4.1	e5	e.06	53	34	4.9
21	5.3	3	.04	e4.5	e6	e.08	39	19	2.0
22	5.0	2	.03	e23	e7	e.44	31	12	1.0
23	4.8	2	.03	e23	e8	e.49	e29	e10	e.77
24	4.6	2	.03	e13	e9	e.31	e26	e10	e.69
25	4.3	2	.02	e9.0	e10	e.25	e25	e10	e.66
26	4.2	3	.03	26	135	11	e32	e10	e.83
27	4.2	4	.05	28	22	1.8	e48	e10	e1.3
28	4.0	6	.06	18	16	.78	e34	e10	e.88
29	3.9	13	.14	35	94	33	e36	e10	e.93
30	4.0	8	.09	37	47	4.9	e40	e10	e1.0
31	4.1	4	.04	22	24	1.5	---	---	---
TOTAL	212.1	---	2.71	322.1	---	73.34	1538	---	6346.95
YEAR	7470.6		16015.49						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR					
03...	1630	337	1590	1440	94
AUG					
16...	1630	59	1090	174	97

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
JUN							
11...	1630	220	1690	1000	48	56	69

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
JUN							
11...	80	89	94	99	100	100	100

50111210 LAGO TOA VACA AT DAMSITE NEAR VILLALBA, PR

LOCATION.--Lat 18°06'07", long 66°29'23", Hydrologic Unit 21010004, in a concrete gate tower at Damsite on Río Toa Vaca, 0.45 mi (0.7 km) northwest from Escuela Higüero, 2.0 mi (3.2 km) south from Villalaba Plaza.

DRAINAGE AREA.--22.0 mi^2 (57.9 km^2).

PERIOD OF RECORD.--August 1997 to current year.

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

REMARKS.--Lago Toa Vaca was completed in 1972. The dam is located in the Toa Vaca river just upstream from Guayabal reservoir. The Toa Vaca dam is a zoned earth and rockfill embankment structure. At crest elevation 555.00 ft (169.2 m) (Top of Dam), the dam is approximately 1,740 ft (530.3 m) long about 215 ft (65.53 m) height, and has a maximum storage capacity of about 67,759 ac-ft (83.55 hm^3) at top of dam elevation. The Toa Vaca Dam is owned by the Puerto Rico Aqueduct and Sewer Authority and its primary purpose is to provide water for minicipal and industrial use, and for irrigation of some of the lands served by the South Coast irrigation district thru the Juana Díaz canal. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 535.24 ft (163.14 m) Nov. 13, 1998; minimum elevation, 488.68 ft (148.95 m), Sept. 28, 1997.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 535.24 ft (163.14 m), Nov. 13; minimum elevation, 506.24 ft (154.30 m), Aug. 22.

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
345.00	0	489.80	23,756
488.70	23,259	531.20	48,362
		570.00	81,991

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	527.00	533.41	527.26	525.44	522.74	519.93	516.95	514.81	511.44	512.79	508.71	506.53
2	527.09	533.80	527.28	525.35	522.62	519.84	517.36	514.68	512.81	512.74	508.57	506.94
3	527.15	534.48	527.31	525.28	522.50	519.72	518.10	514.54	512.86	512.61	508.42	506.99
4	527.19	534.65	527.30	525.19	522.40	519.59	518.10	514.40	512.80	512.48	508.27	506.94
5	527.22	534.76	527.28	525.11	522.28	519.48	518.00	514.26	512.72	512.35	508.20	506.86
6	527.23	534.84	527.24	525.01	522.17	519.35	517.89	514.26	512.64	512.21	508.06	507.07
7	527.45	535.02	527.19	524.91	522.06	519.23	517.78	514.12	512.53	512.07	507.92	507.23
8	527.86	535.06	527.13	524.83	521.95	519.20	517.65	514.02	512.54	511.95	507.77	507.34
9	527.93	535.08	527.08	524.73	521.84	519.12	517.53	514.18	513.05	511.83	507.62	509.21
10	527.96	535.11	527.01	524.69	521.73	519.00	517.41	514.11	513.41	511.71	507.46	509.40
11	527.96	A	526.95	524.61	521.60	518.87	517.30	514.00	514.03	511.60	507.32	509.49
12	527.96	535.21	526.89	524.51	521.50	518.75	517.17	513.88	514.36	511.46	507.17	509.45
13	527.99	534.56	526.82	524.42	521.39	518.63	517.05	513.74	514.41	511.39	507.02	513.08
14	528.04	532.71	526.75	524.33	521.28	518.50	516.92	513.60	514.38	511.26	506.96	514.97
15	528.03	531.56	526.68	524.30	521.16	518.37	516.80	513.47	514.38	511.13	506.82	515.40
16	528.01	530.31	526.61	524.27	521.04	518.25	516.67	513.33	514.35	510.99	507.00	515.62
17	527.98	528.85	526.53	524.23	520.93	518.11	516.54	513.19	514.30	510.86	506.91	515.76
18	527.94	527.72	526.45	524.14	520.81	517.98	516.41	513.04	514.21	510.72	506.77	515.96
19	527.91	526.76	526.37	524.05	520.69	517.86	516.28	512.91	514.12	510.57	506.62	516.31
20	527.88	526.77	526.29	523.96	520.57	517.76	516.15	512.77	514.03	510.44	506.48	516.53
21	527.86	526.76	526.21	523.86	520.45	518.15	516.02	512.62	513.92	510.31	506.33	A
22	528.99	526.74	526.12	523.76	520.33	518.04	515.88	512.48	513.87	510.16	506.68	A
23	529.16	526.72	526.03	523.66	520.23	517.92	515.75	512.34	513.82	510.02	506.75	A
24	529.23	526.69	525.94	523.57	520.12	517.80	515.63	512.21	513.70	509.88	506.64	A
25	529.28	526.65	525.86	523.47	520.00	517.77	515.51	512.07	513.57	509.73	506.50	A
26	A	526.62	525.78	523.37	520.17	517.66	515.38	511.92	513.44	509.58	506.62	A
27	530.78	526.58	525.70	523.26	520.07	517.55	515.27	511.78	513.31	509.44	506.57	A
28	531.72	527.31	525.65	523.17	519.96	517.41	515.13	511.62	513.18	509.29	506.50	A
29	532.08	527.30	525.69	523.06	---	517.30	515.05	511.58	513.06	509.15	506.65	A
30	532.55	527.26	525.61	522.95	---	517.23	514.95	511.51	512.92	509.00	506.67	516.98
31	533.22	---	525.53	522.85	---	517.09	---	511.53	---	508.86	506.62	---
MAX	---	---	527.31	525.44	522.74	519.93	518.10	514.81	514.41	512.79	508.71	---
MIN	---	---	525.53	522.85	519.96	517.09	514.95	511.51	511.44	508.86	506.33	---

A No gage-height record

50111300 LAGO GUAYABAL AT DAMSITE NEAR JUANA DIAZ, PR

LOCATION.--Lat 18°05'17", long 66°30'09", Hydrologic Unit 21010004, at Damsite, 2.30 mi (3.70 km) northeast from Juana Díaz Plaza, 0.70 mi (1.13 km) northeast from Escuela Salvador Bousquets and 2.45 mi (3.94 km) southeast from Escuela Zoilo Gracia.

DRAINAGE AREA.--21.0 mi^2 (54.4 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--April 1995 to current year.

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

REMARKS.--Lago Guayabal was completed in 1913. The dam is a reinforced concrete, flatslab and buttress-type structure about 130 ft (40 m) height, a net crest lenght at the right side of the dam of 693 ft (211 m) and a crest elevation of 331 ft (101 m). It has a maximum storage capacity of 7,600 acre-feet (9.37 hm^3). The Guayabal Dam is owned by the Puerto Rico Electric Power Authority (P.R.E.P.A) and its primary purpose is 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, 341.55 ft (104.10 m), Sept. 10, 1996; minimum elevation, 325.99 ft (99.36 m), Sept. 29, 1997.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 341.48 ft (104.08 m), Sep. 23; minimum elevation, 339.60 ft (103.51 m), Mar. 19.

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
305	366	330	3,885
321	2,010	341	7,360

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	341.00	340.90	340.92	340.89	340.23	339.94	340.11	340.83	A	340.44	340.53	340.90
2	341.04	340.97	340.92	340.89	340.22	339.92	340.57	340.76	A	340.50	340.74	340.90
3	341.02	340.91	340.92	340.89	340.24	339.94	341.07	340.82	A	340.42	340.87	340.96
4	341.07	340.88	340.93	340.95	340.23	339.95	340.82	340.84	A	340.69	340.88	340.93
5	341.01	340.91	340.90	340.95	340.25	339.94	340.86	340.86	A	340.78	340.95	340.86
6	341.03	340.87	340.88	340.91	340.21	339.88	340.85	341.02	A	340.91	340.91	340.88
7	340.86	340.95	340.92	340.94	340.14	339.80	340.85	340.94	A	340.92	340.95	340.95
8	341.04	340.87	340.92	340.94	340.17	339.92	340.88	340.95	341.04	340.99	340.48	341.06
9	340.92	340.91	340.94	340.89	340.16	340.00	340.96	341.01	340.96	340.96	340.45	340.87
10	340.93	340.90	340.93	340.92	340.15	340.02	340.89	340.94	341.06	340.70	340.33	340.83
11	340.91	340.92	340.93	340.94	340.13	340.02	340.84	340.93	341.05	340.61	340.23	340.88
12	340.97	340.97	340.87	340.97	340.13	340.00	340.89	340.91	341.02	340.59	340.12	340.92
13	340.88	340.85	340.87	340.91	340.03	339.88	340.87	340.87	340.91	340.70	339.99	340.96
14	340.89	340.90	340.93	340.88	339.97	339.76	340.89	340.82	340.94	340.68	340.01	340.82
15	340.90	340.97	340.92	340.96	339.98	339.77	340.91	340.68	340.95	340.63	340.11	341.04
16	340.90	340.87	340.86	340.95	339.95	339.74	340.91	340.53	340.89	340.58	341.02	341.04
17	340.85	340.87	340.85	340.90	339.94	339.71	340.75	340.56	340.92	340.56	340.94	341.01
18	340.82	340.85	340.83	340.79	339.95	339.67	340.64	340.54	340.90	340.62	340.88	341.07
19	340.86	340.86	340.79	340.75	339.97	339.70	340.55	340.54	340.89	340.77	340.92	341.09
20	340.88	340.89	340.80	340.77	339.86	339.68	340.59	340.56	340.87	340.96	340.90	340.97
21	340.91	340.86	340.84	340.70	339.79	340.06	340.64	340.62	340.91	340.95	340.68	340.90
22	341.01	340.86	340.84	340.66	339.80	340.14	340.63	340.91	340.92	340.96	340.90	340.90
23	341.02	340.84	340.82	340.54	339.81	340.18	340.67	340.98	340.93	340.94	340.82	340.89
24	340.95	340.85	340.76	340.40	339.79	340.20	340.58	341.03	340.91	340.86	340.67	340.92
25	340.92	340.88	340.80	340.39	339.76	340.23	340.53	341.08	340.91	340.88	340.48	340.90
26	341.00	340.84	340.71	340.31	339.87	340.26	340.56	341.04	340.67	340.70	340.88	340.88
27	340.94	340.84	340.70	340.32	339.80	340.14	340.52	341.04	340.53	340.65	340.88	340.89
28	340.98	340.94	340.85	340.32	339.79	340.04	340.51	341.10	340.51	340.55	340.91	340.91
29	340.96	340.86	340.91	340.33	---	340.08	340.85	341.01	340.55	340.57	340.98	340.89
30	340.90	340.89	340.90	340.23	---	340.17	340.92	A	340.55	340.54	340.87	340.92
31	340.90	---	340.90	340.17	---	340.15	---	A	---	340.41	340.97	---
MAX	341.07	340.97	340.94	340.97	340.25	340.26	341.07	---	---	340.99	341.02	341.09
MIN	340.82	340.84	340.70	340.17	339.76	339.67	340.11	---	---	340.41	339.99	340.82

A No gage-height record

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 Díaz Plaza, and 4.0 mi (6.4 km) downstream from Lago Guayabal.

DRAINAGE AREA.--49.8 mi^2 (129.0 km^2).

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

GAGE.--Water-stage recorder and crest-stage gage. 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	190	151	59	45	6.7	6.0	6.9	13	e29	10	e13	98
2	176	160	61	40	6.3	6.8	15	9.1	e28	13	e14	479
3	177	210	62	42	5.4	5.9	58	8.2	e25	11	e15	223
4	170	121	56	48	5.6	5.6	93	8.5	e25	9.5	e36	204
5	155	91	50	59	5.2	5.9	27	8.6	21	11	e60	138
6	143	94	42	49	5.1	6.1	21	32	29	23	e50	384
7	263	145	38	45	4.8	7.2	17	27	46	47	e32	252
8	176	116	42	51	4.6	6.6	15	18	69	47	e15	e207
9	183	79	43	48	4.8	7.8	20	154	213	64	e11	e211
10	131	75	40	41	5.1	8.0	39	75	171	39	e10	e72
11	124	64	39	48	5.0	6.8	22	35	158	13	8.5	e102
12	121	68	38	44	5.1	6.7	14	27	104	10	7.5	e84
13	103	313	28	49	5.4	6.7	16	23	67	11	7.0	e284
14	89	736	30	29	5.4	6.6	15	18	44	10	6.6	e342
15	73	495	38	42	5.5	6.2	15	18	64	9.6	7.0	e233
16	74	489	49	32	5.2	6.1	18	20	46	9.2	87	e355
17	68	472	39	43	4.9	6.0	17	17	31	11	116	e409
18	54	381	37	24	4.7	5.9	9.5	17	36	11	50	e390
19	50	327	25	14	4.7	5.8	8.4	16	35	11	37	e444
20	49	83	18	13	4.7	5.9	7.7	16	41	38	60	e411
21	58	74	27	12	4.7	8.3	7.7	15	47	57	33	e251
22	557	63	32	11	4.7	9.9	7.7	16	53	53	37	e113
23	232	69	36	11	4.7	8.0	7.2	18	54	50	44	e131
24	197	67	33	9.9	4.7	8.6	7.1	27	51	42	20	e93
25	146	56	19	9.6	4.5	8.5	6.6	34	45	34	24	e96
26	198	53	17	9.1	4.6	8.2	6.5	33	33	27	23	e69
27	459	43	16	8.4	5.1	8.4	6.5	e30	13	16	39	e83
28	377	228	16	7.9	5.4	8.3	6.5	e33	11	14	51	e212
29	253	95	58	7.3	---	7.8	6.5	e33	13	13	168	e105
30	192	60	50	6.8	---	7.8	8.7	e30	11	13	196	e86
31	205	---	44	6.8	---	7.8	---	e30	---	e12	81	---
TOTAL	5443	5478	1182	905.8	142.6	220.2	525.5	859.4	1613	739.3	1358.6	6561
MEAN	176	183	38.1	29.2	5.09	7.10	17.5	27.7	53.8	23.8	43.8	219
MAX	557	736	62	59	6.7	9.9	93	154	213	64	196	479
MIN	49	43	16	6.8	4.5	5.6	6.5	8.2	11	9.2	6.6	69
AC-FT	10800	10870	2340	1800	283	437	1040	1700	3200	1470	2690	13010
CFSM	3.53	3.67	.77	.59	.10	.14	.35	.56	1.08	.48	.88	4.39
IN.	4.07	4.09	.88	.68	.11	.16	.39	.64	1.20	.55	1.01	4.90

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1999, BY WATER YEAR (WY)

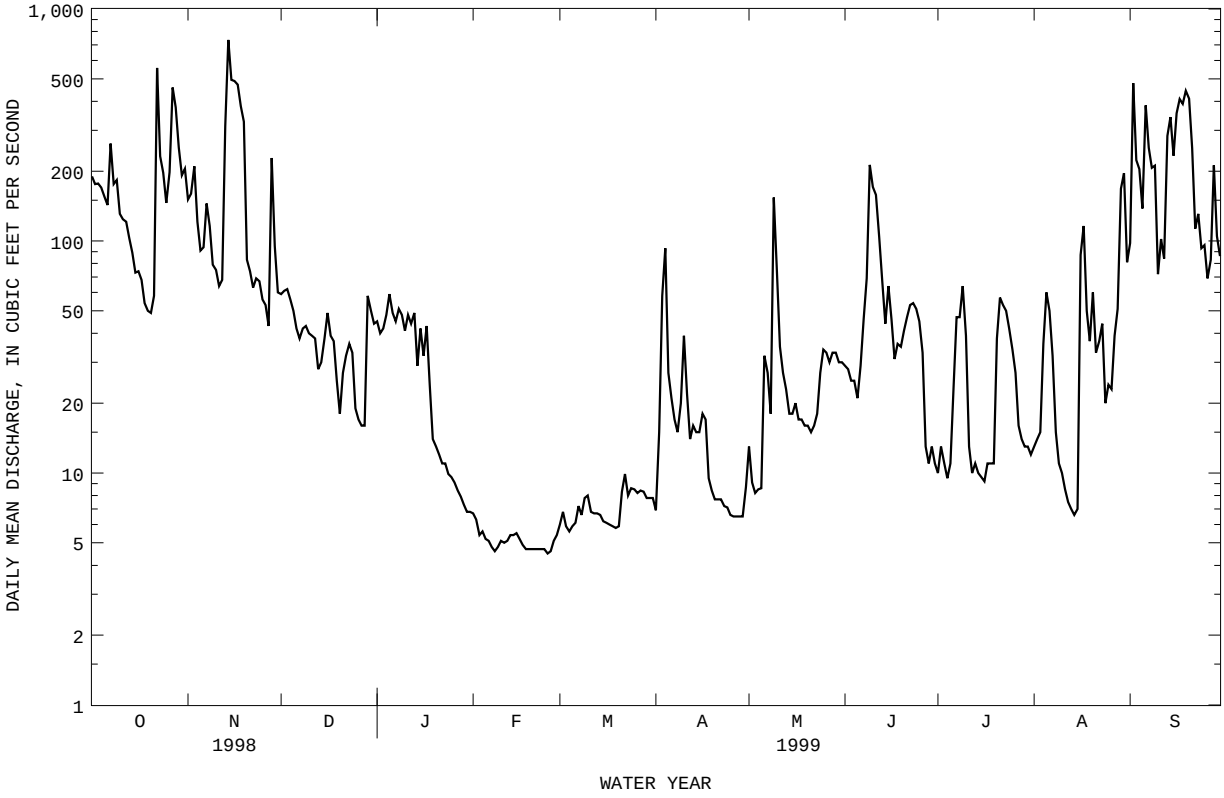
MEAN	118	88.4	32.9	23.4	8.78	5.17	13.5	64.1	39.6	21.9	28.0	90.3
MAX	445	287	151	144	16.9	8.60	46.7	215	198	82.4	136	667
(WY)	1986	1988	1988	1992	1991	1996	1998	1985	1987	1987	1998	1998
MIN	4.31	7.57	6.20	1.71	1.98	1.95	1.84	1.46	.93	1.04	1.59	.76
(WY)	1995	1995	1998	1998	1994	1994	1994	1994	1994	1994	1994	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1984 - 1999		
ANNUAL TOTAL	42602.0		25028.4				
ANNUAL MEAN	117		68.6		45.7		
HIGHEST ANNUAL MEAN					93.1		1998
LOWEST ANNUAL MEAN					6.23		1994
HIGHEST DAILY MEAN	8530	Sep 22	736	Nov 14	8530	Sep 22	1998
LOWEST DAILY MEAN	1.2	Jan 15	4.5	Feb 25	.24	Jan 3	1992
ANNUAL SEVEN-DAY MINIMUM	1.3	Jan 25	4.7	Feb 20	.51	Aug 31	1997
INSTANTANEOUS PEAK FLOW			4400	Sep 6	40000	Oct 7	1985
INSTANTANEOUS PEAK STAGE			13.07	Sep 6	29.42	Oct 7	1985
ANNUAL RUNOFF (AC-FT)	84500		49640		33130		
ANNUAL RUNOFF (CFSM)	2.34		1.38		.92		
ANNUAL RUNOFF (INCHES)	31.82		18.70		12.48		
10 PERCENT EXCEEDS	232		196		99		
50 PERCENT EXCEEDS	38		32		8.6		
90 PERCENT EXCEEDS	2.0		6.2		2.3		

e Estimated

RIO JACAGUAS BASIN

50111500 RIO JACAGUAS AT JUANA DIAZ, PR



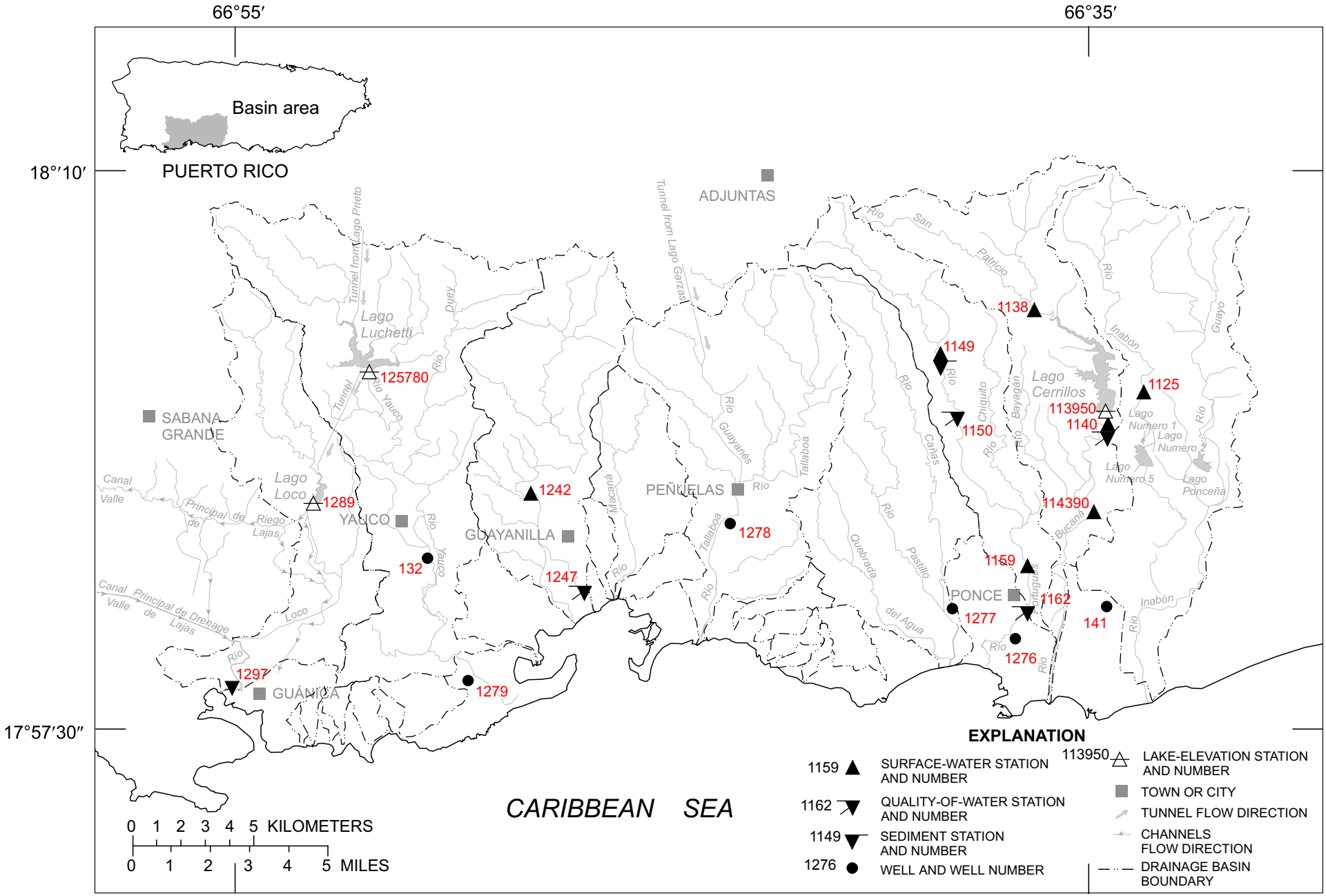


Figure 22. South coast river basins -- Río Inabón to Río Loco basins.

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^2 (25.12 km^2).

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 non-recording gage and crest-stage gage at different datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	58	23	10	6.5	11	7.3	9.0	25	14	30	43
2	46	67	22	9.4	6.6	13	e13	7.7	22	18	23	69
3	46	52	21	8.8	6.1	8.0	e43	7.5	14	15	16	52
4	50	44	20	8.6	5.8	5.1	e46	8.5	14	12	13	40
5	49	43	19	8.4	5.8	4.4	e15	10	19	11	51	37
6	46	40	18	8.6	5.8	4.4	11	11	16	11	29	60
7	66	58	18	8.1	5.7	5.3	8.5	7.9	13	11	18	92
8	77	42	17	7.6	5.4	5.2	7.3	7.6	16	13	13	100
9	67	37	17	7.5	5.5	5.9	e49	13	18	13	11	119
10	56	34	16	9.7	5.4	6.3	e35	12	62	11	11	93
11	51	32	16	9.7	5.6	e6.2	18	8.5	54	11	11	79
12	54	34	16	8.0	5.4	e5.6	13	10	39	11	10	71
13	51	35	16	7.6	5.7	e5.4	13	8.7	28	14	29	167
14	61	32	15	7.7	6.0	e5.2	12	7.5	22	9.1	40	149
15	50	32	15	11	7.9	e5.0	11	6.9	46	7.7	27	117
16	46	33	14	16	5.1	e4.8	9.6	6.5	36	8.5	77	108
17	42	29	14	13	4.7	4.8	8.4	5.5	28	9.9	58	97
18	40	27	14	9.8	4.6	4.3	7.7	5.5	27	9.0	40	90
19	38	27	14	8.7	4.5	3.9	7.8	5.2	27	8.0	35	104
20	37	29	13	8.9	4.5	18	8.1	5.2	23	e13	33	113
21	43	29	13	8.4	4.5	19	8.1	5.4	20	9.5	32	88
22	59	28	12	8.4	4.4	e46	8.1	5.5	18	9.1	59	74
23	53	27	12	7.9	4.6	15	e30	7.5	17	11	48	79
24	54	26	12	7.6	5.6	11	24	6.3	16	12	39	70
25	48	25	12	7.4	5.3	13	18	5.5	15	8.9	36	66
26	56	24	12	7.5	6.2	16	e19	5.5	14	7.0	35	64
27	114	27	12	7.2	10	9.2	13	5.3	13	7.2	35	61
28	148	43	11	6.9	13	6.6	11	5.7	13	11	37	121
29	97	30	16	6.9	---	6.0	e11	5.8	27	22	48	87
30	75	25	11	6.9	---	11	e12	12	19	14	38	75
31	81	---	11	6.7	---	10	---	20	---	10	36	---
TOTAL	1847	1069	472	268.9	166.2	294.6	497.9	248.2	721	351.9	1018	2585
MEAN	59.6	35.6	15.2	8.67	5.94	9.50	16.6	8.01	24.0	11.4	32.8	86.2
MAX	148	67	23	16	13	46	49	20	62	22	77	167
MIN	37	24	11	6.7	4.4	3.9	7.3	5.2	13	7.0	10	37
AC-FT	3660	2120	936	533	330	584	988	492	1430	698	2020	5130
CFSM	6.14	3.67	1.57	.89	.61	.98	1.71	.83	2.48	1.17	3.39	8.88
IN.	7.08	4.10	1.81	1.03	.64	1.13	1.91	.95	2.77	1.35	3.90	9.91

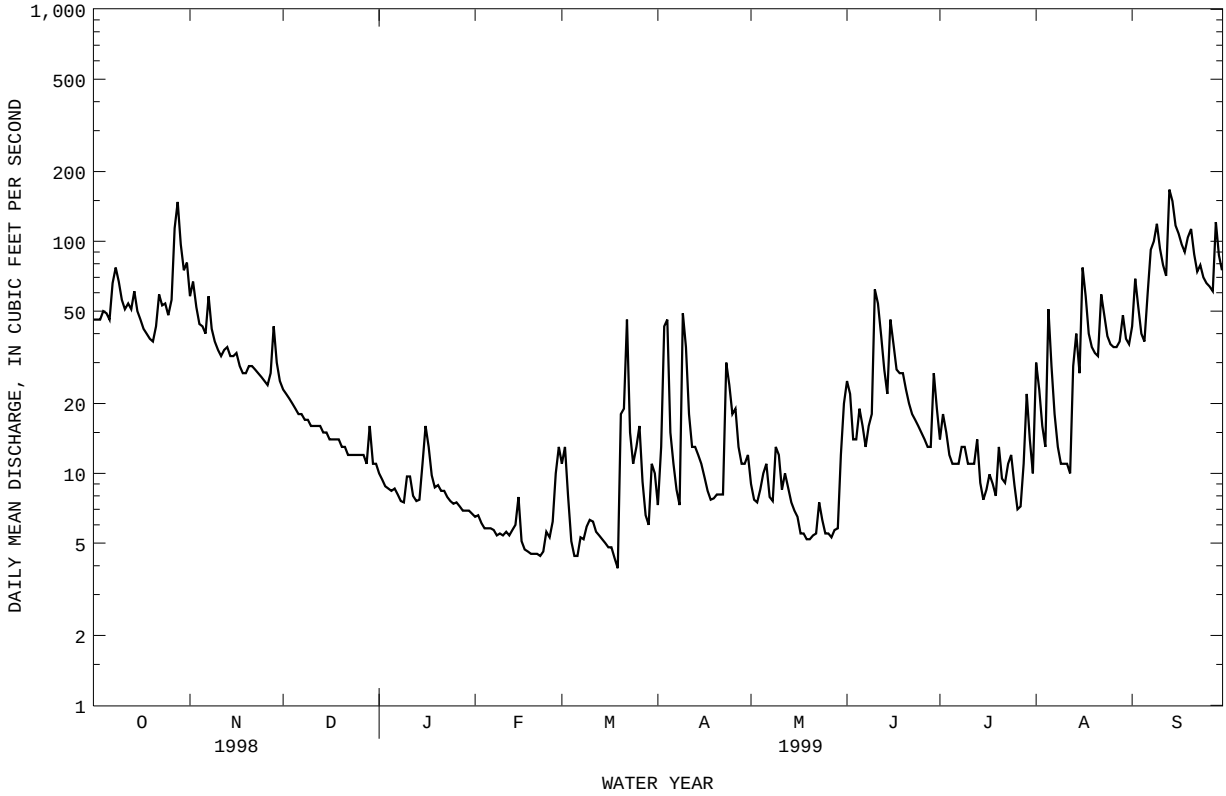
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)

MEAN	45.4	32.6	12.1	8.48	5.86	5.92	9.13	19.1	16.1	11.8	17.7	35.3
MAX	148	77.9	26.5	45.5	13.1	16.4	35.9	76.7	49.8	32.7	46.1	119
(WY)	1986	1978	1966	1992	1996	1972	1998	1969	1969	1979	1979	1975
MIN	14.5	8.32	4.43	4.11	3.05	1.85	2.76	1.94	2.75	1.77	4.47	6.16
(WY)	1994	1977	1977	1989	1977	1977	1975	1967	1967	1990	1974	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1964 - 1999	
ANNUAL TOTAL	10042.0		9539.7			
ANNUAL MEAN	27.5		26.1		18.2	
HIGHEST ANNUAL MEAN					30.9	1969
LOWEST ANNUAL MEAN					7.44	1994
HIGHEST DAILY MEAN	416	Sep 22	167	Sep 13	2500	Sep 16 1975
LOWEST DAILY MEAN	3.1	Feb 1	3.9	Mar 19	.80	Jul 23 1977
ANNUAL SEVEN-DAY MINIMUM	3.3	Jan 28	4.5	Feb 17	1.1	Mar 31 1977
INSTANTANEOUS PEAK FLOW			876	Oct 28	19000	Oct 7 1985
INSTANTANEOUS PEAK STAGE			9.81	Oct 28	25.30	Oct 7 1985
ANNUAL RUNOFF (AC-FT)	19920		18920		13180	
ANNUAL RUNOFF (CFSM)	2.84		2.69		1.88	
ANNUAL RUNOFF (INCHES)	38.51		36.59		25.48	
10 PERCENT EXCEEDS	52		61		40	
50 PERCENT EXCEEDS	21		14		9.1	
90 PERCENT EXCEEDS	4.1		5.6		3.2	

e Estimated

50112500 RIO INABON AT REAL ABAJO, PR--Continued



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 Mayagüez.

DRAINAGE AREA.-- 15.4 mi^2 (39.9 km^2).

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	81	e35	17	11	10	12	11	54	16	64	e58
2	80	e79	35	16	11	9.2	13	11	28	19	55	e100
3	76	e63	35	16	11	8.3	70	11	16	17	38	e89
4	72	54	33	16	10	8.2	41	11	15	15	28	e60
5	69	51	31	e15	10	8.0	17	11	24	15	85	e77
6	67	47	30	e15	9.7	8.0	13	11	19	15	44	e77
7	88	82	28	15	9.5	14	12	11	16	15	30	e140
8	98	53	27	15	9.2	15	11	14	20	17	25	e119
9	82	52	27	14	9.0	19	54	17	52	17	23	e115
10	84	46	26	16	9.0	15	35	22	152	16	21	82
11	77	e44	25	15	9.1	10	22	37	122	16	21	66
12	72	e48	24	14	9.5	9.5	16	27	66	16	20	65
13	e66	48	23	13	12	9.2	14	17	34	17	47	306
14	73	e48	23	15	11	8.8	13	15	21	16	46	211
15	63	e50	22	19	9.9	8.5	12	13	121	17	78	183
16	60	e48	22	36	9.0	8.4	12	12	47	16	147	154
17	57	e45	22	23	8.6	8.3	11	12	32	16	72	113
18	54	e43	21	16	8.6	8.1	11	12	36	17	45	117
19	52	e43	21	16	8.6	14	11	11	31	16	58	146
20	51	e43	21	15	8.4	12	11	11	25	64	44	196
21	51	e43	20	14	8.3	30	10	11	21	36	50	128
22	e94	e42	19	14	8.3	19	10	12	18	31	141	96
23	83	e41	19	13	8.4	11	28	14	17	58	80	94
24	78	e41	18	13	8.4	10	26	e12	16	43	55	86
25	69	e39	18	13	8.1	12	26	e11	15	28	e46	90
26	86	e39	18	13	8.4	11	19	e11	15	25	e45	75
27	e218	e41	17	12	9.1	9.4	13	11	15	24	e41	68
28	191	e46	e17	12	8.8	9.0	12	11	15	24	e62	166
29	113	e40	23	11	---	8.8	12	11	33	77	170	102
30	129	e36	19	11	---	29	12	15	18	42	e103	84
31	138	---	17	11	---	15	---	14	---	27	e61	---
TOTAL	2676	1476	736	474	261.9	375.7	579	430	1114	788	1845	3463
MEAN	86.3	49.2	23.7	15.3	9.35	12.1	19.3	13.9	37.1	25.4	59.5	115
MAX	218	82	35	36	12	30	70	37	152	77	170	306
MIN	51	36	17	11	8.1	8.0	10	11	15	15	20	58
AC-FT	5310	2930	1460	940	519	745	1150	853	2210	1560	3660	6870
CFSM	7.25	4.13	2.00	1.28	.79	1.02	1.62	1.17	3.12	2.14	5.00	9.70
IN.	8.37	4.61	2.30	1.48	.82	1.17	1.81	1.34	3.48	2.46	5.77	10.83

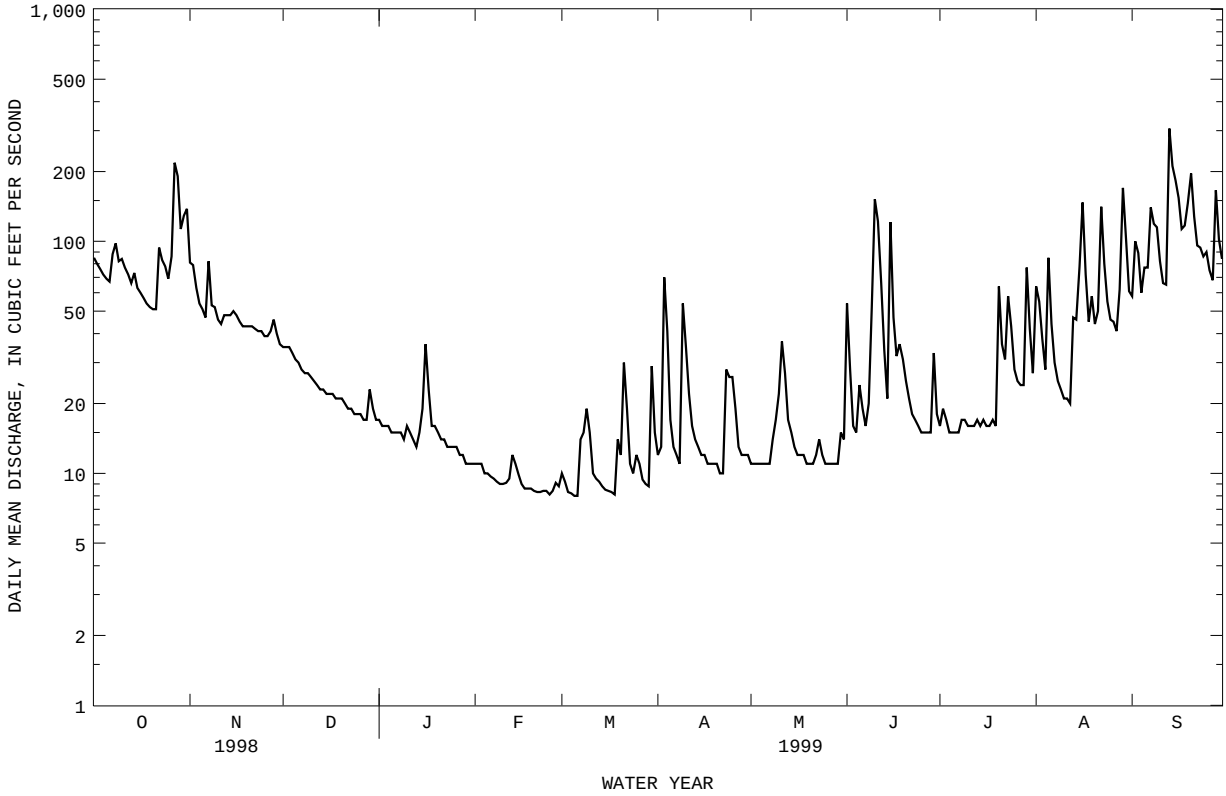
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)

MEAN	66.7	33.4	15.9	15.7	12.1	11.1	16.7	24.0	24.7	16.7	36.0	73.5
MAX	154	59.3	26.2	59.0	26.1	27.5	40.7	68.2	46.4	26.7	83.3	196
(WY)	1991	1993	1993	1992	1996	1989	1998	1993	1996	1991	1998	1998
MIN	24.6	9.77	8.10	6.59	6.34	4.77	5.01	4.58	4.14	3.37	11.3	13.1
(WY)	1992	1994	1995	1995	1990	1990	1997	1990	1997	1994	1994	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1989 - 1999	
ANNUAL TOTAL	18353.2		14218.6			
ANNUAL MEAN	50.3		39.0		28.8	
HIGHEST ANNUAL MEAN					43.9	1998
LOWEST ANNUAL MEAN					9.94	1994
HIGHEST DAILY MEAN	2510	Sep 22	306	Sep 13	2510	Sep 22 1998
LOWEST DAILY MEAN	5.3	Mar 13	8.0	Mar 5	3.0	Jul 6 1994
ANNUAL SEVEN-DAY MINIMUM	6.3	Feb 28	8.3	Feb 20	3.2	Jul 27 1994
INSTANTANEOUS PEAK FLOW			1510	Oct 27	16200	Sep 21 1998
INSTANTANEOUS PEAK STAGE			6.07	Oct 27	12.42	Sep 21 1998
INSTANTANEOUS LOW FLOW					3.0	Jul 6 1997
ANNUAL RUNOFF (AC-FT)	36400		28200		20870	
ANNUAL RUNOFF (CFSM)	4.23		3.27		2.42	
ANNUAL RUNOFF (INCHES)	57.37		44.45		32.89	
10 PERCENT EXCEEDS	93		85		65	
50 PERCENT EXCEEDS	27		21		14	
90 PERCENT EXCEEDS	7.0		10		5.0	

e Estimated

50113800 RIO CERRILLOS ABOVE LAGO CERRILLOS NEAR PONCE, PR--Continued



50113950 LAGO CERRILLOS AT DAMSITE NEAR PONCE, PR

LOCATION.--Lat 18°04'41", long 66°34'38", Hydrologic Unit 21010004, on left bank west from intake house of dam, 0.7 mi (1.1 km) southwest from Iglesia San Mateo at Real Abajo, 3.2 mi (5.1 km) northeast from Hospital de Distrito de Ponce, and 2.2 mi (3.5 km) northwest from Escuela Yuca.

DRAINAGE AREA.--17.4 mi^2 (45.1 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--October 1992 to current year .

REVISED RECORDS.--WDR PR-94-1: 1993,1994.

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

REMARKS.--Lake is formed by Cerrillos Dam, a rockfilled ungated structure completed in 1992. Elevation of crest is 611 ft (186 m) above mean sea level, with a structural height of 323 ft (98 m) and a lenght of 1,555 ft (474 m). The dam has a capacity of approximately 47,900 ac-ft (59.1 hm^3). The dam is operated by U.S. Army Corps of Engineers and its purpose is for flood control, water supply, power generation, and recreation. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 602.84 ft (183.74 m), Sept. 22, 1998; minimum elevation, 416.63 ft (126.99 m), Oct. 1, 1992, (Revised).

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 576.54 ft (175.73 m), Oct. 28; minimum elevation, 563.59 ft (171.78 m), Aug. 28.

Capacity Table

(based on data from U.S. Army Corps of Engineers)

Elevation , in feet	Contents in acre-feet	Elevation, in feet	Contents in acre-feet
328	0	525	16,990
426	3,206	558	25,786
492	10,621	590	37,509
		611	42,520

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	571.99	574.07	572.17	572.54	573.17	573.00	572.75	572.52	572.80	565.05	566.06	565.76
2	571.20	A	571.99	572.38	573.20	573.08	573.01	572.54	572.97	565.20	566.18	566.76
3	570.46	572.37	571.90	572.25	573.21	573.10	574.13	572.56	573.00	565.28	566.11	566.97
4	569.61	572.51	571.95	572.26	573.23	573.10	574.45	572.58	573.15	565.37	565.96	566.85
5	569.48	572.62	571.91	572.30	573.25	573.11	574.35	572.67	573.28	565.45	567.02	566.82
6	569.66	572.68	571.90	572.32	573.27	573.11	574.08	572.69	573.35	565.31	567.12	566.93
7	570.31	573.17	571.86	572.39	573.29	573.31	573.82	572.72	573.30	565.11	567.02	567.28
8	570.83	573.30	571.88	572.43	573.31	573.29	573.55	572.80	573.24	564.99	566.87	567.31
9	571.19	573.38	572.02	572.47	573.32	573.20	573.85	572.92	573.45	565.05	566.48	567.11
10	571.61	573.40	572.10	572.55	573.34	572.97	573.80	573.04	574.77	565.11	566.04	566.32
11	571.94	573.39	572.19	572.63	573.35	572.72	573.66	573.22	575.48	565.17	565.55	566.21
12	572.20	573.37	572.29	572.67	573.37	572.44	573.43	573.34	575.64	565.23	565.05	566.11
13	572.46	573.41	572.36	572.67	573.40	572.17	573.18	573.40	575.55	565.37	564.80	568.96
14	572.79	573.45	572.48	572.74	573.46	571.87	572.90	573.45	575.07	565.43	564.51	568.49
15	572.86	573.47	572.56	572.90	573.49	571.77	572.68	573.48	575.62	565.48	564.64	567.10
16	572.78	573.55	572.64	573.25	573.31	571.78	572.38	573.51	575.20	565.34	566.57	565.30
17	572.65	573.52	572.70	573.36	572.99	571.79	572.11	573.53	574.29	565.05	566.92	564.02
18	572.53	573.48	572.76	573.41	572.72	571.79	571.85	573.54	573.47	564.77	566.68	564.41
19	572.41	573.37	572.82	573.25	572.66	571.86	571.78	573.56	573.54	564.68	566.51	565.14
20	572.26	573.27	572.89	573.01	572.66	571.91	571.79	573.58	573.52	565.20	566.18	566.40
21	572.19	573.18	572.96	572.86	572.68	572.17	571.80	573.59	572.51	565.32	565.95	566.75
22	572.74	573.05	573.04	572.90	572.70	572.29	571.81	573.61	571.50	565.40	566.85	566.07
23	572.99	572.89	573.08	572.97	572.69	572.34	571.99	573.65	570.47	565.76	566.89	565.70
24	573.14	572.75	573.12	572.99	572.75	572.34	572.10	573.69	569.40	565.96	564.70	565.01
25	573.15	572.59	573.20	573.03	572.77	572.41	572.26	573.70	568.30	566.03	563.76	565.00
26	573.33	572.45	573.13	573.06	572.81	572.44	572.35	573.71	568.16	565.89	563.72	564.84
27	575.88	572.32	572.98	573.08	572.85	572.46	572.40	573.50	567.95	565.62	563.66	564.72
28	576.45	572.57	572.88	573.10	572.93	572.47	572.43	573.24	566.80	565.38	563.86	566.05
29	A	572.46	572.87	573.12	---	572.48	572.46	572.94	565.87	565.85	565.56	565.29
30	573.51	572.32	572.77	573.13	---	572.68	572.50	572.69	564.95	565.80	565.98	565.23
31	573.59	---	572.64	573.13	---	572.73	---	572.50	---	565.59	565.88	---
MAX	---	---	573.20	573.41	573.49	573.31	574.45	573.71	575.64	566.03	567.12	568.96
MIN	---	---	571.86	572.25	572.66	571.77	571.78	572.50	564.95	564.68	563.66	564.02

A No gage-height record

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 Degetau in Ponce.

DRAINAGE AREA.--17.8 mi^2 (46.1 km^2), excludes 17.4 mi^2 (45.1 km^2) 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 1991 to current year.

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 upstrream. Maximum discharge prior to regulation, 22,400 ft^3/s (6.34 m^3/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 ft^3/s (4.25 m^3/s), on basis of slope-area measurements of peak flow; minimum discharge prior to regulation, 2.2 ft^3/s (0.062 m^3/s), May 28, 1967.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	234	64	66	33	5.1	4.3	4.2	3.7	26	5.7	63	133
2	229	e289	66	33	5.0	4.2	4.3	3.7	4.4	5.9	57	146
3	220	185	51	33	5.0	4.1	5.5	3.7	4.0	5.7	55	143
4	213	65	34	14	5.0	3.9	4.4	3.6	3.9	5.7	56	147
5	82	64	35	4.1	4.8	4.0	40	3.6	4.0	5.8	55	148
6	4.5	64	35	4.0	4.7	3.8	62	3.6	4.0	43	53	148
7	4.3	65	35	4.1	4.6	4.6	62	3.4	19	70	53	257
8	4.3	66	23	4.1	4.6	35	62	3.5	29	49	53	288
9	4.1	67	5.7	4.2	4.6	58	62	3.9	29	5.9	95	270
10	4.0	67	6.1	4.3	5.2	58	62	3.4	30	5.6	114	279
11	3.9	67	6.2	4.4	4.7	58	62	3.2	51	5.7	116	138
12	3.9	69	6.4	4.5	4.6	56	62	3.1	67	5.5	109	141
13	3.9	70	6.4	4.6	4.5	57	63	3.4	71	5.7	123	357
14	4.0	69	6.2	4.7	4.3	56	62	e3.2	136	5.2	122	586
15	28	68	6.2	5.6	4.3	20	62	3.3	199	5.0	112	680
16	54	69	6.1	5.2	39	e3.8	61	3.2	199	43	114	674
17	53	71	5.8	5.2	65	e3.9	60	3.3	224	79	124	463
18	52	71	5.5	5.4	71	e3.7	61	3.3	208	82	122	107
19	51	72	5.3	43	29	e3.7	24	3.3	67	30	112	106
20	52	70	5.0	66	4.8	e3.6	4.3	3.5	67	5.7	114	106
21	52	70	4.7	48	5.0	e3.6	4.4	3.6	214	4.8	122	109
22	62	69	4.4	5.8	5.1	e3.6	4.3	3.6	206	4.9	119	219
23	64	68	4.3	5.8	4.8	e3.5	4.2	3.6	216	4.8	118	234
24	64	68	4.3	5.7	4.5	e3.6	4.2	3.5	206	4.8	416	233
25	64	68	4.3	5.7	4.4	e3.7	4.1	3.5	205	4.6	203	107
26	65	68	24	5.6	4.1	e3.8	4.0	3.7	63	40	57	101
27	e63	68	35	5.4	4.0	e3.9	3.9	42	66	62	57	110
28	297	71	35	5.4	4.1	e4.0	4.2	64	214	61	58	115
29	432	66	35	5.3	---	e4.1	3.9	66	210	66	58	257
30	437	66	34	5.2	---	4.1	3.8	60	177	60	104	112
31	247	---	34	5.1	---	4.1	---	61	---	60	131	---
TOTAL	3151.9	2374	634.9	389.4	315.8	487.6	930.7	383.4	3219.3	842.0	3265	6914
MEAN	102	79.1	20.5	12.6	11.3	15.7	31.0	12.4	107	27.2	105	230
MAX	437	289	66	66	71	58	63	66	224	82	416	680
MIN	3.9	64	4.3	4.0	4.0	3.5	3.8	3.1	3.9	4.6	53	101
AC-FT	6250	4710	1260	772	626	967	1850	760	6390	1670	6480	13710
CFSM	5.71	4.45	1.15	.71	.63	.88	1.74	.69	6.03	1.53	5.92	12.9
IN.	6.59	4.96	1.33	.81	.66	1.02	1.95	.80	6.73	1.76	6.82	14.45

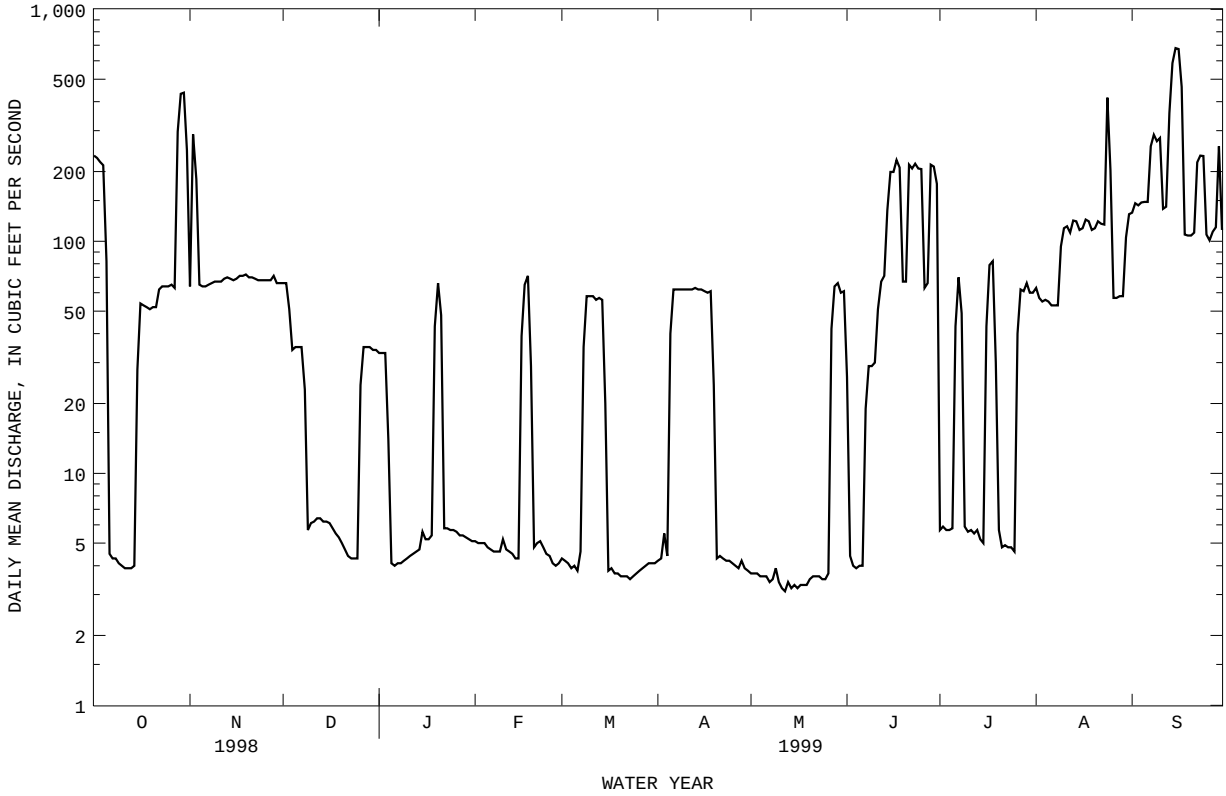
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)

MEAN	69.6	53.5	21.2	14.5	9.53	10.1	15.6	35.5	28.6	23.8	35.6	68.3
MAX	202	124	49.1	74.2	20.0	20.3	106	221	107	71.1	105	256
(WY)	1971	1978	1966	1992	1969	1969	1985	1985	1999	1968	1999	1975
MIN	4.93	5.21	4.81	4.42	4.37	4.39	4.93	4.14	3.69	4.75	5.26	4.52
(WY)	1996	1996	1995	1998	1993	1998	1979	1967	1995	1995	1995	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1964 - 1999	
ANNUAL TOTAL	14942.2		22908.0			
ANNUAL MEAN	40.9		62.8		31.7	
HIGHEST ANNUAL MEAN					62.8	1999
LOWEST ANNUAL MEAN					5.35	1995
HIGHEST DAILY MEAN	578	Sep 23	680	Sep 15	11500	Oct 7 1985
LOWEST DAILY MEAN	3.7	Jul 4	3.1	May 12	.64	Aug 19 1992
ANNUAL SEVEN-DAY MINIMUM	3.8	Jul 2	3.2	May 11	1.7	Aug 24 1992
INSTANTANEOUS PEAK FLOW			719	Sep 15	1320	Sep 10 1996
INSTANTANEOUS PEAK STAGE			4.08	Sep 15	7.74	Sep 10 1996
ANNUAL RUNOFF (AC-FT)	29640		45440		22960	
ANNUAL RUNOFF (CFSM)	2.30		3.53		1.78	
ANNUAL RUNOFF (INCHES)	31.23		47.88		24.20	
10 PERCENT EXCEEDS	106		180		74	
50 PERCENT EXCEEDS	5.5		35		13	
90 PERCENT EXCEEDS	4.0		3.8		4.8	

e Estimated

50114000 RIO CERRILLOS NEAR PONCE, PR--Continued



50114000 RIO CERRILLOS NEAR PONCE, PR.

WATER-QUALITY RECORDS

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 Ponce.

DRAINAGE AREA.--17.8 mi^2 (46.1 km^2)

PERIOD OF RECORD.--Water years 1964 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)
DEC										
22...	1030	4.4	348	7.9	25.5	.40	7.9	97	<10	<10
MAR										
16...	1410	4.1	318	8.4	26.8	.67	9.6	118	<10	K10
MAY										
11...	1500	3.3	327	8.2	27.0	8.0	90.0	89	<10	K50
SEP										
15...	1245	688	235	7.7	25.0	14	8.2	100	<10	80

DATE	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
DEC										
22...	K150	140	48	5.7	15	.5	.80	140	<1.0	33
MAR										
16...	K10	--	--	--	--	--	--	125	--	--
MAY										
11...	200	140	47	5.5	14	.5	.85	129	<1.0	29
SEP										
15...	250	110	33	5.7	8.1	.3	1.5	107	--	11

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
22...	8.1	.22	23	217	2.58	<1	<.010	.120	.030	--
MAR										
16...	--	--	--	--	--	<1	<.010	.110	.020	--
MAY										
11...	9.7	.22	23	207	1.83	1	<.010	.160	.030	--
SEP										
15...	7.8	<.10	19	150	280	13	<.010	.060	.190	.21

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
22...	<.20	--	--	<.020	<1	<100	20	<1	<1	<10
MAR										
16...	<.20	--	--	E.030	--	--	--	--	--	--
MAY										
11...	<.20	--	--	E.030	<1	30	40	<1	<1	<10
SEP										
15...	.40	.46	2.0	.030	--	--	--	--	--	--

50114000 RIO CERRILLOS NEAR PONCE, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
22...	40	<1	23	.16	<1	<1	<10	<.010	<4	<.02
MAR										
16...	--	--	--	--	--	--	--	--	--	--
MAY										
11...	40	<1	13	<.10	1	<1	E30	<.010	<4	<.02
SEP										
15...	--	--	--	--	--	--	--	--	--	--

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 and 4.0 mi (6.4 km) downstream from Lago Cerrillos Dam, 2.8 mi (4.5 km) northeast of Degetau Plaza in Ponce.

DRAINAGE AREA.--24.9 mi^2 (64.5 km^2).

PERIOD OF RECORD.--October 1985 to September 1986 (maximum only), published as "Rio 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 (35.50 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. Flow regulated by Lago Cerrillos Dam 4.0 mi upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e350	83	69	e24	7.0	8.0	5.5	5.5	52	19	64	176
2	e346	e252	69	e25	6.6	6.8	5.7	5.8	7.7	7.2	65	356
3	342	e164	e66	e24	6.3	6.0	14	5.8	4.6	4.9	58	191
4	339	82	e59	e15	6.1	5.9	21	5.8	4.5	4.3	58	125
5	192	81	e57	e8.4	5.8	5.8	19	5.7	4.8	4.0	81	123
6	25	80	e52	e8.4	5.7	5.8	45	6.1	6.1	20	65	121
7	21	80	e48	e8.8	5.5	9.7	56	5.8	14	51	61	434
8	22	79	e32	8.7	5.2	20	57	7.5	31	52	61	513
9	20	80	e15	8.9	5.1	56	58	16	32	5.9	87	508
10	18	79	e15	9.6	5.2	57	58	11	35	3.7	121	511
11	18	79	e13	8.9	4.7	57	58	6.4	40	3.8	119	127
12	18	78	e11	9.0	9.1	57	58	6.3	52	3.4	119	125
13	18	79	e9.5	8.9	6.0	57	59	6.4	58	4.5	119	815
14	18	77	e8.8	9.1	5.0	57	58	6.1	232	3.6	121	1240
15	e55	78	e7.8	11	4.9	50	58	5.8	406	4.4	133	1280
16	e73	77	e6.6	10	20	9.0	58	5.7	404	16	189	1260
17	e74	76	e5.9	9.7	48	7.0	57	5.8	500	53	179	918
18	e72	75	6.3	9.6	52	6.8	57	5.6	445	67	139	141
19	e75	e75	6.4	32	48	6.6	49	5.4	57	48	123	136
20	e82	74	6.5	64	7.5	6.4	10	5.3	55	6.7	122	133
21	e84	74	6.5	63	6.5	6.1	7.5	5.1	437	3.3	148	125
22	e92	72	6.7	11	6.3	6.0	7.2	5.0	407	2.5	128	411
23	e90	72	6.8	10	7.0	5.8	6.6	4.8	424	2.3	133	577
24	88	71	6.9	9.6	6.3	5.9	6.2	5.4	416	2.4	904	460
25	88	71	7.1	9.2	6.0	5.7	6.1	5.0	407	2.5	564	134
26	86	70	e20	8.8	6.1	5.5	6.0	4.7	58	17	54	133
27	86	69	e25	8.3	6.6	5.5	5.7	21	55	41	52	133
28	e284	69	e24	8.0	7.1	5.5	5.8	51	397	45	51	432
29	e351	69	e24	7.7	---	5.5	5.8	61	412	50	50	549
30	e356	70	e24	7.4	---	5.7	5.6	65	375	53	67	157
31	e211	---	e25	7.2	---	5.5	---	66	---	52	111	---
TOTAL	3994	2535	739.8	463.2	315.6	557.5	923.7	427.8	5828.7	653.4	4346	12344
MEAN	129	84.5	23.9	14.9	11.3	18.0	30.8	13.8	194	21.1	140	411
MAX	356	252	69	64	52	57	59	66	500	67	904	1280
MIN	18	69	5.9	7.2	4.7	5.5	5.5	4.7	4.5	2.3	50	121
AC-FT	7920	5030	1470	919	626	1110	1830	849	11560	1300	8620	24480
CFSM	5.17	3.39	.96	.60	.45	.72	1.24	.55	7.80	.85	5.63	16.5
IN.	5.97	3.79	1.11	.69	.47	.83	1.38	.64	8.71	.98	6.49	18.44

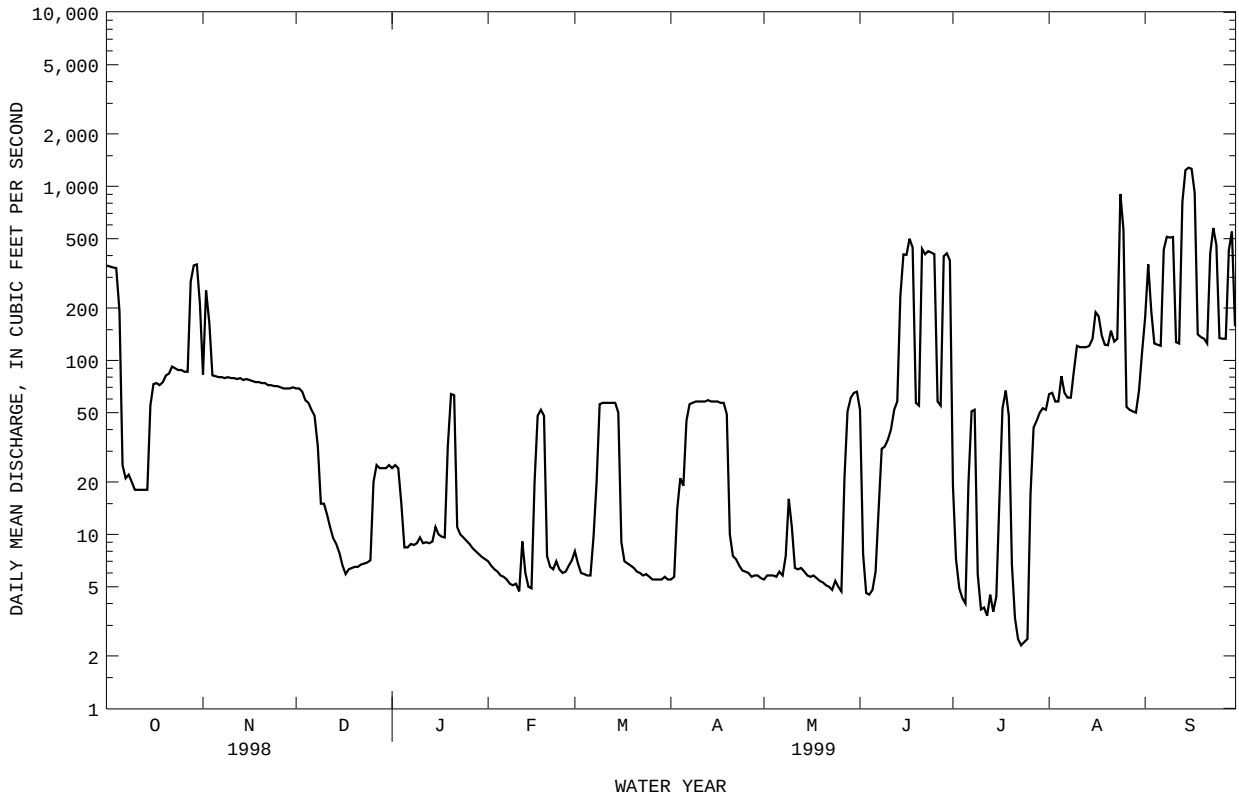
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1999, BY WATER YEAR (WY)

MEAN	115	58.5	16.7	38.5	10.5	14.1	14.8	21.7	38.1	22.6	77.3	152
MAX	527	222	49.1	337	19.3	48.0	42.5	94.9	194	75.8	417	756
(WY)	1991	1988	1988	1992	1995	1989	1992	1992	1999	1998	1998	1998
MIN	6.34	5.09	5.03	4.51	4.10	4.49	4.74	4.29	4.90	4.37	4.06	5.66
(WY)	1996	1994	1996	1994	1994	1994	1994	1994	1994	1994	1994	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1987 - 1999	
ANNUAL TOTAL	47207.9		33128.7			
ANNUAL MEAN	129		90.8		49.7	
HIGHEST ANNUAL MEAN					113	1998
LOWEST ANNUAL MEAN					7.43	1994
HIGHEST DAILY MEAN	3510	Sep 22	1280	Sep 15	4340	Jan 6 1992
LOWEST DAILY MEAN	3.3	Jul 10	2.3	Jul 23	2.3	Jul 23 1999
ANNUAL SEVEN-DAY MINIMUM	3.8	Jul 6	4.2	Jul 9	2.8	Sep 23 1992
INSTANTANEOUS PEAK FLOW			3170	Sep 23	17400	Oct 7 1985
INSTANTANEOUS PEAK STAGE			12.68	Sep 23	13.48	Oct 7 1985
ANNUAL RUNOFF (AC-FT)	93640		65710		36000	
ANNUAL RUNOFF (CFSM)	5.19		3.65		2.00	
ANNUAL RUNOFF (INCHES)	70.53		49.49		27.11	
10 PERCENT EXCEEDS	329		265		83	
50 PERCENT EXCEEDS	9.1		32		9.0	
90 PERCENT EXCEEDS	5.0		5.5		4.7	

e Estimated

50114390 RIO BUCANA AT HWY 14 BRIDGE NEAR PONCE, PR--Continued



50114900 RIO PORTUGUES NEAR TIBES, PR

LOCATION.--Lat 18°06'00", long 66°38'34", Hydrologic Unit 21010004, 1.6 mi (2.6 km), north from Escuela Segunda unidad of Corral Viejo, 0.3 mi (0.50 km) south from Hacienda Burenes and 6.0 mi (9.6 km) northeast from Peñuelas Plaza Church.

DRAINAGE AREA.--7.27 mi^2 (18.83 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 918 ft (280 m), from topographic map.

REMARKS.--Records poor. Some low-flow regulation due to PRASA intakes (2) 0.85 mi (1.36 km) upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e22	e56	e16	8.4	6.6	6.1	7.8	5.5	16	8.5	17	44
2	e21	e42	e14	8.1	6.4	5.3	7.3	5.6	11	9.8	22	80
3	e20	e39	e17	8.2	6.0	5.0	56	5.6	7.7	8.3	20	70
4	e18	e37	e14	9.0	5.8	4.9	19	6.6	8.6	8.0	16	54
5	e24	e28	e11	8.8	5.6	4.8	9.1	5.8	8.2	7.9	18	43
6	e41	e29	e12	8.6	5.4	4.7	7.6	6.0	7.2	7.7	13	39
7	e123	e32	e11	8.3	5.3	6.0	7.9	5.6	6.9	7.6	14	43
8	e49	e33	e12	8.6	5.2	6.7	8.1	6.6	8.9	7.6	12	44
9	e30	e32	e16	8.5	5.4	8.0	40	7.8	18	7.5	11	56
10	e47	e33	e16	9.8	5.7	6.9	11	12	78	7.4	10	37
11	e37	e30	e13	9.5	5.8	5.3	7.2	13	50	7.5	9.9	29
12	e27	e28	e15	8.7	5.9	4.8	6.0	8.7	25	7.4	9.5	30
13	e24	e35	e13	8.3	6.3	4.6	6.3	6.8	17	7.4	9.6	219
14	e41	e29	e13	8.1	6.2	4.3	6.6	6.0	14	7.2	9.8	128
15	e29	e32	e11	13	6.0	4.4	6.2	5.5	26	7.3	59	76
16	e22	e39	10	26	5.5	4.4	5.7	5.2	28	7.1	143	76
17	e21	e36	9.8	17	5.4	4.4	5.5	5.2	24	7.1	73	58
18	e19	e26	9.6	11	5.4	4.4	4.9	5.1	21	6.9	38	53
19	e17	e22	9.3	10	5.3	4.3	4.9	5.0	24	6.8	41	64
20	e19	e19	9.4	10	5.2	4.3	4.8	4.9	19	29	40	65
21	e17	e24	9.0	9.8	5.0	9.9	4.8	4.8	14	20	37	45
22	e98	e25	8.9	9.1	5.0	7.8	4.8	4.8	13	16	46	36
23	e54	e22	8.7	8.4	5.1	5.7	4.9	4.8	12	39	42	55
24	e42	e23	8.9	8.3	6.1	5.3	18	4.8	11	27	30	62
25	e23	e21	9.0	8.3	6.0	5.0	21	4.7	9.8	17	29	57
26	e34	e18	9.2	7.8	5.6	4.8	20	4.6	9.5	15	29	48
27	e57	e17	9.3	7.5	5.6	4.4	9.4	4.4	9.2	15	27	46
28	e100	e120	9.6	7.4	5.6	4.4	e6.4	4.4	8.9	14	34	85
29	e63	e38	11	6.9	---	4.2	e5.2	4.4	12	59	118	52
30	e52	e22	9.2	6.8	---	11	5.6	4.4	9.1	22	61	38
31	e100	---	9.2	6.7	---	8.8	---	6.3	---	15	31	---
TOTAL	1291	987	354.1	294.9	158.4	174.9	332.0	184.9	527.0	433.0	1069.8	1832
MEAN	41.6	32.9	11.4	9.51	5.66	5.64	11.1	5.96	17.6	14.0	34.5	61.1
MAX	123	120	17	26	6.6	11	56	13	78	59	143	219
MIN	17	17	8.7	6.7	5.0	4.2	4.8	4.4	6.9	6.8	9.5	29
AC-FT	2560	1960	702	585	314	347	659	367	1050	859	2120	3630
CFSM	5.73	4.53	1.57	1.31	.78	.78	1.52	.82	2.42	1.92	4.75	8.40
IN.	6.61	5.05	1.81	1.51	.81	.89	1.70	.95	2.70	2.22	5.47	9.37

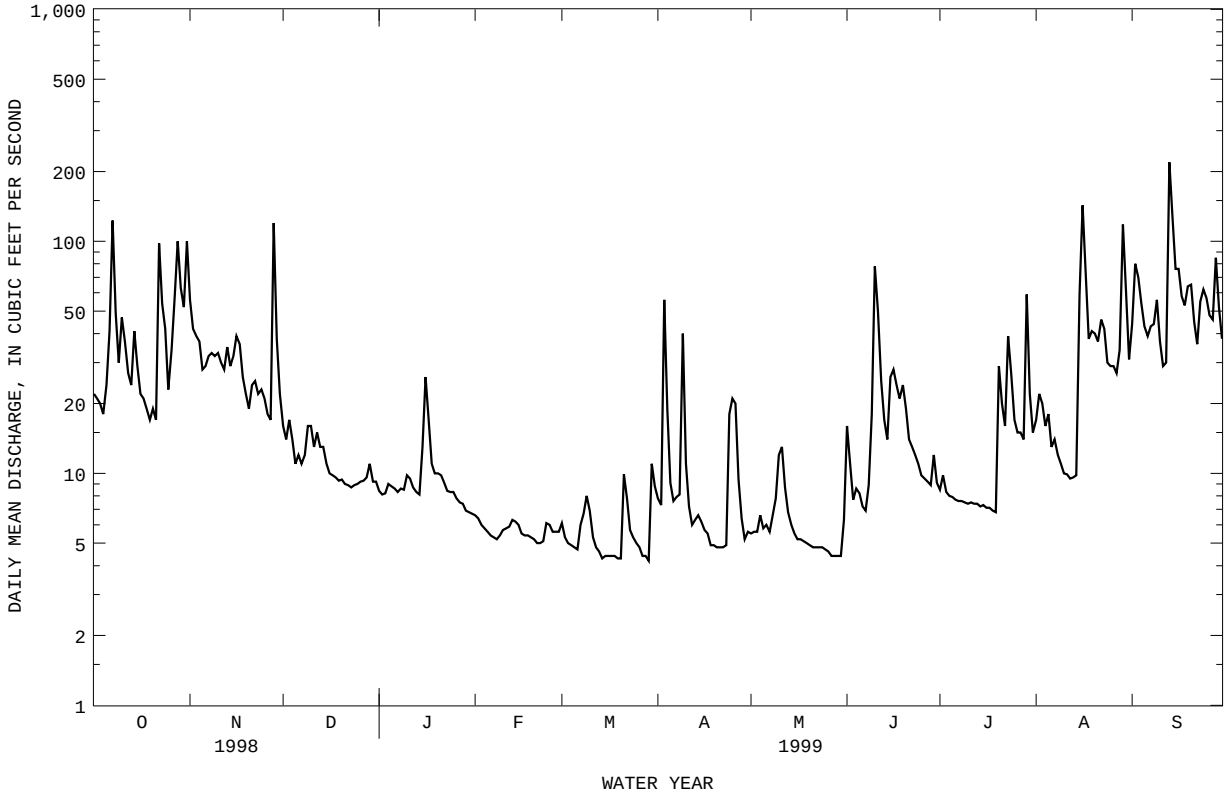
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

MEAN	27.5	19.9	7.70	6.29	5.47	4.58	14.3	9.50	13.9	15.0	31.5	104
MAX	41.6	32.9	11.4	9.51	5.66	5.64	17.5	13.0	17.6	16.1	34.5	147
(WY)	1999	1999	1999	1999	1999	1999	1998	1998	1999	1998	1999	1998
MIN	13.3	6.91	3.98	3.07	5.29	3.52	11.1	5.96	10.2	14.0	28.5	61.1
(WY)	1998	1998	1998	1998	1998	1998	1999	1999	1998	1999	1998	1999

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1998 - 1999	
ANNUAL TOTAL	10008.8		7639.0			
ANNUAL MEAN	27.4		20.9		21.6	
HIGHEST ANNUAL MEAN					22.2	1998
LOWEST ANNUAL MEAN					20.9	1999
HIGHEST DAILY MEAN	3000	Sep 22	219	Sep 13	3000	Sep 22 1998
LOWEST DAILY MEAN	2.4	Mar 31	4.2	Mar 29	1.1	Oct 6 1997
ANNUAL SEVEN-DAY MINIMUM	2.8	Mar 25	4.4	Mar 14	1.7	Oct 1 1997
INSTANTANEOUS PEAK FLOW			1180	Aug 16	10000	Sep 21 1998
INSTANTANEOUS PEAK STAGE			11.02	Aug 16	22.46	Sep 21 1998
INSTANTANEOUS LOW FLOW			3.6	Mar 27		
ANNUAL RUNOFF (AC-FT)	19850		15150		15640	
ANNUAL RUNOFF (CFSM)	3.77		2.88		2.97	
ANNUAL RUNOFF (INCHES)	51.21		39.09		40.34	
10 PERCENT EXCEEDS	41		49		41	
50 PERCENT EXCEEDS	11		9.9		8.7	
90 PERCENT EXCEEDS	3.1		5.0		3.5	

e Estimated

50114900 RIO PORTUGUES NEAR TIBES, PR--Continued



50114900 RIO PORTUGUES NEAR TIBES, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- October, 1997 to current water year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October, 1997 to current water year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 11997.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediments samples were collected by local observer and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, e17,500 mg/L September 22, 1998; Minimum daily mean, 2 mg/L March 1, 1998.

SEDIMENT LOADS: Maximum daily mean, e143,000 tons (e130,000 tonnes) September 22, 1998; Minimum daily mean, 0.03 ton (0.02 tonne) several days.

EXTREMES FOR CURRENT YEAR 1999.

SEDIMENT CONCENTRATION: Maximum daily mean, 6,540 mg/L September 14, 1999; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 8,500 tons (7,710 tonnes) September 14, 1999; Minimum daily mean, ton (0.02 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
		OCTOBER			NOVEMBER			DECEMBER	
1	e22	e78	e5.8	e56	e902	e532	e16	e39	e1.7
2	e21	e78	e5.8	e42	e1170	e200	e14	e64	e3.1
3	e20	e78	e5.8	e39	e1170	e200	e17	e39	e1.7
4	e18	e98	e6.3	e37	e353	e37	e14	e64	e3.1
5	e24	e107	e6.9	e28	e230	e18	e11	e12	e.37
6	e41	e1170	e200	e29	e230	e18	e12	e12	e.37
7	e123	e1610	e845	e32	e768	e60	e11	e12	e.37
8	e49	e179	e24	e33	e768	e60	e12	e12	e.37
9	e30	e768	e60	e32	e768	e60	e16	e39	e1.7
10	e47	e467	e80	e33	e768	e60	e16	e39	e1.7
11	e37	e355	e37	e30	e768	e60	e13	e64	e4.1
12	e27	e134	e23	e28	e230	e18	e15	e39	e1.7
13	e24	e107	e6.9	e35	e768	e60	e13	e64	e4.1
14	e41	e1170	e200	e29	e230	e18	e13	e64	e4.1
15	e29	e230	e18	e32	e768	e30	e11	e12	e.37
16	e22	e78	e5.8	e39	e1170	e200	10	14	.38
17	e21	e78	e5.8	e36	e355	e37	9.8	12	.32
18	e19	e98	e6.3	e26	e134	e23	9.6	9	.23
19	e17	e39	e1.7	e22	e78	e5.8	9.3	9	.21
20	e19	e98	e6.3	e19	e98	e6.3	9.4	8	.21
21	e17	e39	e1.2	e24	e107	e6.9	9.0	8	.20
22	e98	e2800	e2600	e25	e107	e6.9	8.9	19	.45
23	e54	e902	e532	e22	e79	e5.8	8.7	58	1.3
24	e42	e1170	e200	e23	e107	e6.9	8.9	90	2.2
25	e23	e107	e6.9	e21	e79	e5.8	9.0	110	2.7
26	e34	e768	e60	e18	e98	e6.3	9.2	134	3.3
27	e57	e902	e532	e17	e39	e1.7	9.3	142	3.5
28	e100	e1600	e800	e120	e1610	e845	9.6	140	3.6
29	e63	e2130	e349	e38	e355	e37	11	112	3.4
30	e52	e902	e532	e22	e78	e5.8	9.2	81	2.0
31	e100	e1600	e800	---	---	---	9.2	48	1.2
TOTAL	1291	---	7963.5	987	---	2631.2	354.1	---	54.05

RIO PORTUGUES BASIN

50114900 RIO PORTUGUES NEAR TIBES, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	8.4	25	.57	6.6	24	.42	6.1	10	.16
2	8.1	17	.37	6.4	9	.15	5.3	13	.18
3	8.2	23	.52	6.0	13	.21	5.0	50	.66
4	9.0	30	.74	5.8	35	.56	4.9	217	2.8
5	8.8	30	.70	5.6	32	.48	4.8	884	11
6	8.6	28	.66	5.4	18	.26	4.7	1080	14
7	8.3	22	.49	5.3	10	.14	6.0	818	13
8	8.6	16	.36	5.2	9	.13	6.7	612	11
9	8.5	11	.25	5.4	11	.17	8.0	427	8.8
10	9.8	8	.21	5.7	9	.15	6.9	137	2.7
11	9.5	6	.14	5.8	7	.11	5.3	33	.49
12	8.7	5	.11	5.9	10	.16	4.8	8	.11
13	8.3	4	.10	6.3	20	.35	4.6	4	.05
14	8.1	4	.09	6.2	38	.63	4.3	3	.04
15	13	64	4.1	6.0	19	.32	4.4	3	.04
16	26	134	23	5.5	5	.07	4.4	3	.04
17	17	39	1.7	5.4	4	.06	4.4	3	.04
18	11	47	1.4	5.4	7	.10	4.4	3	.04
19	10	45	1.3	5.3	8	.12	4.3	3	.04
20	10	21	.58	5.2	9	.12	4.3	3	.04
21	9.8	9	.25	5.0	9	.13	9.9	47	4.1
22	9.1	9	.21	5.0	10	.13	7.8	37	.95
23	8.4	11	.26	5.1	8	.11	5.7	4	.07
24	8.3	15	.34	6.1	7	.12	5.3	3	.04
25	8.3	20	.45	6.0	14	.23	5.0	2	.03
26	7.8	17	.35	5.6	27	.40	4.8	2	.03
27	7.5	12	.23	5.6	23	.35	4.4	3	.03
28	7.4	19	.38	5.6	14	.21	4.4	3	.03
29	6.9	45	.82	---	---	---	4.2	3	.03
30	6.8	53	.98	---	---	---	11	29	2.0
31	6.7	47	.86	---	---	---	8.8	29	.68
TOTAL	294.9	---	42.52	158.4	---	6.39	174.9	---	73.22

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	7.8	27	.58	5.5	3	.05	16	1690	726
2	7.3	27	.53	5.6	3	.05	11	179	4.9
3	56	1060	1070	5.6	4	.06	7.7	853	17
4	19	98	6.3	6.6	25	.81	8.6	1100	26
5	9.1	18	.46	5.8	652	11	8.2	945	21
6	7.6	8	.17	6.0	1620	26	7.2	854	17
7	7.9	9	.19	5.6	1620	24	6.9	765	14
8	8.1	15	.34	6.6	494	8.1	8.9	700	17
9	40	1020	556	7.8	102	2.5	18	919	55
10	11	103	3.6	12	103	8.5	78	1510	1400
11	7.2	42	.94	13	121	4.4	50	347	89
12	6.0	8	.13	8.7	37	.89	25	16	1.1
13	6.3	4	.07	6.8	11	.20	17	13	.60
14	6.6	2	.04	6.0	10	.17	14	10	.38
15	6.2	2	.03	5.5	18	.26	26	579	110
16	5.7	1	.02	5.2	16	.23	28	230	18
17	5.5	1	.02	5.2	11	.16	24	107	6.9
18	4.9	1	.02	5.1	10	.14	21	78	4.3
19	4.9	2	.03	5.0	11	.15	24	71	4.6
20	4.8	3	.04	4.9	12	.15	19	26	1.4
21	4.8	3	.04	4.8	10	.13	14	5	.21
22	4.8	3	.04	4.8	9	.11	13	4	.15
23	4.9	3	.04	4.8	8	.10	12	7	.21
24	18	162	50	4.8	12	.16	11	4	.12
25	21	196	20	4.7	28	.35	9.8	1	.04
26	20	78	5.8	4.6	57	.70	9.5	1	.03
27	9.4	9	.22	4.4	53	.63	9.2	1	.03
28	e6.4	8	.13	4.4	48	.58	8.9	1	.02
29	e5.2	6	.08	4.4	45	.53	12	25	1.3
30	5.6	4	.07	4.4	41	.49	9.1	13	.33
31	---	---	---	6.3	38	.64	---	---	---
TOTAL	332.0	---	1715.93	184.9	---	92.24	527.0	---	2536.62

50114900 RIO PORTUGUES NEAR TIBES, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	8.5	11	.26	17	195	9.2	44	1550	312
2	9.8	10	.26	22	234	14	80	2880	1560
3	8.3	8	.19	20	219	12	70	1280	295
4	8.0	7	.15	16	166	7.3	54	359	52
5	7.9	6	.13	18	203	10	43	323	37
6	7.7	5	.11	13	104	3.7	39	312	33
7	7.6	4	.09	14	18	.65	43	386	51
8	7.6	4	.08	12	11	.36	44	369	48
9	7.5	3	.06	11	15	.43	56	437	69
10	7.4	4	.07	10	18	.48	37	1020	95
11	7.5	5	.09	9.9	20	.54	29	1550	121
12	7.4	5	.09	9.5	23	.59	30	768	60
13	7.4	4	.09	9.6	24	.62	219	6540	8500
14	7.2	4	.08	9.8	24	.64	128	1610	845
15	7.3	4	.08	59	1190	902	76	478	98
16	7.1	4	.08	143	4430	7460	76	2900	1110
17	7.1	4	.08	73	488	98	58	422	66
18	6.9	4	.08	38	355	37	53	900	147
19	6.8	4	.07	41	1170	200	64	511	107
20	29	814	393	40	338	38	65	1030	190
21	20	48	2.7	37	236	29	45	1380	172
22	16	19	.80	46	467	80	36	476	47
23	39	1150	530	42	326	37	55	560	124
24	27	241	18	30	447	35	62	105	18
25	17	155	7.2	29	1290	104	57	168	34
26	15	109	4.4	29	3590	285	48	179	24
27	15	77	3.1	27	4740	352	46	30	3.7
28	14	55	2.1	34	4570	415	85	508	141
29	59	902	532	118	2860	2700	52	402	56
30	22	218	13	61	2130	349	38	310	32
31	15	206	8.5	31	2050	173	---	---	---
TOTAL	433.0	---	1516.94	1069.8	---	13354.51	1832	---	14447.7
YEAR	7639.0		44434.82						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
DEC					
28...	1900	9.4	140	3.6	79
MAR					
07...	1900	9.0	753	18	70
JUL					
23...	2024	67	2460	445	100
29...	1929	57	2870	441	100
AUG					
29...	2045	175	2260	1070	99
SEP					
13...	0750	216	2620	1530	99
16...	2020	E87	3300	e775	99

50114900 RIO PORTUGUES NEAR TIBES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
MAY							
05...	1900	6.5	1580	28	37	46	59
JUN							
01...	1715	139	52100	19600	50	66	81
10...	1649	123	4090	1360	46	62	80
JUL							
23...	1833	275	10100	7510	45	61	79
29...	1818	183	4910	2430	48	64	81
AUG							
29...	1845	588	7100	11300	47	63	82
SEP							
16...	1645	350	18700	17700	41	59	78
16...	1850	119	8850	2840	40	54	71

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
MAY							
05...	71	84	91	98	100	100	100
JUN							
01...	94	100	100	100	100	100	100
10...	94	98	99	100	100	100	100
JUL							
23...	94	99	100	100	100	100	100
29...	93	99	100	100	100	100	100
AUG							
29...	95	99	100	100	100	100	100
SEP							
16...	93	100	100	100	100	100	100
16...	88	98	99	100	100	100	100

50115000 RIO PORTUGUES NEAR PONCE, PR.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
22...	1230	11	394	8.3	25.5	.44	8.0	100	<10	K160	410
MAR											
16...	1740	5.3	319	8.4	24.6	.64	8.0	95	<10	--	K130
MAY											
19...	1200	6.4	374	8.4	27.9	1.6	8.1	105	<10	36	88
SEP											
15...	1055	118	348	8.4	24.4	310	8.5	103	<10	390	840

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
22...	180	55	11	12	.4	1.2	170	<1.0	24	9.6
MAR										
16...	--	--	--	--	--	--	--	--	--	--
MAY										
19...	170	50	10	13	.4	1.2	161	<1.0	18	11
SEP										
15...	150	46	8.8	10	.4	1.2	150	--	17	8.8

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
22...	.16	22	235	6.76	<1	1.19	.010	1.20	.030	--
MAR										
16...	--	--	--	--	<1	--	<.010	.980	.020	--
MAY										
19...	<.10	22	222	3.85	<1	--	<.010	1.60	.010	--
SEP										
15...	<.10	23	205	65.3	508	--	<.010	2.30	.010	.27

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
22...	<.20	--	--	<.020	<1	<100	20	<1	<1	<10
MAR										
16...	<.20	--	--	E.050	--	--	--	--	--	--
MAY										
19...	<.20	--	--	E.020	<1	30	40	<1	<1	E7
SEP										
15...	.28	2.6	11	.510	--	--	--	--	--	--

50115000 RIO PORTUGUES NEAR PONCE, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
22...	40	<1	10	<.10	<1	<1	<10	<.010	<4	<.02
MAR										
16...	--	--	--	--	--	--	--	--	--	--
MAY										
19...	30	<1	E2	<.10	<1	<1	E30	<.010	<4	.02
SEP										
15...	--	--	--	--	--	--	--	--	--	--

50115900 RIO PORTUGUES AT HIGHWAY 14 AT PONCE, PR

LOCATION.--Lat 18°01'09", long 66°36'26", Hydrologic Unit 21010004, on right bank upstream from bridge on Highway 14, 1.70 mi (2.74 km) downstream from Río Chiquito, and 0.6 mi (0.96 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--18.6 mi^2 (48.17 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Occasional measurements 1963, annual maximum discharge and peaks above base at different datum, from 1965 to 1972. June 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 67.2 ft (20.48 m), from topographic map. Prior to June 18, 1997 non-recording gage crested-stage gage at same site and different datum.

REMARKS.--Records poor. Some low-flow regulation due to Río Portugués dam construction activity upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e36	e91	e28	e19	e12	e22	e13	e13	e65	e10	e91	e226
2	e35	e66	e24	e20	e9.7	e11	e18	e16	e46	e19	e122	e206
3	e32	e64	e28	e20	e9.4	e8.7	e122	e17	e13	e11	e65	e119
4	e29	e61	e23	e19	e8.3	e8.5	e59	e6.9	e21	e13	e34	e62
5	e39	e45	e19	e16	e12	e6.2	e6.8	e8.8	e28	e13	e135	e48
6	e67	e46	e20	e20	e11	e7.5	e8.1	e7.1	e10	e11	e41	e43
7	e205	e52	e18	e19	e9.0	e9.0	e10	e5.9	e9.4	e12	e27	e55
8	e79	e53	e21	e20	e8.3	e11	e13	e7.9	e16	e14	e22	e53
9	e49	e53	e27	e21	e8.5	e24	e90	e73	e170	e13	e18	e246
10	e78	e55	e27	e22	e7.4	e25	e87	e26	e317	e12	e16	e127
11	e60	e49	e23	e25	e8.4	e23	e50	e88	e215	e18	e15	e49
12	e44	e45	e26	e19	e14	e20	e27	e26	e124	e14	e15	e41
13	e39	e58	e22	e18	e11	e14	e23	e17	e68	e18	e15	e956
14	e67	e48	e22	e19	e8.7	e17	e15	e16	e49	e16	e16	e336
15	e39	e52	e21	e30	e7.0	e20	e15	e13	e100	e14	e154	e179
16	e36	e63	e17	e86	e7.3	e24	e12	e11	e102	e14	e385	e187
17	e34	e59	e17	e60	e8.6	e27	e9.6	e12	e65	e17	e267	e125
18	e32	e42	e16	e22	e9.3	e22	e9.8	e15	e46	e11	e81	e214
19	e28	e38	e16	e21	e8.5	e13	e7.2	e16	e67	e11	e62	e134
20	e31	e32	e16	e19	e7.9	e8.7	e8.7	e13	e79	e107	e63	e98
21	e29	e40	e15	e14	e7.3	e16	e12	e9.0	e41	e51	e73	e57
22	e163	e42	e14	e17	e7.9	e34	e7.5	e7.4	e29	e27	e114	e42
23	e87	e37	e13	e13	e7.7	e14	e6.7	e8.9	e23	e97	e171	e118
24	e68	e40	e14	e13	e7.9	e11	e8.3	e7.8	e18	e123	e50	e72
25	e37	e36	e13	e16	e9.2	e10	e56	e6.3	e15	e41	e27	e51
26	e56	e31	e13	e12	e9.2	e16	e38	e5.3	e11	e23	e18	e40
27	e93	e30	e12	e9.6	e9.4	e20	e8.6	e5.4	e12	e18	e17	e35
28	e165	e211	e14	e12	e11	e23	e7.5	e5.5	e13	e29	e42	e492
29	e102	e66	e42	e19	---	e23	e8.5	e6.4	e24	e193	e215	e139
30	e85	e38	e16	e21	---	e30	e13	e6.6	e15	e133	e252	e85
31	e164	---	e19	e12	---	e22	---	e17	---	e37	e65	---
TOTAL	2108	1643	616	673.6	255.9	540.6	770.3	494.2	1811.4	1140	2688	4635
MEAN	68.0	54.8	19.9	21.7	9.14	17.4	25.7	15.9	60.4	36.8	86.7	154
MAX	205	211	42	86	14	34	122	88	317	193	385	956
MIN	28	30	12	9.6	7.0	6.2	6.7	5.3	9.4	10	15	35
AC-FT	4180	3260	1220	1340	508	1070	1530	980	3590	2260	5330	9190

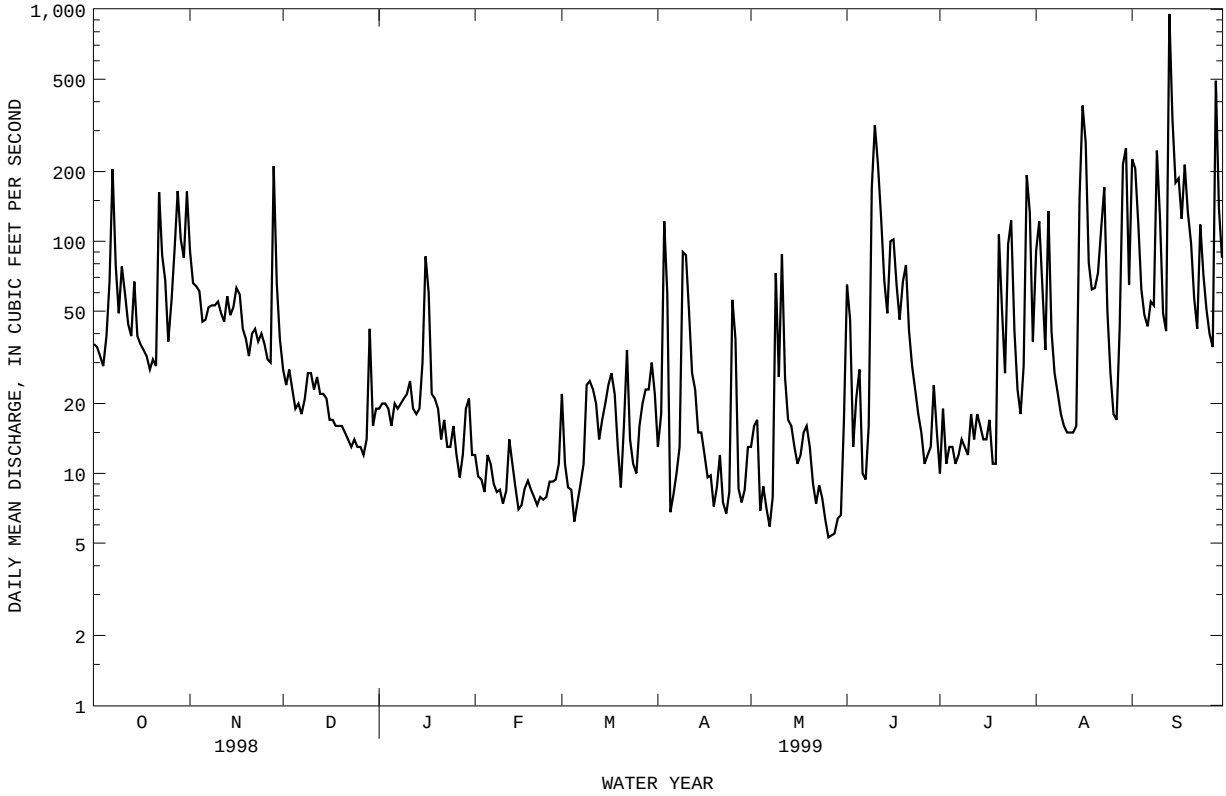
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1999, BY WATER YEAR (WY)

MEAN	85.3	34.9	12.9	13.9	14.9	11.4	31.4	20.4	42.1	23.0	68.5	160
MAX	103	54.8	19.9	21.7	20.6	17.4	37.0	24.8	60.4	36.8	112	314
(WY)	1998	1999	1999	1999	1998	1999	1998	1998	1999	1999	1998	1998
MIN	68.0	15.1	6.00	6.09	9.14	5.33	25.7	15.9	23.9	3.95	6.79	12.5
(WY)	1999	1998	1998	1998	1999	1998	1999	1999	1998	1997	1997	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1997 - 1999	
ANNUAL TOTAL	21652.9		17376.0			
ANNUAL MEAN	59.3		47.6		52.7	
HIGHEST ANNUAL MEAN					57.8	1998
LOWEST ANNUAL MEAN					47.6	1999
HIGHEST DAILY MEAN	5580	Sep 22	956	Sep 13	5580	Sep 22 1998
LOWEST DAILY MEAN	3.3	Mar 12	5.3	May 26	.97	Jun 18 1997
ANNUAL SEVEN-DAY MINIMUM	3.7	Mar 1	6.2	May 24	1.6	Jul 27 1997
INSTANTANEOUS PEAK FLOW			2710	Aug 16	16300	Sep 22 1998
INSTANTANEOUS PEAK STAGE			12.91	Aug 16	19.73	Sep 22 1998
ANNUAL RUNOFF (AC-FT)	42950		34470		38190	
10 PERCENT EXCEEDS	92		116		92	
50 PERCENT EXCEEDS	19		22		14	
90 PERCENT EXCEEDS	4.8		8.6		4.5	

e Estimated

50115900 RIO PORTUGUES AT HIGHWAY 14 AT PONCE, PR--Continued



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 mi^2 (49.0 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
21...	1045	20	466	7.6	25.8	2.7	11.0	133	<10	4700	530
MAR											
17...	1100	8.7	482	8.4	26.7	2.9	9.5	117	<10	680	220
JUN											
09...	1145	25	390	8.4	29.4	25	11.4	149	<10	K7800	4500
SEP											
22...	1050	73	418	8.4	27.5	55	9.6	122	<10	5700	4500

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
21...	180	52	13	24	.8	1.8	172	<1.0	34	25
MAR										
17...	--	--	--	--	--	--	157	--	--	--
JUN										
09...	150	42	11	21	.7	1.8	146	<1.0	29	19
SEP										
22...	180	55	11	16	.5	1.6	170	--	E.29	10

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
21...	.12	20	272	14.7	1	.852	.028	.880	.130	.22
MAR										
17...	--	--	--	--	11	.480	.110	.590	.280	--
JUN										
09...	.15	19	230	15.2	57	1.08	.020	1.10	.150	--
SEP										
22...	<.10	24	--	--	119	--	<.010	1.60	.050	.17

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
21...	.35	1.2	5.4	.030	<1	<100	40	<1	<1	<10
MAR										
17...	E.73	--	--	E.140	--	--	--	--	--	--
JUN										
09...	E.48	--	--	E.120	<1	40	60	<1	1	E11
SEP										
22...	.22	1.8	8.1	.120	--	--	--	--	--	--

50116200 RIO PORTUGUES AT PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
21...	400	<1	52	<.10	<1	<1	<10	<.010	<4	<.02
MAR										
17...	--	--	--	--	--	--	--	--	--	--
JUN										
09...	1800	<1	110	<.10	<1	<1	50	<.010	<4	.03
SEP										
22...	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN I TOTAL (UG/L) (39388)
JUN 1999										
09...	1145	<.100	<.010	<.100	<.010	<.010	<.010	<.010	<.010	<.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)
JUN 1999										
09...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010

DATE	PARA-THION, TOTAL (UG/L) (39540)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	2,4-DP TOTAL (UG/L) (82183)	SILVEX, TOTAL (UG/L) (39760)
JUN 1999									
09...	<.010	<.100	<.100	<1.00	<.010	<.010	<.010	<.010	<.010

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 mi^2 (49.0 km^2).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e60	e90	e26	21	10	11	26	10	e27	8.0	7.8	179
2	e59	e66	e24	21	7.3	10	64	9.6	13	9.4	11	229
3	e57	e64	e23	20	7.7	9.6	194	9.3	7.4	8.6	18	114
4	e56	e60	e25	20	9.2	9.3	91	9.5	7.8	8.0	9.7	54
5	e54	e44	68	21	8.4	9.0	24	e15	7.7	7.4	8.6	95
6	e59	e45	93	21	8.4	8.9	13	16	7.0	7.5	76	118
7	e200	e50	52	15	7.6	9.9	9.8	14	7.8	7.0	62	101
8	e80	e52	37	19	7.3	11	8.7	10	9.7	7.1	37	102
9	e50	e52	34	16	8.4	13	69	24	12	e7.3	15	203
10	e78	e54	29	19	6.7	12	63	15	58	e7.0	25	105
11	e60	e48	30	18	7.9	8.9	47	12	34	e7.1	18	62
12	e44	e45	28	16	8.6	8.4	28	12	19	e7.0	15	52
13	e39	e53	27	14	9.9	8.2	22	11	18	e7.2	12	322
14	e66	e59	26	15	9.2	8.8	22	11	13	e6.7	13	175
15	e39	e81	e25	22	8.1	7.9	19	9.9	13	e7.6	27	119
16	e41	e70	25	18	7.8	7.3	16	9.6	e23	7.2	61	150
17	e39	e51	24	16	7.6	7.1	15	9.6	44	7.5	29	134
18	e39	e51	25	16	7.8	7.6	15	9.2	36	7.8	14	173
19	e38	e50	20	13	8.0	8.5	14	9.2	18	7.5	11	137
20	e38	e43	24	12	7.6	e11	12	9.0	15	37	32	102
21	e36	e49	23	16	7.6	e40	13	8.9	12	16	20	85
22	e160	e40	22	17	7.4	e28	12	9.0	11	8.4	81	67
23	e84	e45	21	16	7.3	e15	12	9.3	10	10	96	91
24	e66	e58	20	13	7.7	e13	15	9.1	9.5	12	54	63
25	e37	e41	19	48	29	e11	38	8.5	9.2	8.2	35	54
26	e60	e31	18	20	16	e10	26	8.1	8.9	7.4	32	56
27	e100	e39	19	13	13	e8.2	13	e7.8	8.4	6.9	28	63
28	e160	e157	19	12	12	e8.2	11	e6.9	8.4	7.3	28	183
29	e100	e45	25	9.0	---	e8.9	12	e6.3	8.6	11	93	87
30	e86	e31	24	11	---	57	11	e6.4	8.2	13	82	58
31	e160	---	22	8.2	---	22	---	e10	---	8.3	33	---
TOTAL	2245	1664	897	536.2	263.5	408.7	935.5	325.2	484.6	288.4	1084.1	3533
MEAN	72.4	55.5	28.9	17.3	9.41	13.2	31.2	10.5	16.2	9.30	35.0	118
MAX	200	157	93	48	29	57	194	24	58	37	96	322
MIN	36	31	18	8.2	6.7	7.1	8.7	6.3	7.0	6.7	7.8	52
AC-FT	4450	3300	1780	1060	523	811	1860	645	961	572	2150	7010
CFSM	3.83	2.93	1.53	.92	.50	.70	1.65	.56	.85	.49	1.85	6.23
IN.	4.42	3.28	1.77	1.06	.52	.80	1.84	.64	.95	.57	2.13	6.95

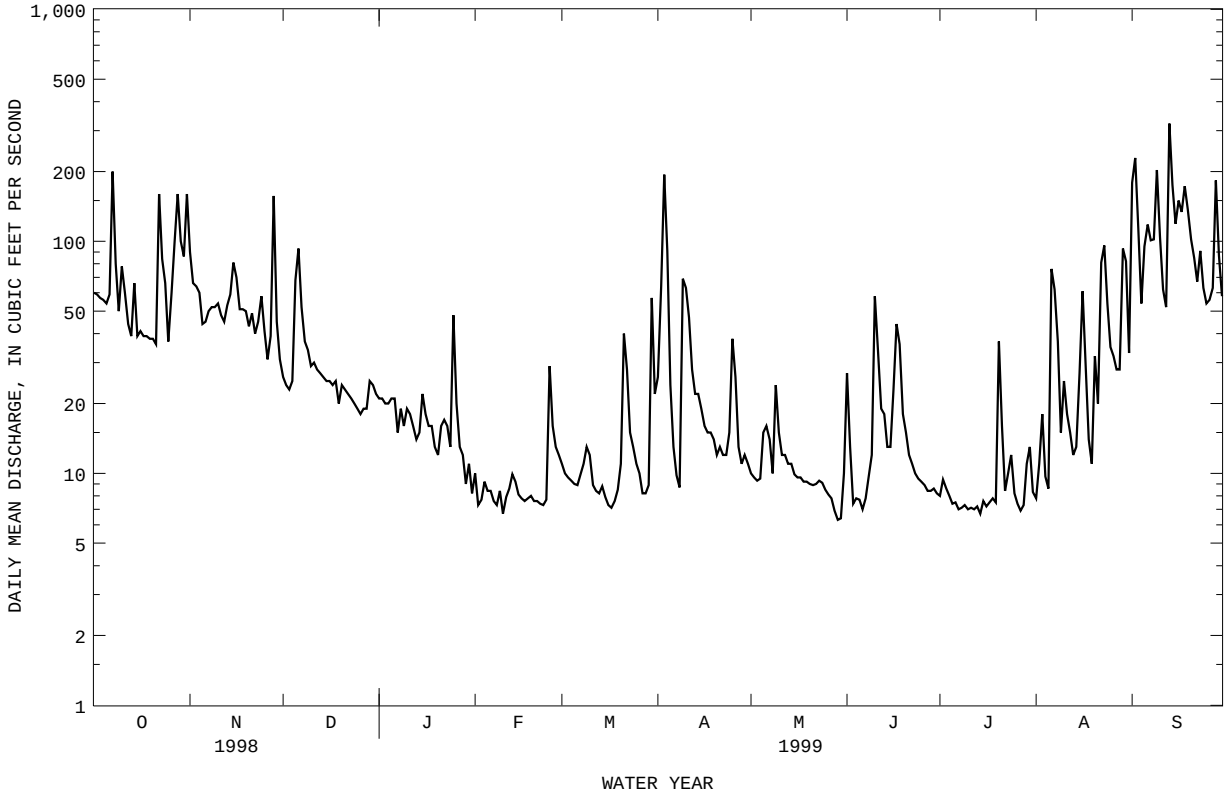
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1999, BY WATER YEAR (WY)

MEAN	60.4	46.1	18.0	10.6	7.64	6.40	11.1	24.4	14.5	12.1	19.6	47.9
MAX	167	110	41.9	27.5	11.6	13.2	31.2	80.4	41.0	25.9	48.5	124
(WY)	1986	1988	1988	1992	1996	1989	1999	1985	1987	1986	1988	1998
MIN	16.0	15.2	4.78	4.06	3.10	2.85	2.76	2.33	2.35	2.45	5.14	3.62
(WY)	1983	1998	1998	1998	1990	1981	1995	1994	1997	1994	1997	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1981 - 1999	
ANNUAL TOTAL	12709.1		12665.2			
ANNUAL MEAN	34.8		34.7		23.0	
HIGHEST ANNUAL MEAN					34.7	1999
LOWEST ANNUAL MEAN					8.94	1994
HIGHEST DAILY MEAN	932	Sep 22	322	Sep 13	1500	Oct 7 1985
LOWEST DAILY MEAN	2.4	Mar 11	6.3	May 29	.77	Jul 30 1994
ANNUAL SEVEN-DAY MINIMUM	2.6	Mar 8	7.1	Jul 8	1.1	Sep 4 1994
INSTANTANEOUS PEAK FLOW			1800	Apr 3	18700	Sep 22 1998
INSTANTANEOUS PEAK STAGE			10.85	Apr 3	21.88	Sep 22 1998
INSTANTANEOUS LOW FLOW					.70	Apr 19 1995
ANNUAL RUNOFF (AC-FT)	25210		25120		16650	
ANNUAL RUNOFF (CFSM)	1.84		1.84		1.22	
ANNUAL RUNOFF (INCHES)	25.01		24.93		16.52	
10 PERCENT EXCEEDS	71		83		51	
50 PERCENT EXCEEDS	20		18		10	
90 PERCENT EXCEEDS	3.5		7.7		3.3	

e Estimated

50124200 RIO GUAYANILLA NEAR GUAYANILLA, PR--Continued



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 mi^2 (59.1 km^2).

PERIOD OF RECORD.--Water years 1960-65, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
18...	1245	17	505	7.7	28.8	.42	8.3	98	<10	310	20
FEB											
25...	1130	4.5	621	8.3	29.5	2.0	8.3	108	<10	370	210
MAY											
12...	1510	7.0	521	8.3	29.5	5.0	8.3	107	15	230	K130
SEP											
14...	1045	362	290	8.0	24.3	130	8.5	102	<10	54000	66000

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
18...	230	57	21	21	.6	2.1	179	<1.0	57	32
FEB										
25...	--	--	--	--	--	--	179	--	--	--
MAY										
12...	210	54	17	23	.7	2.5	139	<1.0	57	29
SEP										
14...	120	31	9.7	9.7	.4	1.9	96	--	27	12

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
18...	.12	19	315	14.5	<1	1.29	.014	1.30	.050	.27
FEB										
25...	--	--	--	--	5	2.99	.010	3.00	.040	.34
MAY										
12...	.14	19	285	5.40	14	3.09	.110	3.20	.090	--
SEP										
14...	<.10	18	167	163	347	1.57	.030	1.60	.060	.94

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
18...	.32	1.6	7.2	.130	1	<100	20	<1	<1	<10
FEB										
25...	.38	3.4	15	.670	--	--	--	--	--	--
MAY										
12...	E.26	--	--	E.370	<1	80	70	<1	2	<12
SEP										
14...	1.0	2.6	12	.730	--	--	--	--	--	--

RIO GUAYANILLA BASIN

50124700 RIO GUAYANILLA AT CENTRAL RUFINA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
18...	50	<1	19	<.10	<1	<1	<10	<.010	<4	<.02
FEB										
25...	--	--	--	--	--	--	--	--	--	--
MAY										
12...	410	<1	51	<.10	<1	<1	<40	<.010	<4	.04
SEP										
14...	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN I TOTAL (UG/L) (39388)
MAY 1999										
12...	1510	<.100	<.010	<.100	<.010	<.010	<.010	<.010	<.010	<.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)
MAY 1999										
12...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010

DATE	PARA-THION, TOTAL (UG/L) (39540)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	2,4-DP TOTAL (UG/L) (82183)	SILVEX, TOTAL (UG/L) (39760)
MAY 1999									
12...	<.010	<.100	<.100	<1.00	<.010	<.010	<.010	<.010	<.010

50125780 LAGO LUCCHETTI AT DAMSITE NEAR YAUCO, 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 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--December 1989 to current year. Prior to October 1994, published as Lago Lucchetti at Damsite.

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 hm^3) 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 tupe spillway with a clear length of 171 ft (52 m), and a maximum capacity of 62,800 ft^3/s (1,778 m^3/s) at a design head of 20 ft (6 m). 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, 577.56 ft (176.04 m), Sep. 22,1998; minimum elevation, 512.09 ft (156.08 m), Sept. 9, 1994.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 567.57 ft (173.00 m), Jan. 15, minimum elevation, 527.57 ft (160.80 m), Aug. 2.

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
512	1,505	540	5,165
520	2,385	550	7,020
525	2,965	561	9,600
527	3,255	563	10,125
530	3,695	571	12,125
532	3,975	573	12,645
		578	14,061

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	A	554.45	551.26	559.94	560.30	547.32	549.24	536.76	540.70	538.42	529.99	539.08
2	A	555.12	551.49	559.91	560.31	547.41	548.12	536.53	540.67	538.37	529.23	539.17
3	A	554.84	551.77	559.45	560.16	A	548.08	A	541.70	539.13	533.54	537.86
4	A	554.36	552.01	560.07	560.13	A	547.96	A	539.39	538.90	538.38	533.57
5	A	554.73	553.17	560.87	560.12	A	548.97	A	540.80	539.24	538.42	536.63
6	A	555.14	553.62	560.88	560.10	A	550.07	536.09	539.18	538.76	539.69	535.59
7	A	556.98	553.91	561.13	560.07	A	551.14	536.13	537.65	537.11	540.86	536.28
8	A	557.79	554.36	561.17	559.93	A	552.07	537.11	537.95	535.79	540.28	534.30
9	A	557.56	555.10	562.24	559.91	A	A	537.47	536.56	536.23	538.61	538.78
10	A	556.45	555.91	562.38	559.89	A	552.00	537.17	538.10	537.52	538.27	539.15
11	A	555.11	556.86	563.39	558.75	A	550.45	536.77	538.62	537.69	536.30	538.81
12	A	552.67	557.70	564.72	557.60	A	549.19	537.00	539.07	537.23	538.24	540.76
13	A	553.06	557.90	565.78	557.23	A	A	537.15	536.64	535.05	538.26	546.27
14	A	553.65	558.00	567.53	555.72	A	547.69	536.06	535.22	536.33	539.87	546.69
15	A	555.59	558.23	566.88	554.05	A	A	535.94	536.97	538.09	541.60	545.62
16	545.34	555.39	558.78	566.14	A	A	A	536.43	537.94	539.36	545.01	547.43
17	543.91	555.94	559.24	566.10	552.90	A	A	536.77	536.76	538.43	543.30	548.02
18	542.30	554.75	559.70	565.97	553.98	A	543.08	537.39	535.82	537.40	542.27	551.12
19	540.65	553.64	560.43	566.34	554.60	A	542.25	537.19	536.07	537.61	543.17	551.69
20	541.08	552.02	560.69	566.44	554.70	A	A	537.26	536.24	536.57	541.96	551.51
21	541.70	551.85	561.39	565.45	555.03	A	A	537.10	537.90	534.50	539.56	552.73
22	545.44	552.20	560.53	563.70	554.56	A	A	535.79	537.78	534.53	539.87	554.08
23	546.83	551.87	559.69	562.48	554.28	A	A	534.79	538.09	533.10	539.20	554.08
24	548.39	550.21	558.88	562.48	A	A	533.78	535.56	537.68	533.05	538.30	552.49
25	549.15	550.36	558.52	561.60	552.65	A	532.84	535.75	536.31	533.00	538.45	549.91
26	550.16	550.65	558.42	561.59	551.98	A	530.68	536.54	533.47	530.62	539.87	547.71
27	550.86	550.96	558.47	560.26	548.80	A	532.58	537.63	534.32	530.55	539.25	546.04
28	551.60	551.70	558.71	559.51	547.46	A	535.78	538.72	536.78	530.49	537.81	545.36
29	552.18	551.45	559.63	559.49	---	A	536.16	538.89	537.18	530.60	540.70	544.23
30	552.65	551.58	560.05	559.47	---	551.00	536.63	539.53	537.44	530.57	540.55	544.18
31	553.78	---	560.71	560.34	---	550.90	---	539.90	---	530.50	539.05	---
MAX	---	557.79	561.39	567.53	---	---	---	---	541.70	539.36	545.01	554.08
MIN	---	550.21	551.26	559.45	---	---	---	---	533.47	530.49	529.23	533.57

A No gage-height record

50128900 LAGO LOCO AT DAMSITE NEAR YAUCO, PR

LOCATION.--Lat 18°02'41", long 66°53'16", Hydrologic Unit 21010004, at Damsite, 2.60 mi (4.18 km) northwest from Yauco plaza, 0.45 mi (0.72 km) northeast from Escuela Río Cañas and 0.95 mi (1.53 km) northwest from Escuela Susúa Alta.

DRAINAGE AREA.--8.40 mi^2 (21.8 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--May 1995 to current year.

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

REMARKS.--Lago Loco was completed in 1951. The dam is a concrete gravity structure with a total lenght of 600 ft (183 m), maximum structural height of 72 ft (21.9 m), the ungated overflow spillway is 150 ft (47.7 m), long with crest at elevation of 230 ft (70.1 m). It has a normal storage capacity of 1,950 acre-feet (2.40 hm^3), as for May 4, 1979. The Loco Dam is owned by the Puerto Rico Electric Power Authority (P.R.E.P.A) and its part of the Southwestern Puerto Rico Project which was developed for electric power generation and irrigation of the lands in the Lajas Valley, some of the Project's water is used for water supply in the Lajas area. The maximum drawdown of the Dam is from 230 ft (70.1 m) to 220 ft (67.1 m) and the Capacity Table provided by P.R.E.P.A includes only that portion of the storage for the dam. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 234.77 ft (71.56 m), Sept. 22, 1998; minimum elevation, 217.77 ft (66.4 m), June 10, 1997.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 231.53 ft (70.57 m), Sept. 18; minimum elevation, 219.17 ft (66.80 m), Aug. 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
220	0	230	639
225	299	232	787
		235	1,024

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	230.80	230.27	230.11	230.64	229.43	230.04	230.47	230.51	229.77	229.94	220.55	231.04
2	230.80	A	230.07	230.07	229.06	229.84	231.02	229.66	230.56	230.82	226.46	231.10
3	230.79	230.31	230.09	230.49	229.14	229.60	230.51	229.18	230.73	230.52	229.50	231.06
4	230.77	230.40	230.06	229.93	228.71	229.33	230.54	229.12	230.83	230.88	228.06	231.05
5	230.81	230.08	230.29	229.45	228.32	229.02	229.82	227.93	A	230.54	229.05	230.29
6	230.80	230.03	230.12	228.81	228.09	231.02	229.24	226.18	A	230.85	229.58	231.00
7	230.82	230.41	230.09	229.31	227.87	231.05	228.52	228.51	A	230.88	230.15	231.01
8	230.80	230.15	230.07	230.88	227.86	230.48	227.71	227.64	A	230.86	230.83	231.02
9	230.75	230.42	230.07	230.43	227.26	231.04	226.99	229.33	A	230.25	230.77	230.22
10	230.77	230.31	230.08	230.49	226.63	230.48	230.59	230.38	A	230.55	229.92	230.71
11	230.76	230.99	230.03	230.58	230.26	230.53	230.70	230.45	229.34	229.77	230.31	230.54
12	230.76	230.24	230.02	229.73	230.89	230.49	230.96	230.39	228.27	229.82	230.17	231.06
13	230.74	230.02	230.03	229.02	230.85	231.05	230.01	230.23	230.25	230.27	229.86	230.82
14	231.07	230.10	229.87	229.13	230.47	231.07	230.44	230.31	230.39	228.99	230.71	231.10
15	230.70	230.34	229.66	231.04	230.28	230.04	230.95	230.81	230.43	228.18	230.60	231.08
16	230.68	230.71	229.47	231.01	230.32	230.16	230.96	230.28	229.46	227.34	230.70	231.16
17	230.68	230.06	229.25	230.88	229.41	229.96	230.96	230.08	230.46	229.38	230.58	231.12
18	230.67	230.34	229.18	231.02	228.66	A	230.93	230.48	230.56	230.20	230.88	231.15
19	230.58	231.00	229.21	230.61	228.21	229.57	230.45	230.76	229.82	229.98	230.61	230.62
20	229.99	230.36	229.26	230.93	228.55	231.04	230.85	230.30	229.47	230.56	230.93	231.12
21	229.93	230.08	229.25	230.43	228.18	230.80	230.93	230.80	228.95	230.85	230.92	231.11
22	230.18	230.01	231.09	231.00	230.25	230.06	230.41	230.84	229.94	228.90	230.72	231.14
23	230.25	230.60	230.34	231.01	230.43	229.54	230.42	230.67	230.60	229.94	230.89	231.15
24	230.14	230.47	231.09	229.89	230.47	228.70	230.38	229.88	230.59	229.02	230.89	231.13
25	230.12	230.13	230.04	230.37	230.38	227.70	230.73	229.80	230.86	227.94	230.88	231.12
26	230.14	229.98	230.45	230.33	231.04	226.89	230.29	230.78	230.85	230.02	230.90	231.11
27	230.11	229.96	230.09	230.34	231.05	230.61	229.10	230.66	230.66	229.02	230.93	231.11
28	230.10	230.31	230.86	229.99	231.04	230.70	227.82	229.88	230.13	227.46	230.93	231.04
29	230.12	230.19	230.00	230.02	---	230.19	230.19	230.71	228.68	225.40	230.97	230.99
30	230.09	230.16	230.11	229.85	---	230.16	230.47	230.39	227.88	223.55	231.01	230.98
31	230.11	---	230.24	229.64	---	230.51	---	230.30	---	221.46	230.98	---
MAX	231.07	---	231.09	231.04	231.05	---	231.02	230.84	---	230.88	231.01	231.16
MIN	229.93	---	229.18	228.81	226.63	---	226.99	226.18	---	221.46	220.55	230.22

A No gage-height record

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 Guanica 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 1998 TO SEPTEMBER 1999

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC										
18...	1115	1260	7.4	26.9	5.2	4.4	54	14	460	220
FEB										
25...	1000	445	7.7	23.8	30	3.8	44	19	K1400	960
MAY										
12...	1015	376	8.0	26.2	20	4.1	49	11	K1700	2000
SEP										
14...	0850	352	7.8	26.3	70	5.4	67	<10	2800	K16000

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
18...	340	62	44	94	2	4.8	333	E1.0	69	130
FEB										
25...	--	--	--	--	--	--	134	--	--	--
MAY										
12...	140	32	14	23	.8	2.8	133	E1.0	14	30
SEP										
14...	140	32	16	21	.8	2.8	145	--	20	20

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
DEC										
18...	.25	28	632	7	1.07	.033	1.10	.120	.49	.61
FEB										
25...	--	--	--	31	.731	.039	.770	.060	.65	.71
MAY										
12...	<.10	19	214	42	.520	.150	.670	.030	--	E.22
SEP										
14...	.11	22	221	112	.760	.020	.780	.060	.53	.59

DATE	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
DEC										
18...	1.7	7.6	.170	1	<100	60	<1	2	<10	350
FEB										
25...	1.5	6.6	1.50	--	--	--	--	--	--	--
MAY										
12...	--	--	E.050	<1	50	E30	<1	<1	<10	<10
SEP										
14...	1.4	6.1	.180	--	--	--	--	--	--	--

50129700 RIO LOCO AT GUANICA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	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)
DEC									
18...	<1	84	<.10	<1	<1	<10	<.010	<4	.02
FEB									
25...	--	--	--	--	--	--	--	--	--
MAY									
12...	<1	17	<.10	<1	<1	--	<.010	<4	.03
SEP									
14...	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN I TOTAL (UG/L) (39388)
MAY 1999										
12...	1015	<.100	<.010	<.100	<.010	<.010	<.010	.020	<.010	<.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)
MAY 1999										
12...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010

DATE	PARA-THION, TOTAL (UG/L) (39540)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	2,4-DP TOTAL (UG/L) (82183)	SILVEX, TOTAL (UG/L) (39760)
MAY 1999									
12...	<.010	<.100	<.100	<1.00	<.010	.059	<.010	<.010	<.010

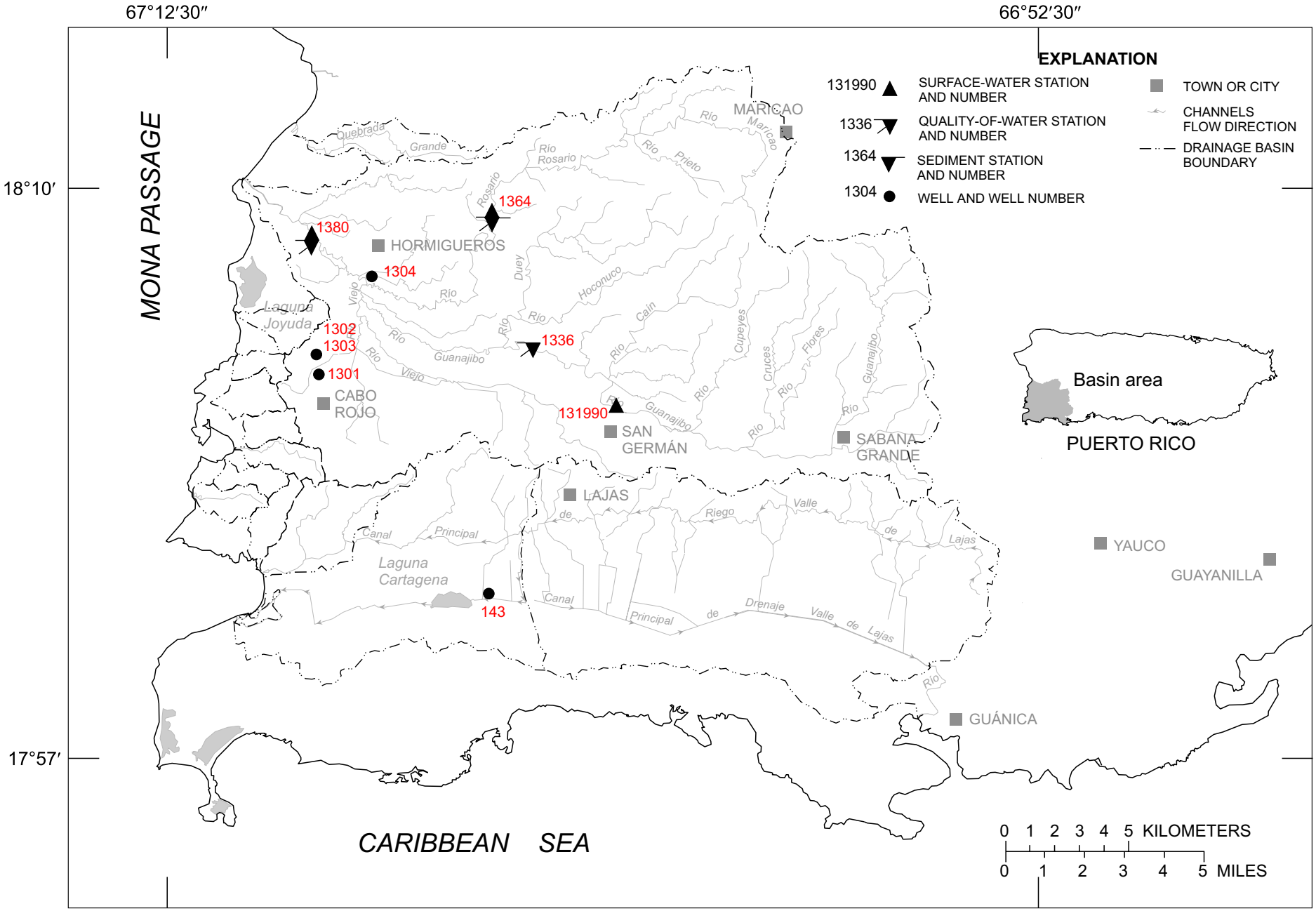


Figure 23. Río Guanajibo basin.

50131990 RIO GUANAJIBO AT HWY 119 AT SAN GERMAN, PR

LOCATION.--Lat 18°05'06", long 67°02'02", Hydrologic Unit 21010003, on left bank, at bridge on Hwy 119, 0.6 mi (1.0 km) southwest of junction of Highways 119 and 2, 0.2 mi (0.3 km) northeast of junction of Highways 119 and 102, 0.7 mi (1.1 km) east from public Plaza of San Germán.

DRAINAGE AREA.--34.6 mi^2 (89.6 km^2).

PERIOD OF RECORD.--April 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 148 ft (45 m), from topographic map.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e406	172	66	31	18	18	18	9.8	35	44	25	135
2	e261	243	59	30	17	30	43	9.9	218	67	82	494
3	e233	184	67	29	16	23	22	8.9	113	33	47	211
4	e154	116	53	28	17	18	24	9.6	28	27	32	75
5	e145	94	457	29	16	16	16	9.5	18	26	31	372
6	e771	84	306	29	16	15	14	19	14	23	202	678
7	e2780	178	112	27	15	15	13	36	12	20	61	245
8	e4630	140	86	27	14	56	12	70	235	21	50	68
9	e3440	97	75	26	14	52	12	52	210	21	40	140
10	e1480	91	68	26	14	32	14	24	87	19	40	74
11	e738	80	62	25	13	24	27	16	48	31	35	61
12	e622	74	58	26	22	20	17	14	28	23	53	49
13	e294	69	55	25	19	19	14	12	22	20	43	83
14	e181	71	53	50	14	17	13	11	17	20	35	77
15	e132	315	56	44	13	16	12	10	170	26	50	39
16	e215	143	96	37	12	16	12	9.1	122	20	113	193
17	e169	92	67	29	11	16	11	8.8	85	25	62	e225
18	e131	79	51	26	11	15	11	8.4	48	26	30	e639
19	e983	81	47	26	12	20	10	8.6	42	20	23	e241
20	e453	69	46	24	11	18	10	8.7	38	82	72	133
21	e94	71	42	24	11	16	9.5	8.2	33	22	69	97
22	e104	66	40	24	10	15	9.6	8.0	30	20	45	80
23	e90	57	39	23	18	15	9.5	8.0	28	20	54	109
24	e87	62	38	23	18	15	9.8	8.1	25	20	33	e89
25	e115	95	37	37	33	16	19	7.9	23	21	25	77
26	e138	59	40	31	25	15	27	7.8	23	21	22	183
27	e158	65	49	23	16	14	18	7.6	22	21	22	71
28	e254	605	37	21	19	14	12	7.5	21	28	20	340
29	e142	130	42	20	---	15	10	8.1	22	49	29	113
30	e88	79	35	19	---	41	11	9.8	21	32	47	78
31	103	---	32	18	---	19	---	21	---	27	56	---
TOTAL	19591	3761	2371	857	445	651	460.4	457.3	1838	875	1548	5469
MEAN	632	125	76.5	27.6	15.9	21.0	15.3	14.8	61.3	28.2	49.9	182
MAX	4630	605	457	50	33	56	43	70	235	82	202	678
MIN	87	57	32	18	10	14	9.5	7.5	12	19	20	39
MED	181	88	53	26	16	16	12	9.5	29	23	43	111
AC-FT	38860	7460	4700	1700	883	1290	913	907	3650	1740	3070	10850
CFSM	18.3	3.62	2.21	.80	.46	.61	.44	.43	1.77	.82	1.44	5.27
IN.	21.06	4.04	2.55	.92	.48	.70	.49	.49	1.98	.94	1.66	5.88

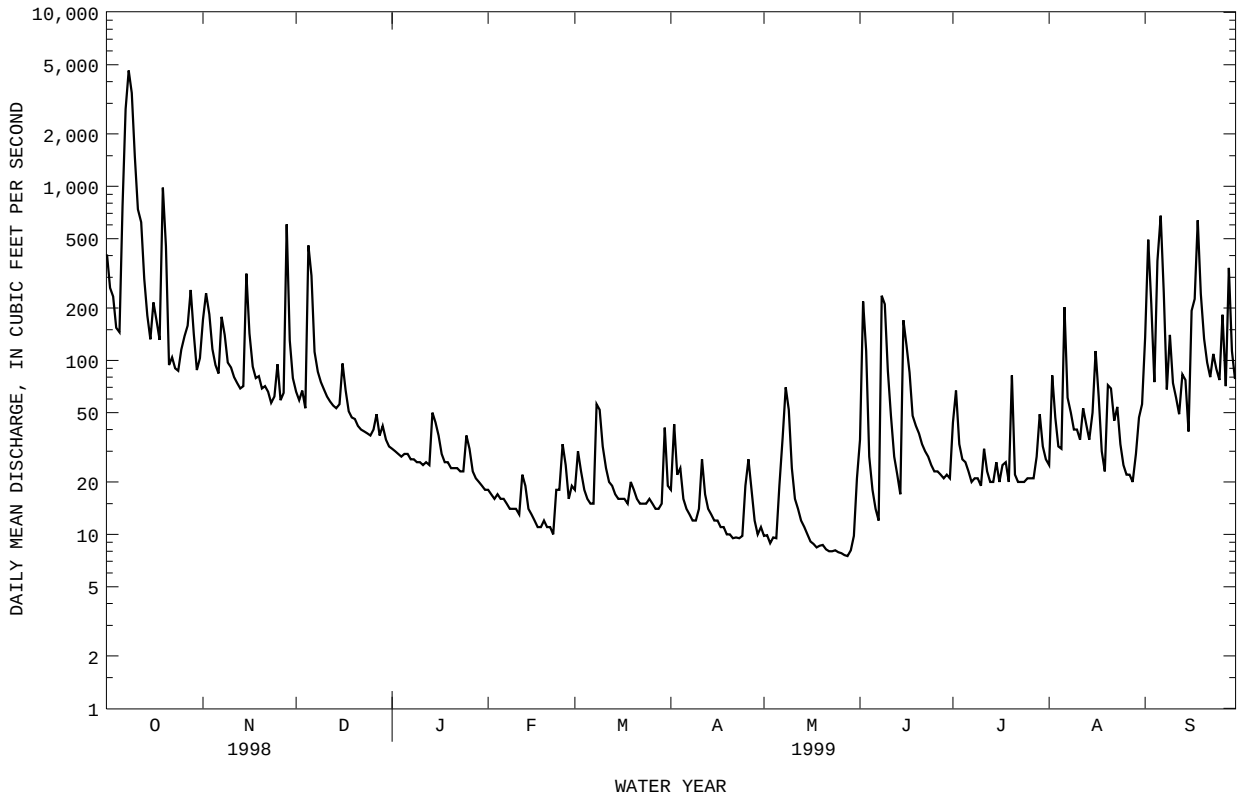
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1999, BY WATER YEAR (WY)

MEAN	170	73.9	29.8	22.7	21.7	11.9	20.1	42.4	27.1	20.4	48.5	239
MAX	632	127	76.5	47.5	45.3	25.8	55.9	85.6	61.3	37.6	110	1585
(WY)	1999	1997	1999	1997	1998	1995	1996	1998	1999	1995	1998	1998
MIN	20.4	15.8	8.21	6.10	4.32	3.52	7.79	5.11	3.91	6.68	17.2	11.2
(WY)	1992	1992	1992	1998	1992	1992	1997	1994	1994	1994	1994	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1991 - 1999	
ANNUAL TOTAL	83939.6		38323.7			
ANNUAL MEAN	230		105		63.6	
HIGHEST ANNUAL MEAN					179	1998
LOWEST ANNUAL MEAN					16.6	1994
HIGHEST DAILY MEAN	17300	Sep 22	4630	Oct 8	17300	Sep 22 1998
LOWEST DAILY MEAN	2.8	Apr 15	7.5	May 28	1.5	May 9 1992
ANNUAL SEVEN-DAY MINIMUM	3.2	Apr 1	7.8	May 22	1.8	May 6 1992
INSTANTANEOUS PEAK FLOW			4100	Nov 28	24900	Sep 22 1998
INSTANTANEOUS PEAK STAGE			11.40	Nov 28	19.53	Sep 22 1998
INSTANTANEOUS LOW FLOW			6.9	May 26		
ANNUAL RUNOFF (AC-FT)	166500		76020		46060	
ANNUAL RUNOFF (CFSM)	6.65		3.03		1.84	
ANNUAL RUNOFF (INCHES)	90.25		41.20		24.97	
10 PERCENT EXCEEDS	259		182		100	
50 PERCENT EXCEEDS	35		30		17	
90 PERCENT EXCEEDS	4.6		11		5.0	

e Estimated

50131990 RIO GUANAJIBO AT HWY 119 AT SAN GERMAN, PR--Continued



50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°07'18", long 67°03'56", at bridge on Highway 347, 2.2 mi (3.5 km) northwest of San German.

DRAINAGE AREA.--45.5 mi^2 (117.8 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
17...	1130	86	463	7.3	25.2	17	7.7	91	<10	430	820
FEB											
24...	1130	23	563	8.1	24.9	25	6.8	80	12	5800	3100
MAY											
13...	1105	17	583	8.1	26.5	14	6.0	75	13	<100	K100
SEP											
13...	1200	191	286	7.9	27.8	71	6.9	88	15	K17000	40000

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
17...	210	23	38	15	.4	2.5	200	<1.0	21	19
FEB										
24...	--	--	--	--	--	--	223	--	--	--
MAY										
13...	230	24	41	32	.9	5.5	213	<1.0	35	33
SEP										
13...	120	16	20	9.0	.4	2.8	120	--	12	12

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
17...	<.10	36	273	63.4	15	1.24	.058	1.30	.290	.35
FEB										
24...	--	--	--	--	25	1.42	.076	1.50	.360	.36
MAY										
13...	.11	33	331	15.2	13	1.24	.160	1.40	.560	--
SEP										
13...	<.10	24	168	86.7	104	.730	.060	.790	.240	.86

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
17...	.64	1.9	8.6	.190	<1	<100	20	<1	12	<10
FEB										
24...	.72	2.2	9.8	.340	--	--	--	--	--	--
MAY										
13...	E.71	--	--	E.470	<1	60	100	<1	9	17
SEP										
13...	1.1	1.9	8.4	.360	--	--	--	--	--	--

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
17...	1100	<1	59	<.10	<1	<1	<10	<.010	<4	.02
FEB										
24...	--	--	--	--	--	--	--	--	--	--
MAY										
13...	920	<1	92	<.10	<1	<1	<40	<.010	<4	.05
SEP										
13...	--	--	--	--	--	--	--	--	--	--

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 km^2).

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 except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. The gage-height recorded during the Hurricane Georges event was affected by backwater caused by the Hwy. 348 bridge which is about 32 ft. downstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	201	156	45	e31	22	e20	78	e16	177	161	e134	130
2	187	157	43	e30	22	e30	119	e16	117	125	72	209
3	185	156	46	e31	21	e24	87	e16	282	82	58	155
4	164	138	144	e31	21	e19	56	e20	115	68	51	168
5	159	129	57	e32	20	e18	39	31	72	65	65	e320
6	168	123	47	e30	20	e17	31	86	59	58	64	e540
7	299	118	41	e31	20	e18	27	55	55	63	77	212
8	252	112	39	e31	20	e64	28	88	193	58	68	151
9	235	111	37	31	20	e50	31	56	156	54	63	123
10	228	104	36	30	20	e29	27	31	159	52	62	102
11	185	98	36	30	21	e24	32	25	168	52	143	103
12	169	92	35	30	25	e20	27	23	124	53	128	e88
13	162	88	35	39	24	e19	27	23	103	51	91	112
14	154	85	34	41	22	e18	25	22	116	53	96	e85
15	148	197	36	43	e20	e17	25	22	191	51	110	74
16	162	142	38	51	e19	e18	24	21	275	50	197	76
17	158	105	e68	36	e18	e17	23	23	158	57	127	79
18	150	85	e45	33	e18	e15	23	24	106	50	73	76
19	498	78	e36	30	e19	e20	22	21	133	48	67	80
20	213	72	e34	30	e17	e17	21	20	122	55	e91	67
21	172	129	e34	29	e17	e15	20	19	107	48	147	60
22	191	96	e33	31	e16	e15	20	21	109	46	205	55
23	173	72	e33	30	e27	e14	20	21	93	65	127	80
24	164	66	e33	27	e22	e15	76	19	80	46	80	277
25	203	60	e44	26	e42	e15	e45	19	73	44	122	127
26	232	57	e42	29	e21	e14	e21	19	69	e48	104	83
27	246	69	e34	26	e19	e14	e17	21	65	e47	68	71
28	312	80	e40	24	e22	e14	e18	52	134	82	74	66
29	234	54	e33	24	---	e14	e17	51	101	66	68	62
30	172	49	e32	23	---	e55	e17	92	97	48	68	58
31	172	---	e31	23	---	e73	---	45	---	e55	105	---
TOTAL	6348	3078	1321	963	595	732	1043	1018	3809	1901	3005	3889
MEAN	205	103	42.6	31.1	21.2	23.6	34.8	32.8	127	61.3	96.9	130
MAX	498	197	144	51	42	73	119	92	282	161	205	540
MIN	148	49	31	23	16	14	17	16	55	44	51	55
AC-FT	12590	6110	2620	1910	1180	1450	2070	2020	7560	3770	5960	7710
CFSM	11.2	5.61	2.33	1.70	1.16	1.29	1.90	1.79	6.94	3.35	5.30	7.08
IN.	12.90	6.26	2.69	1.96	1.21	1.49	2.12	2.07	7.74	3.86	6.11	7.91

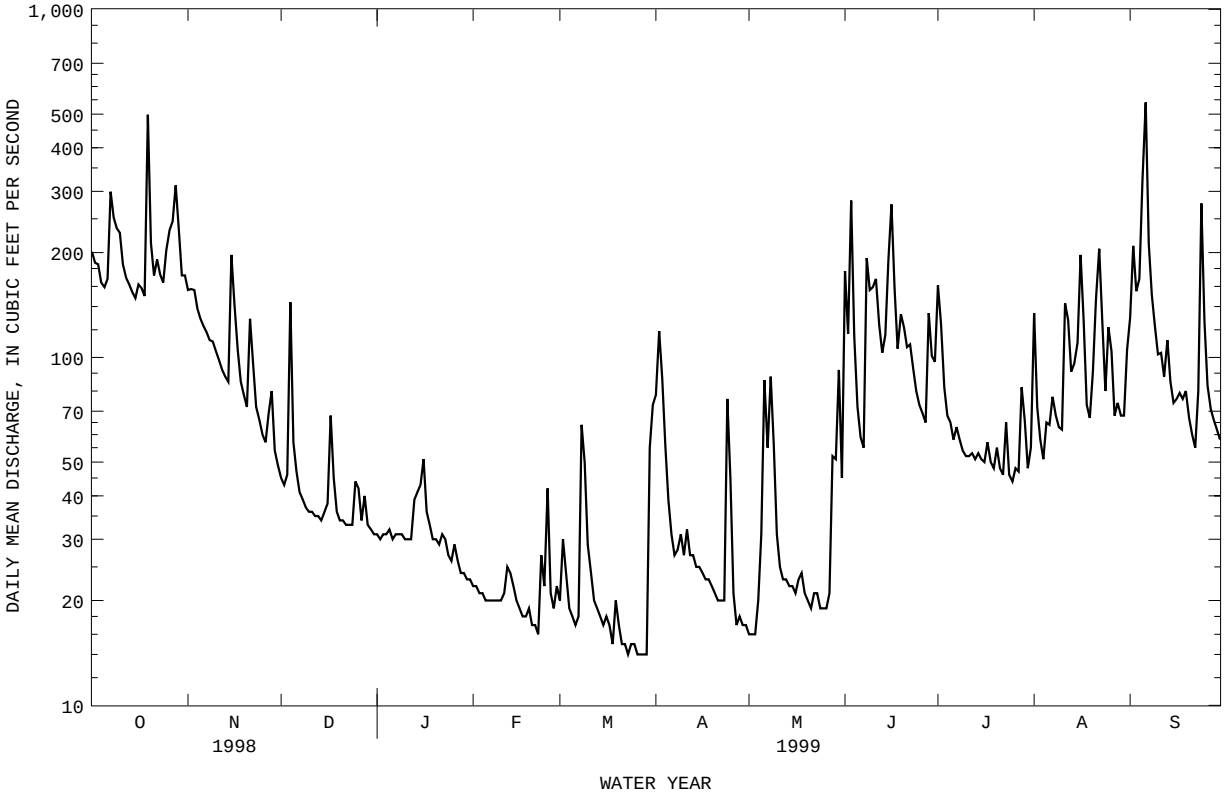
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1999, BY WATER YEAR (WY)

MEAN	110	70.9	32.4	23.4	19.5	21.5	24.0	42.9	47.8	43.9	64.8	107
MAX	206	117	53.7	39.7	37.8	77.0	57.7	122	127	75.2	102	308
(WY)	1986	1990	1995	1997	1995	1989	1989	1993	1999	1989	1989	1998
MIN	33.2	16.1	9.92	15.1	8.55	10.1	11.0	14.8	12.0	23.2	25.1	32.7
(WY)	1992	1992	1992	1994	1992	1992	1998	1997	1992	1990	1991	1986

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1986 - 1999	
ANNUAL TOTAL	27991.2		27702			
ANNUAL MEAN	76.7		75.9		50.8	
HIGHEST ANNUAL MEAN					75.9	1999
LOWEST ANNUAL MEAN					30.8	1992
HIGHEST DAILY MEAN	4420	Sep 22	540	Sep 6	4420	Sep 22 1998
LOWEST DAILY MEAN	7.7	May 3	14	Mar 23	3.9	May 9 1992
ANNUAL SEVEN-DAY MINIMUM	8.4	Mar 7	14	Mar 23	4.2	May 6 1992
INSTANTANEOUS PEAK FLOW			5040	Oct 19	13700	Sep 22 1998
INSTANTANEOUS PEAK STAGE			11.97	Oct 19	18.66	Sep 22 1998
INSTANTANEOUS LOW FLOW					3.7	May 9 1992
ANNUAL RUNOFF (AC-FT)	55520		54950		36770	
ANNUAL RUNOFF (CFSM)	4.19		4.15		2.77	
ANNUAL RUNOFF (INCHES)	56.90		56.31		37.68	
10 PERCENT EXCEEDS	168		168		117	
50 PERCENT EXCEEDS	34		53		29	
90 PERCENT EXCEEDS	9.4		19		11	

e Estimated

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued



50136400 RIO ROSARIO NEAR HORMIGUEROS, PR.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS 1979 TO CURRENT YEAR.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: OCTOBER 1985 TO CURRENT YEAR.

INSTRUMENTATION.--US D-49 sediment sampler since October 1985. Automatic sediment sampler since 1986

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 15,900 mg/L September 22, 1998; Minimum daily mean, 1 mg/L several days.
SEDIMENT LOADS: Maximum daily, 356,000 tons (323,000 tonnes) September 22, 1998; Minimum daily, 0.05 ton (0.04 tonne) several days.

EXTREMES FOR CURRENT YEAR 1999.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,460 mg/L June 16, 1999; Minimum daily mean, 3 mg/L several days.
SEDIMENT LOADS: Maximum daily, 9,720 tons (8,820 tonnes) October 10, 1998; Minimum daily 0.13 ton (0.12 tonne) March 12, 1999.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
17...	1415	39	275	7.4	25.6	2.3	8.8	106	<10	580	100
FEB											
24...	1410	19	290	8.1	26.3	3.1	7.9	100	<10	380	--
MAY											
13...	1500	22	265	8.7	29.0	10	8.2	106	<10	40	60
SEP											
13...	1340	114	216	8.4	28.0	34	8.2	106	<10	3000	6400

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
17...	130	24	16	7.6	.3	1.5	143	<1.0	6.7	8.4
FEB										
24...	--	--	--	--	--	--	134	--	--	--
MAY										
13...	120	22	16	7.2	.3	1.4	123	<1.0	6.2	8.3
SEP										
13...	96	18	13	6.0	.3	1.4	93	--	5.5	7.1

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
17...	<.10	32	182	19.1	4	1.09	.010	1.10	.020	--
FEB										
24...	--	--	--	--	8	--	<.010	.660	.020	--
MAY										
13...	<.10	27	162	9.82	6	--	<.010	.760	.020	--
SEP										
13...	<.10	28	134	41.3	36	.990	.010	1.00	.020	.34

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOVERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)
DEC										
17...	<.20	--	--	.030	<1	<100	<10	<1	4	<10
FEB										
24...	<.20	--	--	.050	--	--	--	--	--	--
MAY										
13...	<.20	--	--	<.020	<1	40	E20	<1	6	<10
SEP										
13...	.36	1.4	6.0	.070	--	--	--	--	--	--

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	CYANIDE TOTAL (MG/L AS CN) (00720)	PHENOLS TOTAL (UG/L) (32730)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L) (38260)
DEC										
17...	200	<1	15	<.10	<1	<1	<10	<.010	<4	<.02
FEB										
24...	--	--	--	--	--	--	--	--	--	--
MAY										
13...	170	<1	8	<.10	1	<1	40	<.010	<4	<.02
SEP										
13...	--	--	--	--	--	--	--	--	--	--

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	201	24	13	156	49	20	45	19	2.3
2	187	16	8.1	157	55	27	43	25	2.9
3	185	11	5.5	156	61	26	46	25	3.4
4	164	15	6.5	138	25	9.3	144	415	856
5	159	20	8.4	129	17	5.8	57	70	11
6	168	17	7.7	123	11	3.8	47	51	6.5
7	299	831	1740	118	9	2.8	41	57	6.3
8	252	268	179	112	8	2.3	39	55	5.7
9	235	54	34	111	11	3.2	37	23	2.3
10	228	30	19	104	13	3.6	36	9	.88
11	185	21	10	98	12	3.2	36	8	.75
12	169	15	6.8	92	12	3.1	35	9	.81
13	162	12	5.1	88	10	2.3	35	7	.69
14	154	13	5.3	85	7	1.7	34	6	.55
15	148	15	5.9	197	378	498	36	7	.89
16	162	17	7.4	142	73	29	38	16	1.7
17	158	19	8.3	105	28	7.8	e68	e61	e27
18	150	24	9.5	85	22	5.0	e45	e19	e2.5
19	498	1420	9720	78	20	4.3	e36	e11	e1.1
20	213	242	151	72	20	3.8	e34	e11	e.99
21	172	32	15	129	287	339	e34	e9	e.87
22	191	19	9.7	96	97	27	e33	e8	e.72
23	173	14	6.5	72	33	6.5	e33	e6	e.57
24	164	12	5.2	66	17	3.0	e33	e5	e.45
25	203	211	176	60	17	2.8	e44	e12	e2.0
26	232	359	323	57	19	2.9	e42	e11	e1.4
27	246	402	556	69	41	11	e34	e7	e.63
28	312	691	1560	80	63	15	e40	e8	e.82
29	234	392	344	54	26	3.8	e33	e9	e.79
30	172	114	54	49	15	2.0	e32	e10	e.86
31	172	152	77	---	---	---	e31	e10	e.84
TOTAL	6348	---	15076.9	3078	---	1075.0	1321	---	944.21

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR.--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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			FEBRUARY			MARCH	
1	e31	e10	e.80	22	5	.29	e20	e17	e.90
2	e30	e8	e.67	22	4	.27	e30	e28	e2.6
3	e31	e7	e.58	21	4	.23	e24	e29	e1.9
4	e31	e7	e.59	21	3	.19	e19	e26	e1.4
5	e32	e7	e.58	20	3	.17	e18	e23	e1.1
6	e30	e6	e.48	20	3	.19	e17	e18	e.82
7	e31	e5	e.45	20	4	.23	e18	e13	e.63
8	e31	e7	e.56	20	7	.36	e64	e60	e23
9	31	9	.76	20	11	.62	e50	e20	e3.3
10	30	15	1.2	20	18	1.0	e29	e8	e.65
11	30	41	3.2	21	25	1.4	e24	e9	e.56
12	30	101	8.0	25	17	1.1	e20	e12	e.63
13	39	116	12	24	13	.86	e19	e15	e.78
14	41	118	13	22	10	.63	e18	e18	e.89
15	43	106	12	e20	e8	e.46	e17	e20	e.94
16	51	88	12	e19	e9	e.48	e18	e12	e.55
17	36	26	2.6	e18	e10	e.49	e17	e7	e.30
18	33	15	1.4	e18	e7	e.31	e15	e7	e.29
19	30	14	1.1	e19	e4	e.22	e20	e34	e2.4
20	30	12	.98	e17	e5	e.21	e17	e42	e1.9
21	29	11	.88	e17	e5	e.22	e15	e28	e1.2
22	31	10	.87	e16	e4	e.17	e15	e17	e.70
23	30	13	1.1	e27	e9	e1.1	e14	e12	e.45
24	27	16	1.2	e22	e7	e.47	e15	e12	e.49
25	26	11	.82	e42	e36	e11	e15	e12	e.47
26	29	7	.57	e21	e12	e.68	e14	e8	e.29
27	26	6	.45	e19	e11	e.54	e14	e5	e.19
28	24	6	.39	e22	e12	e.76	e14	e4	e.15
29	24	5	.32	---	---	---	e14	e3	e.13
30	23	4	.26	---	---	---	e55	e203	e42
31	23	4	.28	---	---	---	e73	e108	e21
TOTAL	963	---	80.09	595	---	24.65	732	---	112.61

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	78	90	32	e16	e16	e.66	177	974	2680
2	119	262	120	e16	e13	e.55	117	67	20
3	87	212	50	e16	e11	e.48	282	687	1930
4	56	116	18	e20	e11	e.60	115	124	44
5	39	34	3.6	31	15	3.4	72	25	5.0
6	31	10	.87	86	134	112	59	35	5.6
7	27	7	.55	55	102	16	55	52	7.7
8	28	7	.59	88	123	53	193	1200	2720
9	31	10	.91	56	40	6.4	156	77	34
10	27	7	.52	31	17	1.4	159	134	74
11	32	10	.97	25	11	.76	168	175	142
12	27	6	.46	23	8	.51	124	83	29
13	27	6	.43	23	7	.42	103	22	6.3
14	25	6	.41	22	6	.36	116	74	31
15	25	5	.34	22	5	.28	191	577	973
16	24	4	.27	21	4	.23	275	1460	2690
17	23	5	.31	23	4	.29	158	96	49
18	23	6	.35	24	6	.41	106	24	6.9
19	22	5	.29	21	6	.35	133	99	53
20	21	4	.24	20	8	.40	122	92	32
21	20	5	.26	19	7	.35	107	62	22
22	20	6	.32	21	6	.35	109	94	32
23	20	7	.36	21	6	.34	93	29	7.5
24	76	53	19	19	6	.31	80	11	2.3
25	e45	e59	e7.2	19	6	.32	73	6	1.1
26	e21	e57	e3.2	19	7	.35	69	6	1.0
27	e17	e51	e2.4	21	6	.34	65	6	1.1
28	e18	e44	e2.1	52	60	26	134	223	202
29	e17	e30	e1.4	51	80	13	101	54	16
30	e17	e20	e.92	92	214	226	97	82	33
31	---	---	---	45	21	2.6	---	---	---
TOTAL	1043	---	268.27	1018	---	468.46	3809	---	11850.5

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR.--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
	JULY			AUGUST			SEPTEMBER		
1	161	947	1670	e134	e410	e470	130	54	19
2	125	186	67	72	72	15	209	294	376
3	82	72	16	58	51	8.4	155	78	34
4	68	34	6.3	51	32	4.5	168	244	234
5	65	17	3.0	65	31	5.4	e320	e116	e42
6	58	10	1.6	64	29	5.0	e540	e936	e3170
7	63	7	1.1	77	69	19	212	235	145
8	58	7	1.1	68	55	10	151	38	16
9	54	8	1.1	63	6	1.1	123	14	4.9
10	52	6	.79	62	4	.65	102	9	2.6
11	52	4	.59	143	414	554	103	7	2.0
12	53	4	.57	128	87	30	e88	e6	e1.5
13	51	4	.57	91	45	11	112	67	25
14	53	5	.78	96	116	39	e85	e12	e2.8
15	51	7	1.0	110	193	82	74	11	2.1
16	50	6	.77	197	1020	1780	76	13	2.7
17	57	16	3.0	127	117	42	79	14	3.0
18	50	19	2.6	73	34	6.9	76	10	2.0
19	48	9	1.1	67	16	2.8	80	7	1.5
20	55	25	4.5	e91	e53	e18	67	5	.95
21	48	26	3.4	147	192	152	60	4	.67
22	46	24	3.0	205	380	301	55	4	.59
23	65	58	17	127	93	34	80	71	36
24	46	29	3.6	80	17	3.8	277	943	2150
25	44	22	2.7	122	158	125	127	71	29
26	e48	e15	e2.0	104	112	37	83	14	3.1
27	e47	e11	e1.3	68	26	4.8	71	9	1.7
28	82	69	28	74	13	2.5	66	10	1.7
29	66	56	11	68	8	1.6	62	12	2.0
30	48	24	3.2	68	6	1.1	58	14	2.2
31	e55	e14	e2.1	105	84	46	---	---	---
TOTAL	1901	---	1860.77	3005	---	3813.55	3889	---	6314.01
YEAR	27702		41889.02						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					
31...	1535	159	96	41	89
JAN					
12...	1155	E30	113	e9.1	84

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70326)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70327)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70328)
DEC							
04...	1710	843	6810	15500	36	43	59
JUN							
15...	1540	989	9830	26300	30	41	53
16...	1805	573	6640	10300	34	45	57

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70329)	SED. SUSP. FALL DIAM. % FINER THAN .031 MM (70330)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)
DEC							
04...	72	82	86	95	99	100	100
JUN							
15...	66	76	79	92	99	100	100
16...	68	79	83	94	99	100	100

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 km^2).

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. Daily discharges affected by sewage treatment plant about 2.1 mi (3.4 km) upstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	450	e400	295	96	62	60	178	35	e109	187	203	369
2	388	e600	217	91	62	88	347	34	e182	325	267	657
3	365	546	212	89	60	201	273	32	e407	156	209	634
4	e338	367	288	86	58	95	162	32	e323	123	136	458
5	e316	292	605	85	58	61	100	42	e166	109	111	661
6	e433	252	834	86	54	53	81	151	e129	105	302	996
7	e557	260	555	82	53	55	70	220	e111	94	300	1850
8	e1670	338	355	79	53	68	67	161	e105	101	207	605
9	e1340	237	253	77	52	108	75	214	e456	92	143	532
10	e1020	232	194	e79	50	98	62	88	e577	82	118	453
11	e615	218	169	e78	50	139	73	64	435	164	231	396
12	e511	211	158	e78	52	71	65	55	294	145	445	339
13	e411	195	148	e90	102	60	56	49	199	87	183	446
14	e335	183	142	e112	71	53	51	44	168	81	184	425
15	e298	387	136	118	56	49	48	41	371	93	267	316
16	e300	645	177	159	51	48	45	38	684	85	637	454
17	e338	363	215	106	47	47	41	37	692	e75	633	637
18	e293	243	145	96	46	45	40	38	415	e85	349	621
19	e295	211	134	97	46	65	39	36	370	e70	271	539
20	e610	205	126	89	46	115	38	34	371	e170	e239	345
21	e230	e269	122	132	45	71	37	e33	260	155	e291	280
22	e260	344	115	117	44	54	36	33	259	99	e245	237
23	e230	209	112	103	43	51	36	36	201	e91	e259	232
24	e220	209	108	104	53	57	45	31	148	e77	e254	486
25	e280	224	108	88	75	59	61	31	128	e68	e230	393
26	e340	219	130	113	107	49	111	30	116	e65	e192	254
27	e390	195	155	78	74	42	66	30	107	e65	e174	238
28	e620	524	125	70	55	41	48	49	167	e153	155	295
29	e380	636	113	66	---	118	44	115	197	241	158	225
30	e220	417	104	63	---	231	38	147	147	112	157	174
31	e250	---	98	62	---	250	---	103	---	82	180	---
TOTAL	14303	9631	6648	2869	1625	2602	2433	2083	8294	3637	7730	14547
MEAN	461	321	214	92.5	58.0	83.9	81.1	67.2	276	117	249	485
MAX	1670	645	834	159	107	250	347	220	692	325	637	1850
MIN	220	183	98	62	43	41	36	30	105	65	111	174
AC-FT	28370	19100	13190	5690	3220	5160	4830	4130	16450	7210	15330	28850
CFSM	3.84	2.68	1.79	.77	.48	.70	.68	.56	2.30	.98	2.08	4.04
IN.	4.43	2.99	2.06	.89	.50	.81	.75	.65	2.57	1.13	2.40	4.51

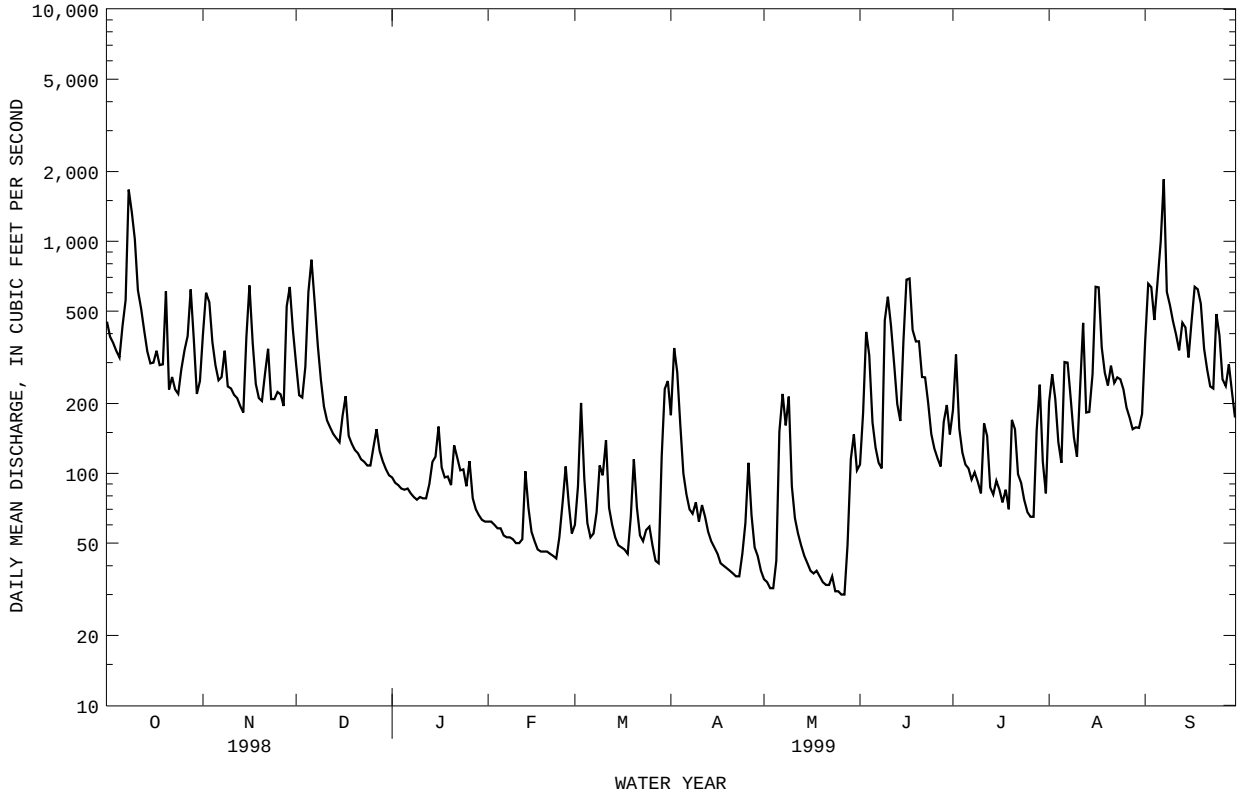
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1999, BY WATER YEAR (WY)

MEAN	462	394	127	60.7	51.6	47.1	69.1	164	112	101	224	491
MAX	1254	1518	422	112	119	244	316	636	504	240	757	2075
(WY)	1986	1978	1976	1997	1996	1989	1989	1980	1979	1984	1988	1975
MIN	97.5	42.7	15.4	13.8	13.9	10.6	16.1	12.7	9.23	26.4	42.3	78.5
(WY)	1992	1992	1992	1973	1977	1977	1977	1977	1977	1976	1976	1997

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1973 - 1999	
ANNUAL TOTAL	105491		76402			
ANNUAL MEAN	289		209		194	
HIGHEST ANNUAL MEAN					402	1979
LOWEST ANNUAL MEAN					69.6	1994
HIGHEST DAILY MEAN	20200	Sep 22	1850	Sep 7	35000	Sep 16 1975
LOWEST DAILY MEAN	10	Apr 15	30	May 26	5.0	Jun 18 1977
ANNUAL SEVEN-DAY MINIMUM	13	Apr 1	32	May 21	5.5	Jun 17 1977
INSTANTANEOUS PEAK FLOW			2920	Sep 7	128000	Sep 16 1975
INSTANTANEOUS PEAK STAGE			20.28	Sep 7	28.50	Sep 16 1975
INSTANTANEOUS LOW FLOW					4.6	Jun 22 1977
ANNUAL RUNOFF (AC-FT)	209200		151500		140300	
ANNUAL RUNOFF (CFSM)	2.41		1.74		1.61	
ANNUAL RUNOFF (INCHES)	32.70		23.68		21.94	
10 PERCENT EXCEEDS	560		451		420	
50 PERCENT EXCEEDS	112		139		78	
90 PERCENT EXCEEDS	17		46		21	

e Estimated

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued



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 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
18...	0845	E145	472	7.2	24.3	83	6.3	85	<10	540	2400
FEB											
25...	0745	50	510	8.1	23.5	15	6.6	76	<10	600	430
MAY											
14...	1215	45	437	8.1	28.2	15	7.0	88	<10	520	200
SEP											
14...	0715	E334	357	7.8	26.5	25	5.4	67	<10	3300	3200

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
18...	210	31	33	14	.4	2.2	221	<1.0	22	18
FEB										
25...	--	--	--	--	--	--	210	--	--	--
MAY										
14...	190	28	29	18	.6	3.0	180	<1.0	20	21
SEP										
14...	160	24	24	9.8	.3	2.3	150	--	14	11

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
18...	<.10	30	282	--	130	1.04	.056	1.10	.110	.48
FEB										
25...	--	--	--	--	22	.988	.012	1.00	.050	.27
MAY										
14...	.10	30	257	31.2	30	1.08	.020	1.10	.040	--
SEP										
14...	<.10	29	203	--	47	.630	.030	.660	.060	.47

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
18...	.59	1.7	7.5	.220	2	<100	40	<1	21	<10
FEB										
25...	.32	1.3	5.8	.270	--	--	--	--	--	--
MAY										
14...	<.20	--	--	E.190	<1	60	70	<1	5	E11
SEP										
14...	.53	1.2	5.3	.220	--	--	--	--	--	--

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
18...	3900	2	190	<.10	<1	<1	20	<.010	<4	.02
FEB										
25...	--	--	--	--	--	--	--	--	--	--
MAY										
14...	720	<1	60	<.10	<1	<1	<40	<.010	<4	<.02
SEP										
14...	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN I TOTAL (UG/L) (39388)
MAY 1999										
14...	1215	<.100	<.010	<.100	<.010	<.010	<.010	<.010	<.010	<.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)
MAY 1999										
14...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010

DATE	PARA-THION, TOTAL (UG/L) (39540)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	2,4-DP TOTAL (UG/L) (82183)	SILVEX, TOTAL (UG/L) (39760)
MAY 1999									
14...	<.010	<.100	<.100	<1.00	<.010	<.010	<.010	<.010	<.010

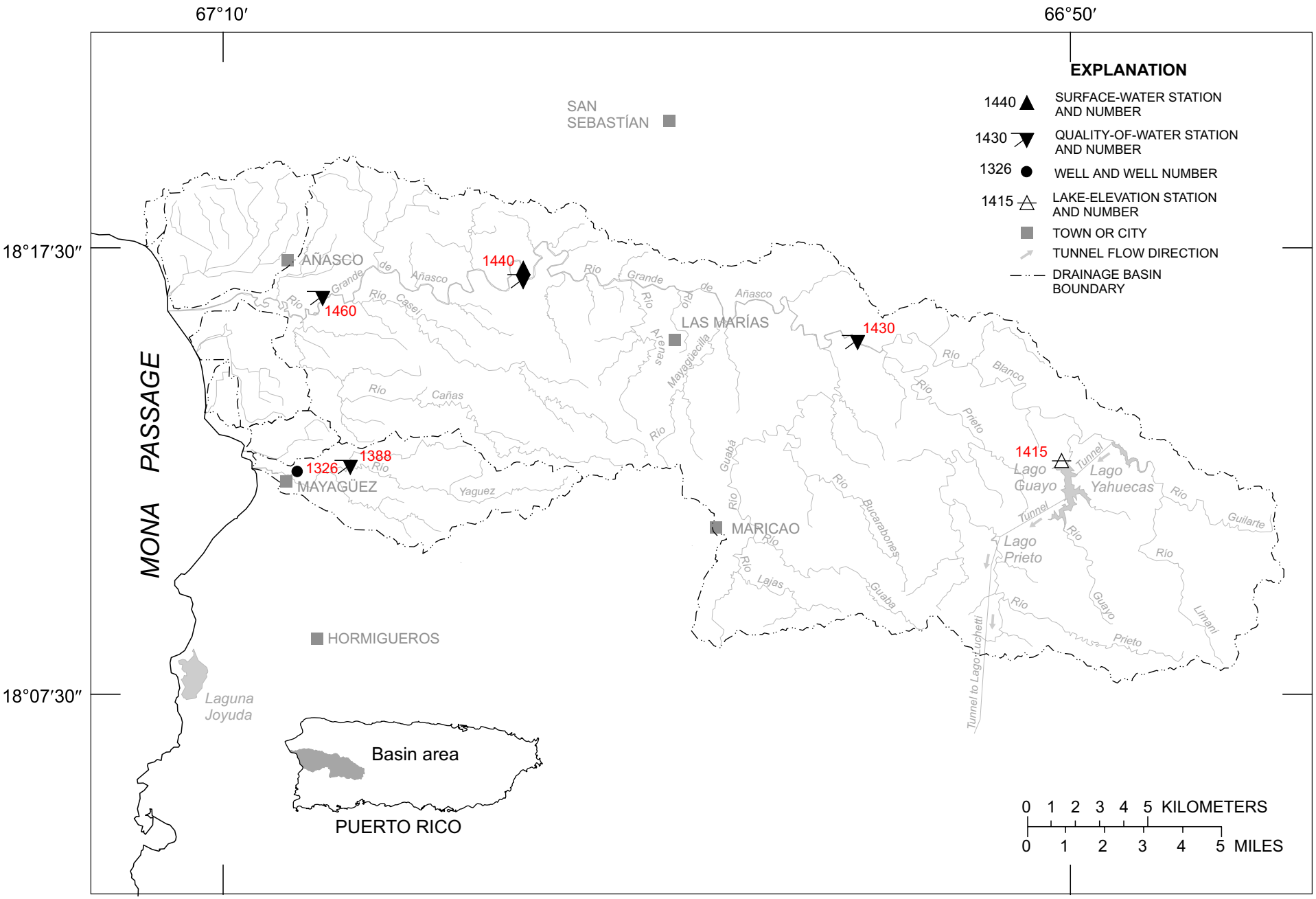


Figure 24. Río Yagüez to Río Grande de Añasco basins.

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 Mayagüez plaza.

DRAINAGE AREA.--6.7 mi^2 (17.3 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
DEC											
17...	1615	13	305	7.1	24.9	51	7.5	89	<10	270	540
FEB											
24...	1620	4.4	295	8.6	25.7	2.4	8.1	97	12	3100	K140
MAY											
18...	1315	3.3	282	8.4	29.6	1.7	8.7	114	<10	K1700	K140
SEP											
13...	1535	29	238	8.2	28.7	39	7.7	100	<10	K1300	4300

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC										
17...	130	34	11	11	.4	2.3	134	<1.0	7.0	9.9
FEB										
24...	--	--	--	--	--	--	138	--	--	--
MAY										
18...	120	31	11	12	.5	2.2	126	<1.0	8.3	12
SEP										
13...	99	26	8.3	8.1	.4	2.1	102	--	6.0	7.6

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
DEC										
17...	<.10	31	187	6.55	56	--	<.010	.880	.030	.26
FEB										
24...	--	--	--	--	4	--	<.010	.190	.020	--
MAY										
18...	<.10	31	183	1.65	<1	--	<.010	.150	.020	--
SEP										
13...	<.10	29	148	--	29	.900	.010	.910	.030	.26

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC										
17...	.29	1.2	5.2	.090	<1	<100	20	<1	2	<10
FEB										
24...	<.20	--	--	.030	--	--	--	--	--	--
MAY										
18...	<.20	--	--	E.030	<1	80	50	<1	<1	<12
SEP										
13...	.29	1.2	5.3	.080	--	--	--	--	--	--

50138800 RIO YAGÜEZ NEAR MAYAGÜEZ, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
17...	2400	2	130	<.10	<1	<1	10	<.010	<4	<.02
FEB										
24...	--	--	--	--	--	--	--	--	--	--
MAY										
18...	100	<1	12	<.10	<1	<1	<40	<.010	<4	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--

50141500 LAGO GUAYO AT DAMSITE NEAR CASTAÑER, 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) north of Castañer, and 6.0 mi (9.6 km) west of Adjuntas.

DRAINAGE AREA.--9.60 mi^2 (24.86 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--April 1980 to January 1985, June 1989 to current year. Prior to October 1994, published as Lago Guayo near Castañer.

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 hm^3), 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 ft (18.29 m), and a crest length of 220 ft (67 m), was designed to pass a maximum flood of 30,200 ft^3/s (855 m^3/s) at a reservoir elevation of 70 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. New capacity table based U.S. Geological Survey Water-Resources Investigations Report 99-4053, October, 1997.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation,1,465.35 ft (446.64 m), Sept. 22, 1998; minimum elevation recorded, 1,415.43 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,1,461.22 ft (445.38 m), Oct.27; minimum elevation 1,438.07 ft(438.32 m), June 2.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 99-4053, Puerto Rico-1997)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
1,333	0	1,400	2,745
1,353	241	1,440	8,622
1,373	820	1,460	13,436

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1460.39	1460.39	1460.31	1459.49	1453.00	1456.06	1452.36	1451.92	1439.63	1453.88	1454.64	1449.35
2	1460.39	1460.66	1460.43	1459.92	1453.40	1456.82	1452.68	1452.27	1438.85	1453.60	1454.65	1449.90
3	1460.37	1460.44	1460.35	1460.16	1453.71	1457.20	1453.60	1452.57	A	1453.45	1453.68	1450.51
4	1460.36	1460.35	1460.70	1459.84	1454.02	1457.23	1454.26	1452.90	A	1453.08	1452.73	1450.91
5	1460.36	1460.32	1460.48	1459.60	1454.32	1456.79	1454.19	1453.43	A	1452.98	1452.77	1451.65
6	1460.34	1460.30	1460.37	1460.00	1454.62	1455.89	1453.85	1455.60	A	1452.79	1452.60	1453.66
7	1460.61	1460.57	1460.33	1459.85	1454.90	1456.31	1453.41	1455.86	A	1452.51	1452.05	1453.85
8	1461.01	1460.33	1460.25	1459.63	1455.19	1455.61	1453.12	1457.74	A	1452.49	1451.61	1454.35
9	1460.48	1460.44	1460.07	1458.74	1455.46	1454.75	1452.31	1457.94	A	1452.40	1451.36	1454.72
10	1460.35	1460.34	1459.89	1458.54	1455.73	1454.19	1453.56	1457.57	A	1452.04	1451.32	1454.92
11	1460.34	1460.33	1459.87	1457.58	1456.01	1454.19	1453.73	1458.00	A	1452.07	1451.62	1455.23
12	1460.50	1460.36	1459.88	1456.72	1456.22	1454.02	1453.23	1457.12	1446.20	1452.13	1451.39	1454.97
13	1460.34	1460.31	1460.19	1456.11	1455.09	1453.79	1452.84	1456.24	1446.43	1452.27	1451.54	1456.22
14	1460.33	1460.30	1460.28	1455.06	1455.42	1453.68	1452.87	1456.22	1446.73	1452.14	1451.10	1457.01
15	1460.31	1460.46	1460.43	1454.86	1455.76	1453.88	1452.14	1455.68	1448.96	1451.80	1450.63	1457.28
16	1460.53	1460.39	1460.17	1454.69	1456.04	1453.60	1451.45	1455.18	1451.40	1451.59	1450.71	1457.38
17	1460.33	1460.31	1460.07	1454.70	1456.11	1453.73	1451.59	1455.07	1452.64	1451.99	1450.72	1457.48
18	1460.31	1460.30	1460.08	1453.74	1455.51	1454.11	1451.01	1454.25	1453.12	1451.92	1450.52	1457.51
19	1460.31	1460.29	1460.01	1452.32	1455.24	1455.25	1449.80	1453.05	1453.99	1451.86	1449.33	1457.83
20	1460.30	1460.28	1460.15	1451.30	A	1455.37	1449.82	1452.38	1454.57	1452.34	1449.36	1458.45
21	1460.38	1460.31	1459.91	1451.40	1455.21	1454.92	1448.77	1451.38	1454.60	1452.55	1449.80	1458.26
22	1460.43	1460.29	1459.74	1451.85	1455.18	1454.34	1448.35	1451.03	1454.83	1452.73	1451.18	1458.17
23	1460.46	1460.29	1459.68	1451.57	1455.03	1453.67	1447.91	1450.72	1454.49	1452.92	1452.13	1457.91
24	1460.35	1460.29	1459.54	1451.93	1454.70	1453.93	1448.61	1449.77	1454.51	1453.07	1450.78	1458.49
25	1460.56	1460.28	1459.80	1452.10	1455.06	1454.19	1450.45	1449.36	1454.39	1453.20	1450.46	1459.09
26	1460.87	1460.27	1460.00	1451.95	1454.79	1454.03	1453.58	1446.50	1454.51	1453.34	1449.68	1459.20
27	1461.02	1460.57	1460.16	1452.07	1455.08	1453.68	1453.91	1444.37	1454.42	1453.50	1449.10	1459.11
28	1460.57	1460.38	1459.70	1452.48	A	1452.56	1452.96	1442.90	1454.01	1453.49	1448.76	1459.21
29	1460.51	1460.30	1459.55	1452.76	A	1451.66	1452.37	1441.40	1454.17	1453.84	1448.66	1459.14
30	1460.40	1460.29	1459.37	1453.09	---	1451.43	1452.08	1440.90	1454.28	1454.01	1448.84	1459.03
31	A	---	1459.07	1452.60	---	1450.57	---	1439.86	---	1454.18	1448.91	---
MAX	---	1460.66	1460.70	1460.16	---	1457.23	1454.26	1458.00	---	1454.18	1454.65	1459.21
MIN	---	1460.27	1459.07	1451.30	---	1450.57	1447.91	1439.86	---	1451.59	1448.66	1449.35

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 mi^2 (68.1 km^2) this does not include 36.2 mi^2 (93.8 km^2) which contributes only during high floods, and 3.5 mi^2 (9.1 km^2) 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 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
02...	1315	339	236	8.0	27.0	9.1	7.5	96	<10	K160	K90
MAR											
01...	1340	38	285	8.2	28.0	38	8.5	111	<10	K2000	3400
MAY											
18...	0940	49	277	7.9	24.0	23	8.7	106	<10	4300	1300
AUG											
16...	1155	100	251	8.1	27.7	.57	7.7	100	<10	K120	260

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
02...	93	25	7.6	9.3	.4	2.4	82	<1.0	13	10
MAR										
01...	--	--	--	--	--	--	97	--	--	--
MAY										
18...	110	30	9.3	13	.5	2.0	100	<1.0	20	11
AUG										
16...	98	26	7.8	10	.4	2.0	89	--	18	8.3

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
02...	<.10	26	142	130	17	1.79	.014	1.80	<.010	--
MAR										
01...	--	--	--	--	35	1.89	.012	1.90	.030	.20
MAY										
18...	<.10	31	176	23.2	21	--	<.010	1.20	.030	--
AUG										
16...	<.10	33	159	42.9	1	--	<.010	1.50	.020	--

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
02...	<.20	--	--	.040	<1	<100	<10	<1	<1	<10
MAR										
01...	.23	2.1	9.4	.030	--	--	--	--	--	--
MAY										
18...	<.20	--	--	E.060	<1	30	30	<1	<1	<12
AUG										
16...	<.20	--	--	.040	--	--	--	--	--	--

50143000 RIO GRANDE DE AÑASCO NEAR LARES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
02...	560	<1	36	<.10	<1	<1	<10	<.010	<4	<.02
MAR										
01...	--	--	--	--	--	--	--	--	--	--
MAY										
18...	730	<1	44	<.10	<1	<1	<40	<.010	<4	.05
AUG										
16...	--	--	--	--	--	--	--	--	--	--

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR

LOCATION.--Lat 18°17'05", long 67°03'05", Hydrologic Unit 21010003, on left 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 mi^2 (244.2 km^2), does not include 36.2 mi^2 (93.8 km^2) which contributes only during high floods, and 3.5 mi^2 (9.1 km^2) 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 except those for estimated daily dischages, which are poor. 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 hm^3). Limited storm runoff is contributed to basin by 3.5 mi^2 (9.1 km^2) above Río Toro Diversion dam. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2300	899	e439	125	117	139	887	158	790	e373	254	e404
2	e1100	840	393	125	123	119	1030	146	1530	e331	305	836
3	e930	1440	419	126	119	184	627	142	1730	e314	184	752
4	e860	908	308	146	116	122	575	137	1080	e289	176	519
5	e800	718	472	143	115	109	264	236	535	e339	534	1180
6	e740	654	381	122	114	103	205	399	413	e299	263	2660
7	e700	818	298	121	118	101	178	720	376	e301	630	1700
8	e1230	919	269	129	117	121	188	459	1310	e295	414	2060
9	e1380	664	239	119	117	111	303	374	1330	e310	197	1630
10	e1100	663	207	119	114	124	325	228	1000	e242	167	1020
11	e957	595	180	122	114	246	359	222	1420	e297	e225	792
12	e924	570	163	125	117	151	195	194	1060	e594	e223	664
13	e967	556	156	145	126	115	167	178	639	e369	e582	923
14	e855	537	187	134	120	104	156	168	641	e249	e1440	720
15	e930	560	216	226	111	112	147	163	1260	e224	e569	517
16	e1500	834	294	330	108	102	141	161	1220	e254	e701	530
17	1260	611	217	149	105	97	137	163	926	e247	e2880	704
18	797	516	189	133	102	100	135	189	791	e203	e891	552
19	626	493	171	159	101	154	136	193	721	e178	e1880	777
20	603	483	156	130	101	304	133	156	960	e167	e719	526
21	767	470	179	413	100	422	143	247	631	e635	e1270	480
22	666	485	156	308	98	197	130	488	1050	868	e572	423
23	628	457	144	150	99	155	134	293	660	519	e663	447
24	655	454	137	136	97	171	314	185	513	292	536	687
25	1140	442	134	131	156	497	353	170	461	219	644	807
26	1350	439	133	129	249	334	548	164	e425	205	624	569
27	1700	540	159	133	205	151	592	335	e390	182	420	618
28	2260	653	185	131	133	307	340	617	e373	214	e364	418
29	1370	466	147	125	---	603	347	867	e370	363	e410	367
30	992	462	131	121	---	697	190	584	e375	204	e565	567
31	1150	---	128	119	---	592	---	543	---	173	e507	---
TOTAL	33237	19146	6987	4824	3412	6844	9379	9279	24980	9749	19809	24849
MEAN	1072	638	225	156	122	221	313	299	833	314	639	828
MAX	2300	1440	472	413	249	697	1030	867	1730	868	2880	2660
MIN	603	439	128	119	97	97	130	137	370	167	167	367
AC-FT	65930	37980	13860	9570	6770	13580	18600	18400	49550	19340	39290	49290
CFSM	11.4	6.77	2.39	1.65	1.29	2.34	3.32	3.17	8.83	3.33	6.78	8.78
IN.	13.11	7.55	2.76	1.90	1.35	2.70	3.70	3.66	9.85	3.85	7.81	9.80

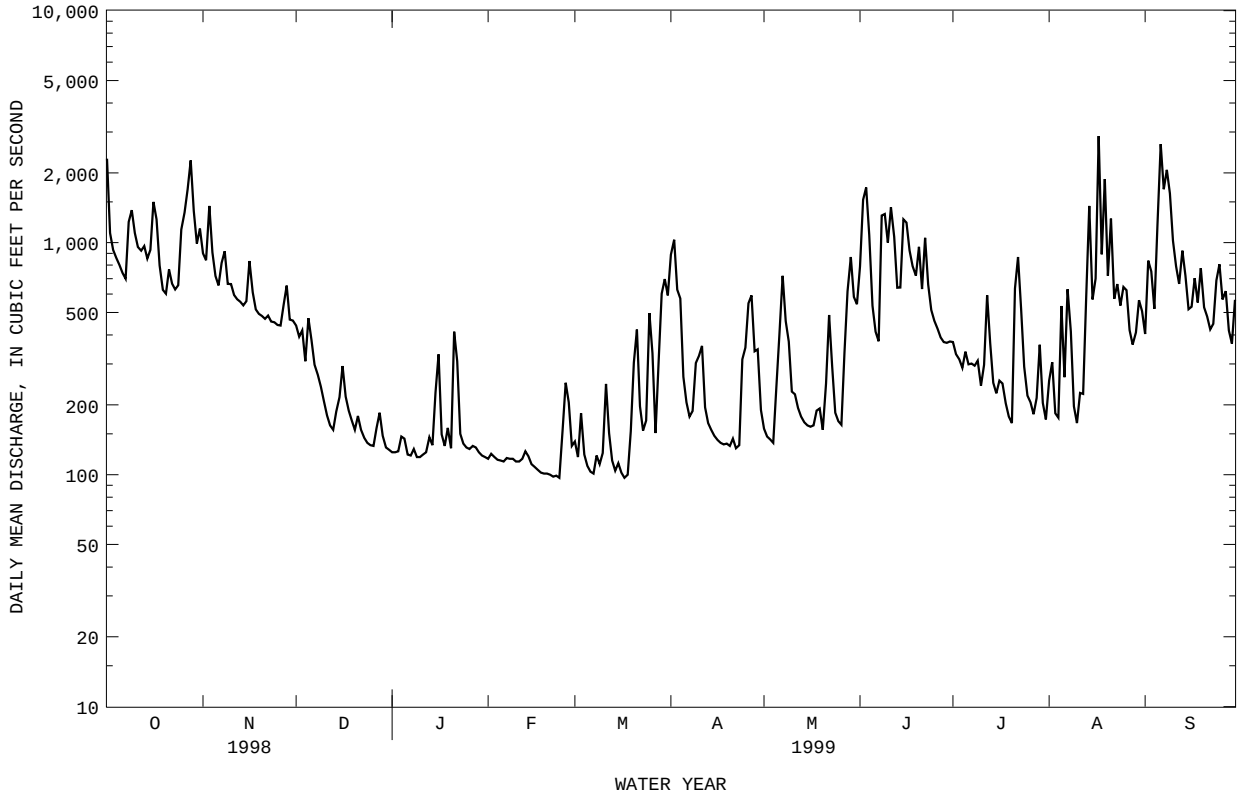
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1999, BY WATER YEAR (WY)

MEAN	671	434	221	142	115	107	147	372	301	269	372	695
MAX	1467	746	482	286	345	271	313	1084	833	657	936	3505
(WY)	1993	1982	1966	1997	1996	1972	1971	1986	1999	1979	1979	1998
MIN	344	182	103	82.4	62.3	54.4	49.3	63.7	71.2	111	152	206
(WY)	1983	1998	1992	1998	1992	1965	1968	1967	1977	1990	1967	1983

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1963 - 1999	
ANNUAL TOTAL	222687		172495			
ANNUAL MEAN	610		473		321	
HIGHEST ANNUAL MEAN					512	1998
LOWEST ANNUAL MEAN					189	1967
HIGHEST DAILY MEAN	69900	Sep 22	2880	Aug 17	69900	Sep 22 1998
LOWEST DAILY MEAN	52	Apr 18	97	Feb 24	32	Apr 18 1965
ANNUAL SEVEN-DAY MINIMUM	58	Apr 12	100	Feb 18	35	Apr 14 1965
INSTANTANEOUS PEAK FLOW			12300	Sep 6	163000	Sep 22 1998
INSTANTANEOUS PEAK STAGE			11.44	Sep 6	34.50	Sep 22 1998
INSTANTANEOUS LOW FLOW			94	Feb 24	31	Apr 19 1965
ANNUAL RUNOFF (AC-FT)	441700		342100		232200	
ANNUAL RUNOFF (CFSM)	6.47		5.01		3.40	
ANNUAL RUNOFF (INCHES)	87.85		68.05		46.19	
10 PERCENT EXCEEDS	994		995		668	
50 PERCENT EXCEEDS	197		334		186	
90 PERCENT EXCEEDS	64		121		74	

e Estimated

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR--Continued



50144000 RIO GRANDE DE ANASCO NEAR SAN SEBASTIAN, PR.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
19...	1245	505	244	7.8	26.5	5.0	7.4	91	<10	K140	K150
MAR											
02...	1200	118	258	7.8	27.0	8.4	8.3	103	38	200	260
MAY											
26...	1115	162	247	7.7	30.5	10	8.1	108	<10	K140	K27
AUG											
17...	0905	554	174	7.8	24.0	93	8.0	97	<10	4300	7800

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
19...	99	25	9.0	8.6	.4	2.2	95	<1.0	8.9	8.8
MAR										
02...	--	--	--	--	--	--	110	--	--	--
MAY										
26...	100	25	9.3	10	.4	1.9	100	<1.0	13	8.0
AUG										
17...	72	18	6.6	6.6	.3	1.9	68	--	7.3	5.6

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
19...	<.10	28	147	201	9	1.29	.011	1.30	.010	--
MAR										
02...	--	--	--	--	13	.990	.010	1.00	.020	.19
MAY										
26...	.10	28	155	67.8	14	--	<.010	.540	.030	--
AUG										
17...	<.10	25	111	166	218	1.38	.020	1.40	.050	.72

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
19...	<.20	--	--	.050	<1	<100	10	<1	1	<10
MAR										
02...	.21	1.2	5.4	.040	--	--	--	--	--	--
MAY										
26...	<.20	--	--	E.030	<1	30	E20	<1	<1	<12
AUG										
17...	.77	2.2	9.6	.160	--	--	--	--	--	--

50144000 RIO GRANDE DE ANASCO NEAR SAN SEBASTIAN, PR.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
19...	770	<1	43	<.10	<1	<1	<10	<.010	<4	.02
MAR										
02...	--	--	--	--	--	--	--	--	--	--
MAY										
26...	380	<1	33	<.10	<1	<1	<40	<.010	<4	.02
AUG										
17...	--	--	--	--	--	--	--	--	--	--

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 mi^2 (360 km^2) this does not include 39.7 mi^2 (102.8 km^2), flow is diverted to south coast.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
19...	1115	E650	234	7.6	25.5	17	7.3	88	<10	380	280
MAR											
02...	1410	E300	269	7.6	27.5	19	7.4	93	<10	K110	K150
MAY											
26...	1500	E300	238	7.8	27.0	15	7.0	88	<10	K200	K100
AUG											
17...	1355	1010	177	7.6	27.0	97	7.1	89	<10	5000	7800

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
19...	98	24	8.9	8.6	.4	2.2	97	<1.0	8.0	8.7
MAR										
02...	--	--	--	--	--	--	110	--	--	--
MAY										
26...	100	25	9.3	9.9	.4	2.0	100	<1.0	11	7.7
AUG										
17...	72	18	6.7	6.6	.3	2.1	70	--	6.5	5.5

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
19...	<.10	28	147	--	29	1.09	.010	1.10	.020	.21
MAR										
02...	--	--	--	--	30	.868	.012	.880	.030	--
MAY										
26...	.10	28	153	--	23	--	<.010	.470	.030	--
AUG										
17...	<.10	25	112	306	313	1.28	.020	1.30	.050	.73

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
19...	.23	1.3	5.9	.110	<1	<100	20	<1	2	<10
MAR										
02...	<.20	--	--	<.020	--	--	--	--	--	--
MAY										
26...	<.20	--	--	E.050	<1	40	E20	<1	<1	<12
AUG										
17...	.78	2.1	9.2	.220	--	--	--	--	--	--

50146000 RIO GRANDE DE AÑASCO NEAR AÑASCO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
19...	960	<1	62	<.10	<1	<1	<10	<.010	<4	<.02
MAR										
02...	--	--	--	--	--	--	--	--	--	--
MAY										
26...	680	<1	61	<.10	<1	<1	<40	<.010	<4	.10
AUG										
17...	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN I TOTAL (UG/L) (39388)
MAY 1999										
26...	1500	<.100	<.010	<.100	<.010	<.010	<.010	<.010	<.010	<.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)
MAY 1999										
26...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010

DATE	PARA-THION, TOTAL (UG/L) (39540)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	2,4-DP TOTAL (UG/L) (82183)	SILVEX, TOTAL (UG/L) (39760)
MAY 1999									
26...	<.010	<.100	<.100	<1.00	<.010	<.010	<.010	<.010	<.010

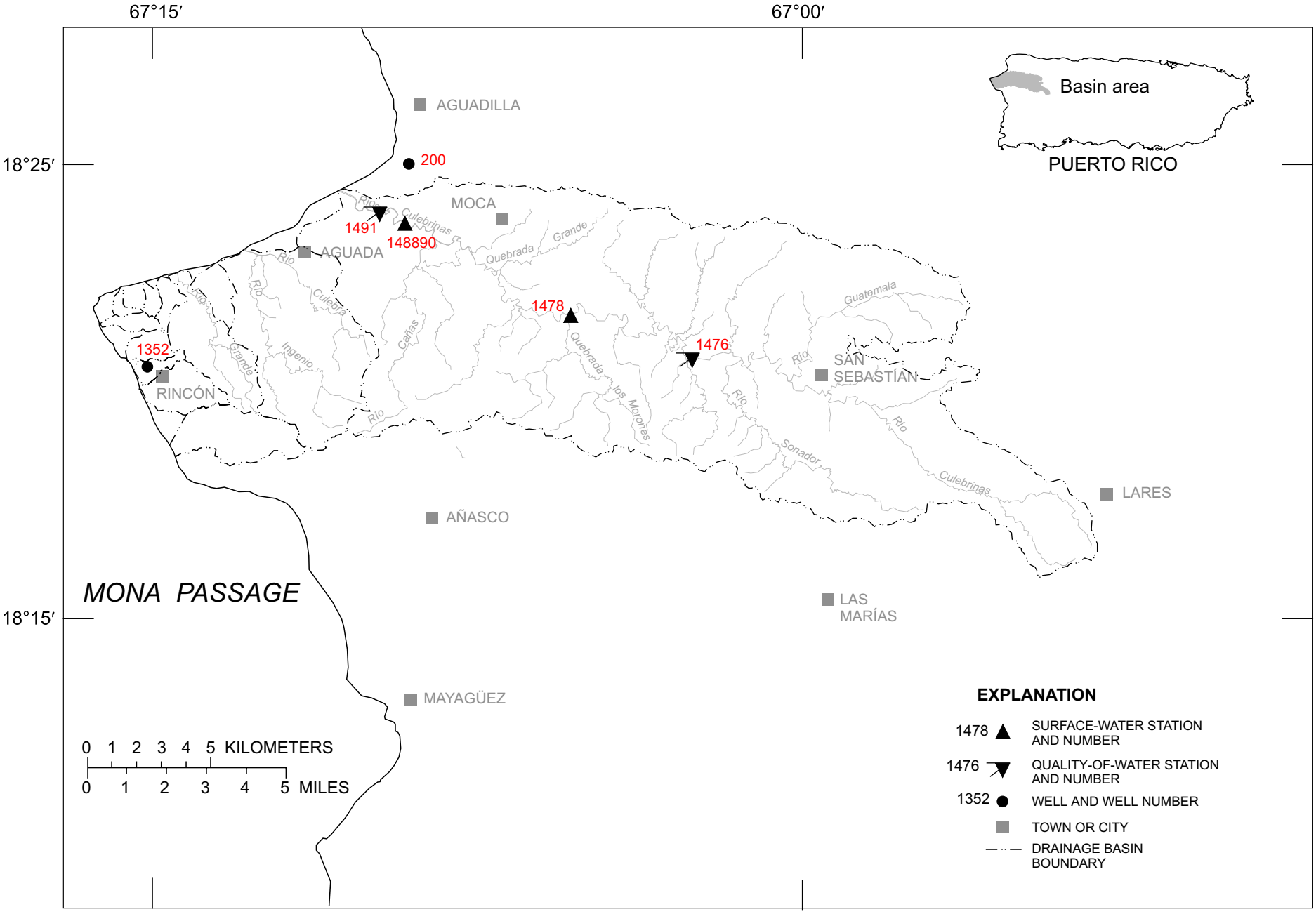


Figure 25. Río Culebrinas basin.

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 mi^2 (150.7 km^2).

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
NOV											
16...	1030	226	309	7.9	24.0	31	8.1	95	<10	4000	4600
MAR											
02...	1015	46	317	7.6	24.5	7.0	7.5	88	<10	470	200
MAY											
27...	0830	107	330	7.7	26.5	4.5	7.5	94	<10	3500	440
AUG											
18...	0640	251	248	7.9	24.2	82	7.7	92	17	K4000	40000

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
16...	140	48	4.8	8.4	.3	2.9	140	<1.0	9.1	8.7
MAR										
02...	--	--	--	--	--	--	140	--	--	--
MAY										
27...	140	46	5.5	12	.4	2.4	130	<1.0	13	12
AUG										
18...	110	38	3.9	6.1	.2	2.9	110	--	7.9	6.4

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
16...	<.10	21	187	114	48	--	<.010	1.20	.040	.32
MAR										
02...	--	--	--	--	6	1.47	.034	1.50	.060	.18
MAY										
27...	.10	25	193	55.8	3	.980	.020	1.00	.040	--
AUG										
18...	<.10	14	145	98.8	198	.910	.020	.930	.070	.91

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
16...	.36	1.6	6.9	.060	1	<100	20	<1	3	<10
MAR										
02...	.24	1.7	7.7	.240	--	--	--	--	--	--
MAY										
27...	<.20	--	--	E.050	<1	40	40	<1	<1	<12
AUG										
18...	.98	1.9	8.5	.140	--	--	--	--	--	--

50147600 RIO CULEBRINAS NEAR SAN SEBASTIAN, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
16...	1000	<1	50	<.10	<1	<1	<10	<.010	<4	<.02
MAR										
02...	--	--	--	--	--	--	--	--	--	--
MAY										
27...	250	<1	28	<.10	<1	<1	<40	<.010	<4	.04
AUG										
18...	--	--	--	--	--	--	--	--	--	--

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 km^2).

PERIOD OF RECORD.--July 1967 to current year.

GAGE.--Water-stage recorder. 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.

REVISION.--The historical maximum discharge for the period of record have been revised to 41,200 ft^3/s, Sept. 16, 1975, gage-height, 36.60 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	745	553	179	99	70	95	194	264	385	131	126	136
2	350	551	213	94	72	156	388	189	2130	128	108	157
3	298	2270	902	92	67	158	241	161	4410	125	178	310
4	273	1540	229	89	65	75	154	148	1460	116	148	948
5	253	483	187	87	62	67	e133	1040	500	144	210	455
6	237	356	172	85	60	64	120	604	392	138	148	938
7	225	334	158	85	59	60	e110	2220	432	124	214	1490
8	391	322	150	84	58	62	e112	605	508	120	281	e4800
9	465	289	144	82	57	61	e109	370	4480	138	141	1960
10	325	287	140	104	57	68	100	220	2120	110	105	536
11	274	279	134	108	56	79	e111	183	556	132	136	431
12	223	316	132	86	55	64	e96	165	475	230	148	385
13	422	498	130	155	55	60	e88	153	331	184	288	363
14	294	299	126	119	53	57	e86	141	280	118	647	302
15	673	1700	124	465	50	57	e84	131	261	108	253	477
16	627	1120	119	2290	49	57	81	124	232	324	158	286
17	995	417	124	338	46	e57	77	219	216	237	1140	249
18	478	283	118	149	44	e81	75	181	552	129	368	235
19	324	246	111	311	44	e297	81	126	286	116	e1030	258
20	250	220	130	168	44	e324	95	131	450	112	e320	219
21	224	205	119	136	43	e428	169	111	254	278	e608	206
22	221	192	110	189	43	e624	84	298	237	259	e241	210
23	351	184	107	103	43	e420	71	1340	272	343	e186	212
24	293	185	106	93	42	e502	73	282	181	176	153	194
25	1360	176	102	88	69	e1500	77	173	162	130	209	253
26	765	321	99	83	245	e601	81	139	157	129	692	245
27	368	275	238	84	204	e202	82	285	142	165	292	219
28	2090	239	168	84	84	e609	217	304	137	117	191	227
29	977	172	106	78	---	e1420	4260	313	231	109	200	211
30	1430	169	102	73	---	720	737	606	157	140	172	937
31	964	---	120	71	---	268	---	467	---	153	152	---
TOTAL	17165	14481	5099	6172	1896	9293	8386	11693	22386	4963	9243	17849
MEAN	554	483	164	199	67.7	300	280	377	746	160	298	595
MAX	2090	2270	902	2290	245	1500	4260	2220	4480	343	1140	4800
MIN	221	169	99	71	42	57	71	111	137	108	105	136
AC-FT	34050	28720	10110	12240	3760	18430	16630	23190	44400	9840	18330	35400
CFSM	7.78	6.78	2.31	2.80	.95	4.21	3.93	5.30	10.5	2.25	4.19	8.36
IN.	8.97	7.57	2.66	3.22	.99	4.86	4.38	6.11	11.70	2.59	4.83	9.33

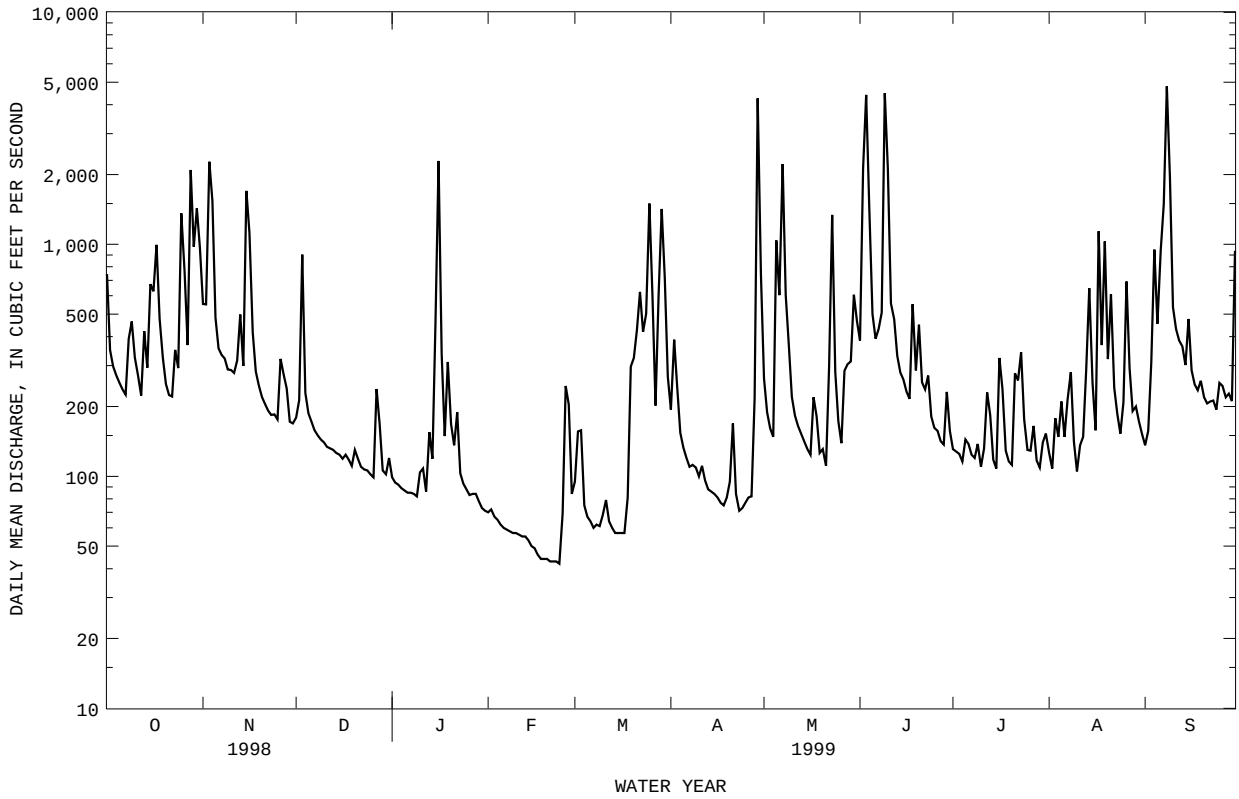
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1999, BY WATER YEAR (WY)

MEAN	612	326	143	94.9	79.3	77.5	133	461	405	297	338	541
MAX	1086	799	424	530	371	319	621	2054	773	847	831	1651
(WY)	1973	1982	1982	1997	1996	1981	1986	1986	1998	1979	1979	1998
MIN	231	108	72.1	51.2	37.0	30.4	26.4	96.7	73.1	66.7	119	145
(WY)	1968	1979	1992	1979	1992	1979	1970	1973	1997	1994	1970	1986

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1967 - 1999	
ANNUAL TOTAL	162611		128626			
ANNUAL MEAN	446		352		294	
HIGHEST ANNUAL MEAN					457	1986
LOWEST ANNUAL MEAN					179	1977
HIGHEST DAILY MEAN	17000	Sep 22	4800	Sep 8	17000	Sep 22 1998
LOWEST DAILY MEAN	29	Apr 11	42	Feb 24	19	Apr 16 1979
ANNUAL SEVEN-DAY MINIMUM	31	Apr 6	43	Feb 18	20	Apr 13 1979
INSTANTANEOUS PEAK FLOW			Not determined		41200	Sep 16 1975
INSTANTANEOUS PEAK STAGE			29.65	Sep 8	36.60	Sep 16 1975
INSTANTANEOUS LOW FLOW			41	Feb 24	16	Apr 17 1979
ANNUAL RUNOFF (AC-FT)	322500		255100		213100	
ANNUAL RUNOFF (CFSM)	6.26		4.95		4.13	
ANNUAL RUNOFF (INCHES)	84.96		67.20		56.13	
10 PERCENT EXCEEDS	984		681		600	
50 PERCENT EXCEEDS	165		184		135	
90 PERCENT EXCEEDS	36		71		43	

e Estimated

50147800 RIO CULEBRINAS AT HIGHWAY 404 NEAR MOCA, PR--Continued



50148890 RIO CULEBRINAS AT MARGARITA DAM NEAR AGUADA, PR

LOCATION.--Lat 18°23'40", long 67°09'04", Hydrologic Unit 21010003, on right bank 40 ft. upstream of Margarita Dam spillway 0.2 mi (0.32 km) upstream of Highway 2 at Aguadilla Filtration Plant water intake at Río Culebrinas, 1.05 mi (1.69 km) northeast of Central Coloso and 2.55 mi (4.10 km) southeast from Aguadilla Plaza.

DRAINAGE AREA.--94.6 mi^2 (245 km^2).

PERIOD OF RECORD.--July 1998 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 48.6 ft. (14.8 m), from topographic map. For mean sea level elevations add 3.0 ft. to gage-height readings.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

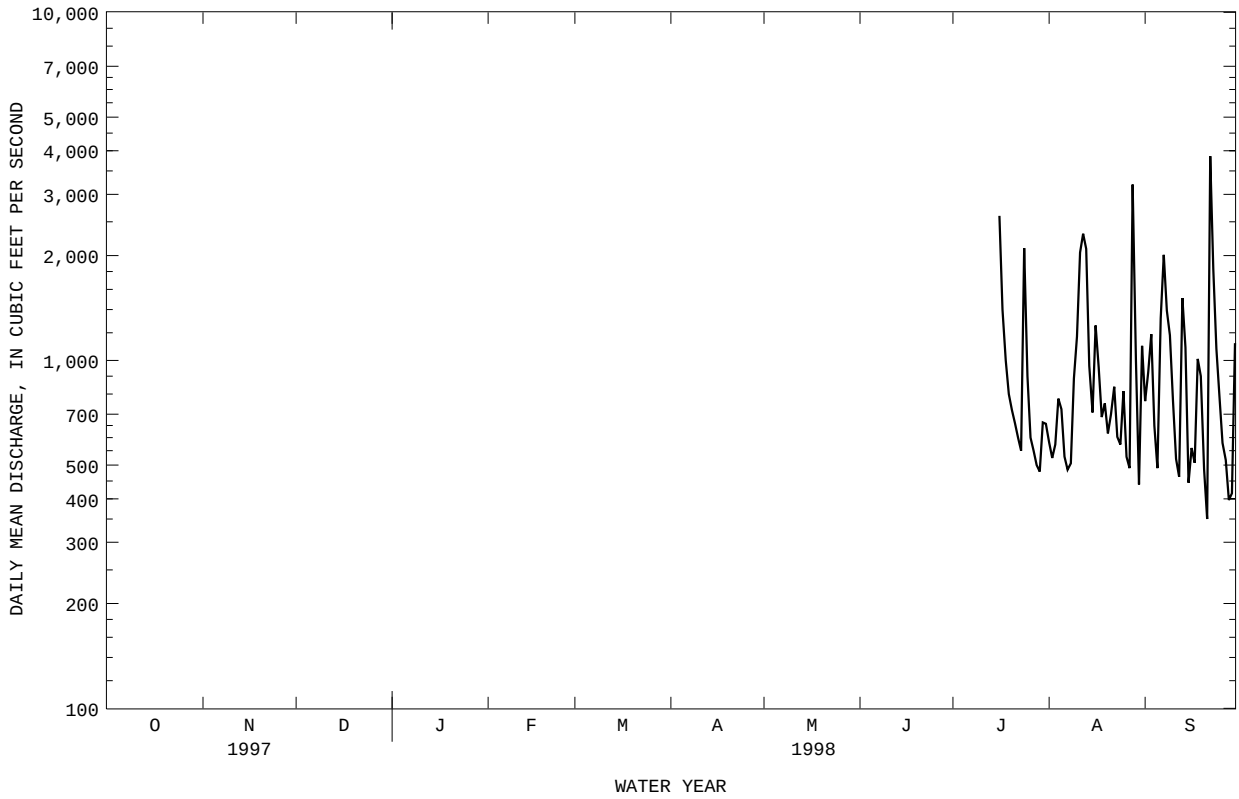
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1											581	763
2											524	925
3											573	1190
4											776	649
5											724	490
6											529	1320
7											485	2010
8											506	1390
9											887	1180
10											1170	766
11											2040	521
12											2310	463
13											2090	1510
14											964	1090
15											708	445
16										e2600	1260	560
17										e1400	956	508
18										e1000	687	1010
19										e800	752	900
20										e720	617	486
21										e660	699	350
22										e600	840	3860
23										e550	603	1830
24										e2100	573	1080
25										e900	816	788
26										e600	528	579
27										e550	e490	517
28										e500	e3200	397
29										e479	e1000	415
30										663	e440	1120
31										657	e1100	---
TOTAL										---	29428	29112
MEAN										---	949	970
MAX										---	3200	3860
MIN										---	440	350
AC-FT										---	58370	57740

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1998, BY WATER YEAR (WY)

MEAN	---	949	970
MAX	---	949	970
(WY)	---	1998	1998
MIN	---	949	970
(WY)	---	1998	1998

e Estimated

50148890 RIO CULEBRINAS AT MARGARITA DAM NEAR AGUADA, PR--Continued



50148890 RIO CULEBRINAS AT MARGARITA DAM NEAR AGUADA, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

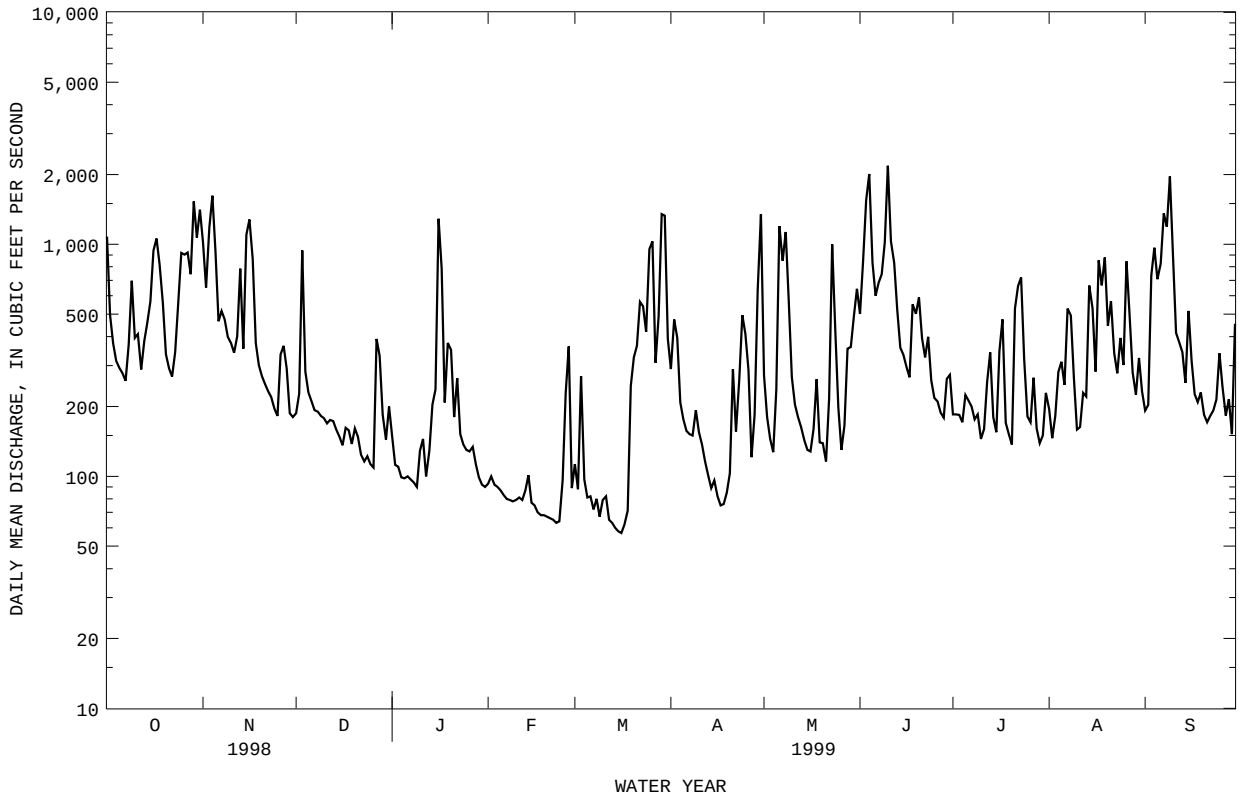
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1080	1020	187	149	93	113	290	273	501	185	195	192
2	496	652	227	112	100	88	474	180	850	185	146	203
3	374	1180	942	110	92	270	396	145	1550	184	182	733
4	314	1620	283	99	90	97	208	127	2010	171	282	966
5	293	931	230	98	87	81	176	236	835	224	312	708
6	278	466	211	100	83	82	157	1200	600	212	248	825
7	258	516	193	97	80	72	152	849	684	200	528	1360
8	370	474	190	94	79	80	150	1130	744	176	493	1190
9	697	399	182	90	78	67	193	566	1020	185	265	1960
10	395	375	178	129	79	79	155	267	2180	145	159	897
11	410	341	169	145	81	82	137	204	1030	160	163	415
12	289	401	175	100	79	65	116	180	832	255	229	379
13	382	786	173	129	87	63	101	163	520	342	221	343
14	460	355	159	204	101	60	89	143	358	180	664	253
15	567	1100	148	237	77	58	96	130	334	155	530	517
16	940	1280	136	1290	75	57	82	128	296	347	283	315
17	1060	862	162	787	70	62	75	160	267	475	852	226
18	817	375	158	208	68	71	76	262	551	170	666	209
19	558	301	138	376	68	245	85	140	502	152	877	230
20	336	270	161	351	67	326	103	139	590	137	445	184
21	292	250	148	180	66	365	290	116	394	530	569	171
22	269	233	124	265	65	565	156	216	326	660	339	182
23	343	220	116	152	63	541	261	1000	399	720	278	192
24	557	196	122	137	64	420	495	429	259	320	395	214
25	918	182	113	130	96	954	411	198	218	181	302	339
26	903	335	109	128	228	1030	288	130	210	171	844	243
27	922	365	391	134	363	309	121	166	188	266	495	183
28	744	291	330	113	89	490	185	355	179	161	280	215
29	1530	187	184	99	---	1350	635	361	263	139	225	152
30	1070	180	144	92	---	1330	1350	490	274	150	324	455
31	1410	---	200	90	---	391	---	643	---	229	232	---
TOTAL	19332	16143	6383	6425	2668	9863	7503	10726	18964	7767	12023	14451
MEAN	624	538	206	207	95.3	318	250	346	632	251	388	482
MAX	1530	1620	942	1290	363	1350	1350	1200	2180	720	877	1960
MIN	258	180	109	90	63	57	75	116	179	137	146	152
AC-FT	38350	32020	12660	12740	5290	19560	14880	21280	37620	15410	23850	28660

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

MEAN	624	538	206	207	95.3	318	250	346	632	251	669	726
MAX	624	538	206	207	95.3	318	250	346	632	251	949	970
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1998	1998
MIN	624	538	206	207	95.3	318	250	346	632	251	388	482
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS	FOR 1999 WATER YEAR		WATER YEARS 1998 - 1999	
ANNUAL TOTAL	132248			
ANNUAL MEAN	362		362	
HIGHEST ANNUAL MEAN			362	1999
LOWEST ANNUAL MEAN			362	1999
HIGHEST DAILY MEAN	2180	Jun 10	3860	Sep 22 1998
LOWEST DAILY MEAN	57	Mar 16	57	Mar 16 1999
ANNUAL SEVEN-DAY MINIMUM	62	Mar 12	62	Mar 12 1999
INSTANTANEOUS PEAK FLOW	3410	Oct 25	5480	Sep 22 1998
INSTANTANEOUS PEAK STAGE	14.39	Oct 25	18.28	Sep 22 1998
INSTANTANEOUS LOW FLOW	49	Mar 14	49	Mar 14 1999
ANNUAL RUNOFF (AC-FT)	262300		262500	
10 PERCENT EXCEEDS	868		1030	
50 PERCENT EXCEEDS	229		292	
90 PERCENT EXCEEDS	87		92	

50148890 RIO CULEBRINAS AT MARGARITA DAM NEAR AGUADA, PR--Continued



50149100 RIO CULEBRINAS NEAR AGUADA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'03", long 67°09'40", at bridge on Highway 2, 2.3 mi (3.7 km) northeast of Aguada plaza.

DRAINAGE AREA.--97.0 mi^2 (251.1 km^2).

PERIOD OF RECORD.--Water years 1958, 1970 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)
NOV										
10...	1400	E700	320	7.8	26.5	28	7.0	86	<10	2200
MAR										
02...	0730	E70	364	7.8	24.5	22	6.7	80	<10	440
MAY										
26...	0800	E152	345	7.6	26.5	45	4.1	51	<10	K1500
AUG										
18...	0825	--	231	7.6	24.8	--	6.0	78	41	55000

DATE	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
NOV										
10...	760	130	43	5.6	11	.4	2.7	140	<1.0	9.0
MAR										
02...	330	--	--	--	--	--	--	150	--	--
MAY										
26...	400	150	51	5.6	11	.4	3.0	150	<1.0	11
AUG										
18...	60000	100	34	3.7	6.0	.3	3.6	110	--	7.2

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV										
10...	11	<.10	29	195	56	--	<.010	.980	.030	--
MAR										
02...	--	--	--	--	31	1.08	.019	1.10	.050	.25
MAY										
26...	12	.10	22	205	117	.660	.010	.670	.070	--
AUG										
18...	7.2	<.10	15	143	790	.650	.030	.680	.090	1.8

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-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-ERABLE (UG/L AS BA) (01007)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
NOV										
10...	<.20	--	--	.060	1	<100	20	<1	1	<10
MAR										
02...	.30	1.4	6.2	.240	--	--	--	--	--	--
MAY										
26...	E.42	--	--	E.100	<1	60	30	<1	2	E9
AUG										
18...	1.9	2.6	11	.400	--	--	--	--	--	--

50149100 RIO CULEBRINAS NEAR AGUADA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
NOV										
10...	1400	<1	100	<.10	<1	<1	<10	<.010	<4	<.02
MAR										
02...	--	--	--	--	--	--	--	--	--	--
MAY										
26...	2000	<1	150	<.10	<1	<1	<40	<.010	<4	<.08
AUG										
18...	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN I TOTAL (UG/L) (39388)
MAY 1999										
26...	0800	<.100	<.010	<.100	<.010	<.010	<.010	<.010	<.010	<.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)
MAY 1999										
26...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010

DATE	PARA-THION, TOTAL (UG/L) (39540)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	2,4-DP TOTAL (UG/L) (82183)	SILVEX, TOTAL (UG/L) (39760)
MAY 1999									
26...	<.010	<.100	<.100	<1.00	<.010	.300	<.010	<.010	<.010

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Water-Quality at Partial Record Stations in Puerto Rico and U.S. Virgin Island

ANALYSES 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 tan quarterly.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616)
RIO GUAJATACA BASIN									
50010720	LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS,PR (LAT 18˚22’05"N LONG 066˚54’36"W)								
DEC 1998									
09...	1050	3.00	26.2	324	7.6	60.0	7.4	93	<2
09...	1055	33.0	24.1	389	7.3	--	4.8	60	--
MAR 1999									
23...	0900	1.00	26.4	308	8.0	56.0	6.8	85	26
23...	0905	20.0	26.0	306	7.4	--	6.4	80	--
JUL									
15...	0840	1.00	28.5	251	8.2	56.0	8.2	107	K2
15...	0845	16.0	27.9	259	7.6	--	3.4	44	--
RIO GRANDE DE ARECIBO BASIN									
50025110	LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO,PR (LAT 18˚19’15"N LONG 066˚40’11"W)								
DEC 1998									
08...	0930	3.00	25.3	238	8.4	14.0	8.2	101	340
08...	0935	13.0	24.9	251	7.9	--	5.3	65	--
MAR 1999									
29...	1135	1.00	28.4	260	8.5	12.0	13.1	172	K380
29...	1150	6.00	26.6	260	7.5	--	3.7	48	--
JUL									
09...	0945	1.00	29.0	238	7.4	8.00	9.4	124	220
09...	0950	10.0	27.0	231	7.3	--	6.2	81	--
RIO DE LA PLATA BASIN									
50039900	LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY,PR (LAT 18˚05’04"N LONG 066˚06’03"W)								
DEC 1998									
04...	1110	3.00	23.5	89	5.9	12.0	5.8	73	K20
04...	1115	13.0	23.1	88	6.2	--	5.8	73	--
MAR 1999									
25...	1130	1.00	25.0	110	8.0	30.0	7.6	99	K6
25...	1135	10.0	22.9	120	7.4	--	6.2	81	--
JUL									
07...	1030	1.00	26.3	123	7.4	24.0	7.0	94	K8
07...	1035	3.00	26.2	128	7.3	--	2.4	32	--
50044400	LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18˚19’33"N LONG 066˚12’28"W)								
DEC 1998									
01...	1145	3.00	25.8	428	8.0	23.0	10.9	133	560
01...	1150	30.0	24.9	378	7.8	--	8.2	100	--
MAR 1999									
24...	1100	1.00	26.5	369	9.1	30.0	12.2	152	25
24...	1105	20.0	24.4	414	7.5	--	.2	2	--
JUL									
06...	1050	1.00	29.3	325	8.8	26.0	13.1	172	K11
06...	1055	20.0	26.4	307	8.0	--	5.6	74	--
RIO DE BAYAMON BASIN									
50047537	LAGO DE CIDRA NR RIO BAYAMON MOUTH (LAT 18˚11’02"N LONG 066˚08’06"W)								
DEC 1998									
03...	1150	3.00	24.4	163	6.6	11.0	5.2	65	590
03...	1155	13.0	22.9	117	6.3	--	4.6	58	--
MAR 1999									
26...	0915	1.00	25.2	212	7.6	24.0	6.9	88	K13
26...	0920	16.0	24.3	251	7.0	--	.3	4	--
JUL									
12...	1115	1.00	27.7	239	7.3	21.0	7.0	93	220
12...	1125	10.0	26.7	241	7.2	--	5.2	69	--
RIO GRANDE DE LOIZA BASIN									
50057500	LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18˚16’51"N LONG 066˚00’35"W)								
DEC 1998									
07...	1255	3.00	25.5	271	7.4	12.0	6.7	81	K17000
07...	1300	16.0	24.9	256	7.3	--	6.8	82	--
MAR 1999									
30...	1205	1.00	27.9	345	7.4	12.0	5.8	74	>240
30...	1215	16.0	26.8	355	7.1	--	.6	8	--
JUL									
08...	1100	1.00	30.5	360	6.2	13.0	6.1	82	290
08...	1110	13.0	27.4	250	6.6	--	.4	5	--

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
RIO GUAJATACA BASIN									
50010720 LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS,PR (LAT 18˚22’05"N LONG 066˚54’36"W)									
DEC 1998									
09...	K4	150	<1	--	<.010	<.020	.020	.37	.39
09...	--	150	--	--	--	--	--	--	--
MAR 1999									
23...	61	140	<1	--	<.010	<.020	.020	--	E.54
23...	--	140	--	--	--	--	--	--	--
JUL									
15...	K7	110	1	--	<.010	<.020	.020	.53	.55
15...	--	110	--	--	--	--	--	--	--
RIO GRANDE DE ARECIBO BASIN									
50025110 LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO,PR (LAT 18˚05’04"N LONG 066˚06’03"W)									
DEC 1998									
08...	110	77	16	1.18	.016	1.20	.160	.66	.82
08...	--	80	--	--	--	--	--	--	--
MAR 1999									
29...	32	89	2	.590	.040	.630	.050	--	E1.0
29...	--	87	--	--	--	--	--	--	--
JUL									
09...	K540	67	9	.300	.020	.320	.050	.67	.72
09...	--	77	--	--	--	--	--	--	--
RIO DE LA PLATA BASIN									
50039900 LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY,PR (LAT 18˚05’04"N LONG 066˚06’03"W)									
DEC 1998									
04...	46	25	7	--	<.010	.250	.010	.23	.24
04...	--	24	--	--	--	--	--	--	--
MAR 1999									
25...	K13	35	<1	--	<.010	.130	.020	--	<.20
25...	--	38	--	--	--	--	--	--	--
JUL									
07...	K11	41	<1	--	<.010	.040	.040	.16	.20
07...	--	41	--	--	--	--	--	--	--
50044400 LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18˚19’33"N LONG 066˚12’28"W)									
DEC 1998									
01...	270	130	6	.880	.010	.890	.050	.55	.60
01...	--	130	--	--	--	--	--	--	--
MAR 1999									
24...	39	130	<1	.320	.030	.350	.030	--	E.92
24...	--	150	--	--	--	--	--	--	--
JUL									
06...	K40	110	2	.310	.040	.350	.030	.70	.73
06...	--	110	--	--	--	--	--	--	--
RI0 DE BAYAMON BASIN									
50047537 LAGO DE CIDRA NR RIO BAYAMON MOUTH (LAT 18˚11’02"N LONG 066˚08’06"W)									
DEC 1998									
03...	360	51	14	.116	.014	.130	.150	.58	.73
03...	--	34	--	--	--	--	--	--	--
MAR 1999									
26...	K15	70	9	--	<.010	<.020	.030	--	E.54
26...	--	68	--	--	--	--	--	--	--
JUL									
12...	58	73	29	.270	.020	.290	.090	.35	.44
12...	--	74	--	--	--	--	--	--	--
RIO GRANDE DE LOIZA									
50057500 LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18˚16’51"N LONG 066˚00’35"W)									
DEC 1998									
07...	3500	90	32	.947	.043	.990	.210	.55	.76
07...	--	88	--	--	--	--	--	--	--
MAR 1999									
30...	59	100	14	1.68	.020	1.70	.180	--	E.78
30...	--	110	--	--	--	--	--	--	--
JUL									
08...	K69	100	11	1.56	.040	1.60	.180	.48	.66
08...	--	78	--	--	--	--	--	--	--

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, NITRATE TOTAL (MG/L AS NO3) (71850)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)
RIO DE GUAJATACA BASIN								
50010720 LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS,PR (LAT 18˚22'05"N LONG 066˚54'36"W)								
DEC 1998								
09...	--	--	--	.040	6.90	E.120	250	260
09...	--	--	--	--	--	--	--	--
MAR 1999								
23...	--	--	--	E.060	13.0	.530	250	260
23...	--	--	--	--	--	--	--	--
JUL								
15...	--	--	--	<.020	4.90	.240	270	270
15...	--	--	--	--	--	--	--	--
RIO GRANDE DE ARECIBO BASIN								
50025110 LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO,PR (LAT 18˚19'15"N LONG 066˚40'11"{W)								
DEC 1998								
08...	2.0	--	8.9	.090	35.0	1.50	270	280
08...	--	--	--	--	--	--	--	--
MAR 1999								
29...	--	--	--	E.160	86.8	3.40	350	360
29...	--	--	--	--	--	--	--	--
JUL								
09...	1.0	--	4.6	.090	28.0	.730	790	810
09...	--	--	--	--	--	--	--	--
RIO DE LA PLATA BASIN								
50039900 LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY,PR (LAT 18˚05'04"N LONG 066˚06'03"W)								
DEC 1998								
04...	.49	--	2.2	.030	2.80	<.100	270	280
04...	--	--	--	--	--	--	--	--
MAR 1999								
25...	--	--	--	<.020	4.90	.260	270	280
25...	--	--	--	--	--	--	--	--
JUL								
07...	.24	--	1.1	.030	4.60	1.10	270	280
07...	--	--	--	--	--	--	--	--
50044400 LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18 19 33N LONG 066 12 28W)								
DEC 1998								
01...	1.5	--	6.6	.070	31.0	1.10	260	270
01...	--	--	--	--	--	--	--	--
MAR 1999								
24...	--	--	--	E.090	47.0	E.920	250	270
24...	--	--	--	--	--	--	--	--
JUL								
06...	1.1	--	4.8	.060	26.8	1.30	340	350
06...	--	--	--	--	--	--	--	--
RIO DE BAYAMON BASIN								
50047537 LAGO DE CIDRA NR RIO BAYAMON MOUTH (LAT 18˚11'02"N LONG 066˚08'06"W)								
DEC 1998								
03...	.86	--	3.8	.070	8.90	E.320	260	270
03...	--	--	--	--	--	--	--	--
MAR 1999								
26...	--	--	--	E.040	10.8	1.30	350	360
26...	--	--	--	--	--	--	--	--
JUL								
12...	.73	--	3.2	.030	11.1	1.20	310	320
12...	--	--	--	--	--	--	--	--
RIO GRANDE DE LOIZA								
50057500 LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18˚16'51"N LONG 066˚00'35"W)								
DEC 1998								
07...	1.8	--	7.7	.140	1.30	<.100	380	400
07...	--	--	--	--	--	--	--	--
MAR 1999								
30...	--	--	--	E.210	20.8	2.20	270	280
30...	--	--	--	--	--	--	--	--
JUL								
08...	2.3	--	10	.150	8.70	1.30	550	560
08...	--	--	--	--	--	--	--	--

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	SAM-PLING DEPTH (FEET) (00003)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TRANS-PAR-ENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
				RIO DE GUAJATACA BASIN						
50010790	LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS,PR (LAT 18˚23’56"N LONG 066˚55’23"W)									
DEC 1998										
09...	1120	1.00	26.3	322	7.8	103	5.9	75	K4	<2
09...	1130	82.0	24.7	358	7.2	--	.2	2	--	--
MAR 1999										
23...	0930	1.00	26.5	303	8.4	124	7.6	98	K3	K1
23...	0935	82.0	23.9	336	7.3	--	.0	1	--	--
JUL										
15...	0915	1.00	28.6	241	8.2	132	9.6	126	K2	K5
15...	0920	82.0	24.3	328	7.4	--	.7	9	--	--
				RIO GRANDE DE ARECIBO BASIN						
50020050	LAGO GARZAS NO.1 NR DAM NR ADJUNTAS,PR (LAT 18˚08’21'N LONG 066˚44"35"W)									
DEC 1998										
10...	1145	1.00	22.2	113	7.1	44.0	6.2	77	K8	K2
10...	1150	62.0	21.2	127	6.6	--	.2	2	--	--
MAR 1999										
22...	1100	1.00	23.6	152	8.4	76.0	9.4	121	K1	K1
22...	1105	69.0	20.1	150	7.0	--	.1	1	--	--
JUL										
14...	1130	1.00	24.8	153	7.6	64.0	8.3	110	K5	K1
14...	1145	75.0	20.2	163	6.9	--	.2	3	--	--
50027090	LAGO DOS BOCAS NO.1 NR DAM NR UTUADO,PR (LAT 18˚20’09"N LONG 066˚40’04"W)									
DEC 1998										
08...	1000	3.00	25.3	227	7.9	28.0	8.5	104	56	42
08...	1015	66.0	K24.1	196	7.4	--	5.5	68	--	--
MAR 1999										
29...	1210	1.00	27.9	214	8.9	48.0	12.7	165	K4	K1
29...	1230	79.0	24.0	219	6.8	--	.1	1	--	--
JUL										
09...	1010	1.00	28.6	233	8.0	36.0	8.3	110	83	38
09...	1020	82.0	25.4	227	8.5	--	.8	11	--	--
				RIO DE LA PLATA BASIN						
50039950	LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18˚04’39"N LONG 066˚06’19"W)									
DEC 1998										
04...	1130	1.00	23.6	89	6.5	12.0	6.2	78	K16	K68
04...	1200	66.0	22.7	110	6.4	--	1.7	21	--	--
MAR 1999										
25...	1200	1.00	24.7	108	8.1	30.0	7.5	91	K7	22
25...	1210	82.0	21.3	119	7.0	--	.8	10	--	--
JUL										
07...	1045	1.00	26.7	117	7.4	57.0	6.8	91	K4	K6
07...	1100	56.0	22.0	149	6.7	--	.1	2	--	--

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	HARDNESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
RIO DE GUAJATACA BASIN									
50010790 LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS,PR (LAT 18˚23’56"N LONG 066˚55’23"W)									
DEC 1998									
09...	150	54	3.4	5.1	.2	2.4	140	7.4	8.4
09...	160	60	3.4	5.2	.2	2.3	160	7.4	8.3
MAR 1999									
23...	140	49	3.5	5.3	.2	2.4	130	7.8	9.1
23...	150	55	3.6	5.4	.2	2.5	150	8.0	9.2
JUL									
15...	110	38	3.3	5.3	.2	2.2	110	6.9	7.9
15...	110	40	3.4	5.3	.2	1.9	140	6.6	8.2
RIO GRANDE DE ARECIBO BASIN									
50020050 LAGO GARZAS NO.1 NR DAM NR ADJUNTAS,PR (LAT 18˚08’21'N LONG 066˚44"35"W)									
DEC 1998									
10...	43	11	3.6	4.9	.3	1.5	43	2.8	5.7
10...	48	13	3.9	5.3	.3	1.6	48	2.9	6.0
MAR 1999									
22...	59	16	4.7	5.8	.3	1.5	61	3.3	7.9
22...	60	16	4.8	5.7	.3	1.5	61	1.1	5.9
JUL									
14...	62	17	4.8	6.1	.3	1.3	66	1700	11
14...	60	16	4.7	5.9	.3	1.6	68	1700	10
50027090 LAGO DOS BOCAS NO.1 NR DAM NR UTUADO,PR (LAT 18˚20’09"N LONG 066˚40’04"W)									
DEC 1998									
08...	81	22	6.4	9.8	.5	2.2	72	14	11
08...	70	19	5.4	8.6	.4	2.1	62	9.6	10
MAR 1999									
29...	78	21	6.4	10	.5	2.2	74	14	12
29...	76	21	6.1	9.0	.4	2.3	74	11	11
JUL									
09...	86	23	7.0	11	.5	2.3	79	1700	14
09...	85	21	6.9	10	.4	2.2	69	1800	14
RIO DE LA PLATA BASIN									
50039950 LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18˚04’39"N LONG 066˚06’19"W)									
DEC 1998									
04...	25	4.8	3.0	7.1	.6	1.4	25	2.3	8.9
04...	20	3.8	2.5	6.4	.6	1.3	17	2.3	8.0
MAR 1999									
25...	32	6.3	3.9	8.4	.6	.94	34	1.9	10
25...	32	6.2	3.9	7.9	.6	1.0	33	1.8	9.4
JUL									
07...	37	7.4	4.4	9.1	.7	.88	39	2.5	9.7
07...	36	7.1	4.3	8.7	.6	.91	38	<.10	8.1

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
RIO DE GUAJATACA BASIN									
50010790 LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS,PR (LAT 18˚23’56"N LONG 066˚55’23"W)									
DEC 1998									
09...	<.10	5.7	170	<1	1.09	.015	1.10	.040	.36
09...	<.10	6.8	190	--	--	--	--	--	--
MAR 1999									
23...	<.10	6.1	161	2	--	<.010	<.020	.010	--
23...	<.10	7.0	181	--	--	--	--	--	--
JUL									
15...	<.10	.58	131	2	--	<.010	<.020	.020	.40
15...	<.10	.58	149	--	--	--	--	--	--
RIO GRANDE DE ARECIBO BASIN									
50020050 LAGO GARZAS NO.1 NR DAM NR ADJUNTAS,PR (LAT 18˚08’21'N LONG 066˚44"35"W)									
DEC 1998									
10...	<.10	16	71	2	--	<.010	.420	.050	.16
10...	<.10	16	78	--	--	--	--	--	--
MAR 1999									
22...	<.10	17	93	<1	--	<.010	.120	.010	--
22...	.10	18	90	--	--	--	--	--	--
JUL									
14...	<.10	17	1800	<1	--	<.010	<.020	.020	.33
14...	<.10	17	1780	--	--	--	--	--	--
50027090 LAGO DOS BOCAS NO.1 NR DAM NR UTUADO,PR (LAT 18˚20’09"N LONG 066˚40’04"W)									
DEC 1998									
08...	<.10	23	132	<1	--	<.010	<.020	<.010	--
08...	<.10	24	116	--	--	--	--	--	--
MAR 1999									
29...	.10	18	128	<1	.330	.030	.360	<.010	--
29...	.11	19	123	--	--	--	--	--	--
JUL									
09...	<.10	23	1860	<1	.260	.020	.280	.030	.19
09...	<.10	22	--	--	--	--	--	--	--
RIO DE LA PLATA BASIN									
50039950 LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18˚04’39"N LONG 066˚06’19"W)									
DEC 1998									
04...	<.10	15	58	2	--	<.010	.240	.020	.20
04...	<.10	13	47	--	--	--	--	--	--
MAR 1999									
25...	<.10	18	70	110	--	<.010	.160	.010	--
25...	<.10	18	68	--	--	--	--	--	--
JUL									
07...	<.10	17	74	<1	--	<.010	.190	.010	--
07...	<.10	18	--	--	--	--	--	--	--

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, NITRATE TOTAL (MG/L AS NO3) (71850)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)
RIO DE GUAJATACA BASIN									
50010790 LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS,PR (LAT 18˚23’56"N LONG 066˚55’23"W)									
DEC 1998									
09...	.40	1.5	--	6.6	.050	4.00	.300	260	270
09...	--	--	--	--	--	--	--	--	--
MAR 1999									
23...	E.34	--	--	--	E.020	3.00	.200	260	270
23...	--	--	--	--	--	--	--	--	--
JUL									
15...	.42	--	--	--	<.020	3.20	.150	270	270
15...	--	--	--	--	--	--	--	--	--
RIO GRANDE DE ARECIBO BASIN									
50020050 LAGO GARZAS NO.1 NR DAM NR ADJUNTAS,PR (LAT 18˚08’21'N LONG 066˚44"35"W)									
DEC 1998									
10...	.21	.63	--	2.8	.050	3.10	.120	250	260
10...	--	--	--	--	--	--	--	--	--
MAR 1999									
22...	<.20	--	--	--	E.020	2.90	.230	250	260
22...	--	--	--	--	--	--	--	--	--
JUL									
14...	.35	--	--	--	<.020	2.40	.200	270	270
14...	--	--	--	--	--	--	--	--	--
50027090 LAGO DOS BOCAS NO.1 NR DAM NR UTUADO,PR (LAT 18˚20’09"N LONG 066˚40’04"W)									
DEC 1998									
08...	.33	--	--	2.3	.040	11.0	.560	270	280
08...	--	--	--	--	--	--	--	--	--
MAR 1999									
29...	E.50	--	--	--	E.050	14.3	.280	270	280
29...	--	--	--	--	--	--	--	--	--
JUL									
09...	.22	.50	--	2.2	.020	6.30	.360	270	270
09...	--	--	--	--	--	--	--	--	--
RIO DE LA PLATA BASIN									
50039950 LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18˚04’39"N LONG 066˚06’19"W)									
DEC 1998									
04...	.22	.46	--	2.0	.030	1.50	<.100	260	270
04...	--	--	--	--	--	--	--	--	--
MAR 1999									
25...	<.20	--	--	--	<.020	2.40	<.100	270	280
25...	--	--	--	--	--	--	--	--	--
JUL									
07...	<.20	.52	--	1.8	<.020	4.50	1.20	270	280
07...	--	--	--	--	--	--	--	--	--

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	SAM-PLING DEPTH (FEET) (00003)	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TRANS-PAR-ENCY (SECCHI DISK) (IN) (00077)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)
RIO DE LA PLATA BASIN										
50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18˚20'18"N LONG 066˚14'01"W)										
DEC 1998										
01...	1050	1.00	26.0	261	7.1	41.0	8.1	99	160	96
01...	1100	52.0	24.3	237	6.6	--	.2	2	--	--
MAR 1999										
24...	1000	1.00	27.1	336	8.9	54.0	8.1	102	K1	K4
24...	1015	72.0	23.4	364	7.4	--	.0	1	--	--
JUL										
06...	0950	1.00	29.0	325	8.5	43.0	8.7	114	K24	K10
06...	1005	75.0	23.8	407	6.6	--	.8	10	--	--
RIO DE BAYAMON BASIN										
50047549 LAGO DE CIDRA NR DAM (LAT 18˚11'52"N LONG 066˚08'24"W)										
DEC 1998										
03...	1100	1.00	24.4	167	6.0	14.0	2.7	34	570	300
03...	1110	52.0	23.6	120	6.0	--	.1	1	--	--
MAR 1999										
26...	0845	1.00	25.7	197	7.9	48.0	7.1	92	K6	K11
26...	0850	43.0	22.3	190	7.0	--	.1	1	--	--
JUL										
12...	1030	1.00	27.2	231	7.6	30.0	7.5	99	110	46
12...	1055	56.0	23.0	266	7.2	--	.4	6	--	--
RIO GRANDE DE LOIZA BASIN										
50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18˚19'29"N LONG 066˚00'47"W)										
DEC 1998										
07...	1145	1.00	25.8	195	7.5	5.00	5.7	70	2100	K210
07...	1200	49.0	24.8	183	7.0	--	.4	5	--	--
MAR 1999										
30...	1130	1.00	27.7	374	7.1	48.0	6.0	76	K2	53
30...	1145	29.0	26.5	368	7.0	--	.1	2	--	--
JUL										
08...	1235	1.00	28.5	256	7.0	12.0	1.9	24	K20	84
08...	1245	46.0	25.9	190	6.8	--	.4	5	--	--

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	ANC SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
RIO DE LA PLATA BASIN									
50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18˚20’18"N LONG 066˚14’01"W)									
DEC 1998									
01...	95	22	9.5	14	.6	2.7	89	12	19
01...	89	21	8.9	13	.6	3.0	79	10	17
MAR 1999									
24...	130	30	13	19	.7	2.3	120	11	24
24...	140	32	14	19	.7	2.3	130	10	24
JUL									
06...	120	25	13	21	.8	2.7	110	14	25
06...	150	35	15	19	.7	2.5	170	2.7	24
RIO DE BAYAMON BASIN									
50047549 LAGO DE CIDRA NR DAM (LAT 18˚11’52"N LONG 066˚08’24"W)									
DEC 1998									
03...	52	12	5.3	12	.7	3.8	55	6.1	14
03...	34	7.9	3.5	7.6	.6	3.3	39	5.3	11
MAR 1999									
26...	45	9.7	5.0	14	.9	7.4	62	4.6	18
26...	55	12	6.0	13	.8	3.2	62	3.8	17
JUL									
12...	69	16	7.2	17	.9	2.3	72	8.8	18
12...	67	15	7.1	14	.8	3.1	100	.34	15
RIO GRANDE DE LOIZA BASIN									
50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18˚19’29"N LONG 066˚00’47"W)									
DEC 1998									
07...	52	12	5.3	11	.7	2.5	62	7.2	13
07...	57	13	5.6	12	.7	2.8	58	6.9	13
MAR 1999									
30...	120	28	11	28	1	2.9	110	18	30
30...	110	27	11	27	1	2.8	110	17	30
JUL									
08...	46	14	2.8	8.3	.5	2.9	75	13	20
08...	60	15	5.5	13	.8	2.7	59	1600	17

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
RIO DE LA PLATA BASIN									
50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18˚20’18"N LONG 066˚14’01"W)									
DEC 1998									
01...	.11	20	154	3	.789	.021	.810	.030	.56
01...	.11	20	140	--	--	--	--	--	--
MAR 1999									
24...	<.10	15	186	92	--	<.010	<.020	.020	--
24...	<.10	24	203	--	--	--	--	--	--
JUL									
06...	.12	19	186	<1	--	<.010	<.020	.030	.41
06...	.11	23	222	--	--	--	--	--	--
RIO DE BAYAMON BASIN									
50047549 LAGO DE CIDRA NR DAM (LAT 18˚11’52"N LONG 066˚08’24"W)									
DEC 1998									
03...	<.10	15	101	18	.068	.012	.080	.410	.44
03...	<.10	11	73	--	--	--	--	--	--
MAR 1999									
26...	<.10	16	111	100	--	<.010	<.020	.020	--
26...	<.10	16	108	--	--	--	--	--	--
JUL									
12...	<.10	15	128	5	.190	.010	.200	.080	.29
12...	<.10	17	133	--	--	--	--	--	--
RIO GRANDE DE LOIZA BASIN									
50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18˚19’29"N LONG 066˚00’47"W)									
DEC 1998									
07...	<.10	20	109	38	.828	.072	.900	.200	.55
07...	<.10	19	107	--	--	--	--	--	--
MAR 1999									
30...	.15	27	210	<1	1.25	.050	1.30	.040	--
30...	.12	27	208	--	--	--	--	--	--
JUL									
08...	.11	21	127	37	--	<.010	.790	.140	.44
08...	<.10	17	1710	--	--	--	--	--	--

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, NITRATE TOTAL (MG/L AS NO3) (71850)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)
RIO DE LA PLATA BASIN									
50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18˚20’18"N LONG 066˚14’01"W)									
DEC 1998									
01...	.59	1.4	--	6.2	.050	19.0	1.00	260	270
01...	--	--	--	--	--	--	--	--	--
MAR 1999									
24...	E.39	--	--	--	E.030	5.80	.390	250	260
24...	--	--	--	--	--	--	--	--	--
JUL									
06...	.44	--	--	--	.030	11.9	1.00	270	280
06...	--	--	--	--	--	--	--	--	--
RIO DE BAYAMON BASIN									
50047549 LAGO DE CIDRA NR DAM (LAT 18˚11’52"N LONG 066˚08’24"W)									
DEC 1998									
03...	.85	.93	--	4.1	.060	4.80	E.100	260	270
03...	--	--	--	--	--	--	--	--	--
MAR 1999									
26...	E.43	--	--	--	<.020	12.2	1.90	370	380
26...	--	--	--	--	--	--	--	--	--
JUL									
12...	.37	.57	--	2.5	<.020	5.60	.320	270	280
12...	--	--	--	--	--	--	--	--	--
RIO GRANDE DE LOIZA BASIN									
50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18˚19’29"N LONG 066˚00’47"W)									
DEC 1998									
07...	.75	1.6	--	7.3	.190	1.50	<.100	310	330
07...	--	--	--	--	--	--	--	--	--
MAR 1999									
30...	E.56	--	--	--	E.060	18.4	1.00	270	280
30...	--	--	--	--	--	--	--	--	--
JUL									
08...	.58	1.4	--	6.1	.100	1.50	.270	660	680
08...	--	--	--	--	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
RIO DE LA PLATA BASIN									
50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18˚20’18"N LONG 066˚14’01"W)									
DEC 1998									
01...	95	22	9.5	14	.6	2.7	89	12	19
01...	89	21	8.9	13	.6	3.0	79	10	17
MAR 1999									
24...	130	30	13	19	.7	2.3	120	11	24
24...	140	32	14	19	.7	2.3	130	10	24
JUL									
06...	120	25	13	21	.8	2.7	110	14	25
06...	150	35	15	19	.7	2.5	170	2.7	24
RIO DE BAYAMON BASIN									
50047549 LAGO DE CIDRA NR DAM (LAT 18˚11’52"N LONG 066˚08’24"W)									
DEC 1998									
03...	52	12	5.3	12	.7	3.8	55	6.1	14
03...	34	7.9	3.5	7.6	.6	3.3	39	5.3	11
MAR 1999									
26...	45	9.7	5.0	14	.9	7.4	62	4.6	18
26...	55	12	6.0	13	.8	3.2	62	3.8	17
JUL									
12...	69	16	7.2	17	.9	2.3	72	8.8	18
12...	67	15	7.1	14	.8	3.1	100	.34	15
RIO GRANDE DE LOIZA BASIN									
50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18˚19’29"N LONG 066˚00’47"W)									
DEC 1998									
07...	52	12	5.3	11	.7	2.5	62	7.2	13
07...	57	13	5.6	12	.7	2.8	58	6.9	13
MAR 1999									
30...	120	28	11	28	1	2.9	110	18	30
30...	110	27	11	27	1	2.8	110	17	30
JUL									
08...	46	14	2.8	8.3	.5	2.9	75	13	20
08...	60	15	5.5	13	.8	2.7	59	1600	17

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
RIO DE LA PLATA BASIN									
50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18˚20’18"N LONG 066˚14’01"W)									
DEC 1998									
01...	.11	20	154	3	.789	.021	.810	.030	.56
01...	.11	20	140	--	--	--	--	--	--
MAR 1999									
24...	<.10	15	186	92	--	<.010	<.020	.020	--
24...	<.10	24	203	--	--	--	--	--	--
JUL									
06...	.12	19	186	<1	--	<.010	<.020	.030	.41
06...	.11	23	222	--	--	--	--	--	--
RIO DE BAYAMON BASIN									
50047549 LAGO DE CIDRA NR DAM (LAT 18˚11’52"N LONG 066˚08’24"W)									
DEC 1998									
03...	<.10	15	101	18	.068	.012	.080	.410	.44
03...	<.10	11	73	--	--	--	--	--	--
MAR 1999									
26...	<.10	16	111	100	--	<.010	<.020	.020	--
26...	<.10	16	108	--	--	--	--	--	--
JUL									
12...	<.10	15	128	5	.190	.010	.200	.080	.29
12...	<.10	17	133	--	--	--	--	--	--
RIO GRANDE DE LOIZA BASIN									
50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18˚19’29"N LONG 066˚00’47"W)									
DEC 1998									
07...	<.10	20	109	38	.828	.072	.900	.200	.55
07...	<.10	19	107	--	--	--	--	--	--
MAR 1999									
30...	.15	27	210	<1	1.25	.050	1.30	.040	--
30...	.12	27	208	--	--	--	--	--	--
JUL									
08...	.11	21	127	37	--	<.010	.790	.140	.44
08...	<.10	17	1710	--	--	--	--	--	--

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, NITRATE TOTAL (MG/L AS NO3) (71850)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)
RIO DE LA PLATA BASIN									
50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18˚20’18"N LONG 066˚14’01"W)									
DEC 1998									
01...	.59	1.4	--	6.2	.050	19.0	1.00	260	270
01...	--	--	--	--	--	--	--	--	--
MAR 1999									
24...	E.39	--	--	--	E.030	5.80	.390	250	260
24...	--	--	--	--	--	--	--	--	--
JUL									
06...	.44	--	--	--	.030	11.9	1.00	270	280
06...	--	--	--	--	--	--	--	--	--
RIO DE BAYAMON BASIN									
50047549 LAGO DE CIDRA NR DAM (LAT 18˚11’52"N LONG 066˚08’24"W)									
DEC 1998									
03...	.85	.93	--	4.1	.060	4.80	E.100	260	270
03...	--	--	--	--	--	--	--	--	--
MAR 1999									
26...	E.43	--	--	--	<.020	12.2	1.90	370	380
26...	--	--	--	--	--	--	--	--	--
JUL									
12...	.37	.57	--	2.5	<.020	5.60	.320	270	280
12...	--	--	--	--	--	--	--	--	--
RIO GRANDE DE LOIZA BASIN									
50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18˚19’29"N LONG 066˚00’47"W)									
DEC 1998									
07...	.75	1.6	--	7.3	.190	1.50	<.100	310	330
07...	--	--	--	--	--	--	--	--	--
MAR 1999									
30...	E.56	--	--	--	E.060	18.4	1.00	270	280
30...	--	--	--	--	--	--	--	--	--
JUL									
08...	.58	1.4	--	6.1	.100	1.50	.270	660	680
08...	--	--	--	--	--	--	--	--	--

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	PCB, TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN I TOTAL (UG/L) (39388)
RIO DE GUAJATACA BASIN										
50010790	LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS,PR (LAT 18˚23’56"N LONG 066˚55’23"W)									
JUL 1999 15...	0915	<.100	<.010	<.100	<.010	<.010	<.010	<.010	<.010	<.010
RIO GRANDE DE ARECIBO BASIN										
50020050	LAGO GARZAS NO.1 NR DAM NR ADJUNTAS,PR (LAT 18˚08’21"N LONG 066˚44’35"W)									
JUL 1999 14...	1130	<.100	<.010	<.100	<.010	<.010	<.010	<.010	<.010	<.010
50027090	LAGO DOS BOCAS NO.1 NR DAM NR UTUADO,PR (LAT 18˚20’09"N LONG 066˚40’04"W)									
JUL 1999 09...	1010	<.100	<.010	<.100	<.010	<.010	<.010	<.010	<.010	<.010
RIO DE LA PLATA BASIN										
50039950	LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18˚04’39"N LONG 066˚06’19"W)									
JUL 1999 07...	1045	<.100	<.010	<.100	<.010	<.010	<.010	<.010	<.010	<.010
50044950	LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18˚20’18"N LONG 066˚14’01"W)									
JUL 1999 06...	0950	<.100	<.010	<.100	<.010	<.010	<.010	<.010	<.010	<.010
RIO DE BAYAMON BASIN										
50047549	LAGO DE CIDRA NR DAM (LAT 18˚11’52"N LONG 066˚08’24"W)									
JUL 1999 12...	1030	<.100	<.010	<.100	<.010	<.010	<.010	E.008	<.010	<.010
RIO GRANDE DE LOIZA BASIN										
50058800	LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18˚19’29"N LONG 066˚00’47"W)									
JUL 1999 08...	1235	<.100	<.010	<.100	<.010	<.010	<.010	.018	<.010	<.010

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)
RIO DE GUAJATACA BASIN										
50010790 LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS,PR (LAT 18˚23’56"N LONG 066˚55’23"W)										
JUL 1999 15...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010
RIO GRANDE DE ARECIBO BASIN										
50020050 LAGO GARZAS NO.1 NR DAM NR ADJUNTAS,PR (LAT 18˚08’21"N LONG 066˚44’35"W)										
JUL 1999 14...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010
50027090 LAGO DOS BOCAS NO.1 NR DAM NR UTUADO,PR (LAT 18˚20’09"N LONG 066˚40’04"W)										
JUL 1999 09...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010
RIO DE LA PLATA BASIN										
50039950 LAGO CARITE NO.1 NR DAM NR CAYEY, P.R.(LAT 18˚04’39"N LONG 066˚06’19"W)										
JUL 1999 07...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010
50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18˚20’18"N LONG 066˚14’01"W)										
JUL 1999 06...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010
RIO DE BAYAMON BASIN										
50047549 LAGO DE CIDRA NR DAM (LAT 18˚11’52"N LONG 066˚08’24"W)										
JUL 1999 12...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010
RIO GRANDE DE LOIZA BASIN										
50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18˚19’29"N LONG 066˚00’47"W)										
JUL 1999 08...	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	--	<.010

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	PARA-THION, TOTAL (UG/L) (39540)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	2,4-DP TOTAL (UG/L) (82183)	SILVEX, TOTAL (UG/L) (39760)
RIO DE GUAJATACA BASIN									
50010790 LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS,PR (LAT 18˚23’56"N LONG 066˚55’23"W)									
JUL 1999									
15...	<.010	<.100	<.100	<1.00	<.010	.060	<.010	<.010	<.010
RIO GRANDE DE ARECIBO BASIN									
50020050 LAGO GARZAS NO.1 NR DAM NR ADJUNTAS,PR (LAT 18˚08’21"N LONG 066˚44’35"W)									
JUL 1999									
14...	<.010	<.100	<.100	<1.00	<.010	<.010	<.010	<.010	<.010
50027090 LAGO DOS BOCAS NO.1 NR DAM NR UTUADO,PR (LAT 18˚20’09"N LONG 066˚40’04"W)									
JUL 1999									
09...	<.010	<.100	<.100	<1.00	<.010	E.010	<.010	<.010	<.010
RIO DE LA PLATA BASIN									
50039950 LAGO CARITE NO.1 NR DAM NR CAYEY, P.R.(LAT 18˚04’39"N LONG 066˚06’19"W)									
JUL 1999									
07...	<.010	<.100	<.100	<1.00	<.010	<.010	<.010	<.010	<.010
50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18˚20’18"N LONG 066˚14’01"W)									
JUL 1999									
06...	<.010	<.100	<.100	<1.00	<.010	<.010	<.010	<.010	<.010
RIO DE BAYAMON BASIN									
50047549 LAGO DE CIDRA NR DAM (LAT 18˚11’52"N LONG 066˚08’24"W)									
JUL 1999									
12...	<.010	<.100	<.100	<1.00	<.010	.012	<.010	<.010	<.010
RIO GRANDE DE LOIZA BASIN									
50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18˚19’29"N LONG 066˚00’47"W)									
JUL 1999									
08...	<.010	<.100	<.100	<1.00	<.010	.062	<.010	<.010	<.010

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 1998 TO SEPTEMBER 1999

DATE	TIME	TEMPERATURE WATER (DEG C) (00010)	SPECIFIC CONDUCTANCE (US/CM) (00095)	OXYGEN, DISSOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SALINITY (PPT) (00480)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)
APR											
01...	1300	30.0	1100	4.6	7.5	115	--	--	--	--	--
01...	1345	30.3	1100	5.1	7.5	116	--	--	--	--	--
21...	1210	29.5	1100	6.2	7.8	110	--	9.5	.280	.010	.010
JUN											
01...	1430	31.1	1230	--	7.3	115	.6	--	--	--	--
16...	1230	31.0	712	6.2	8.1	110	.5	10	.230	.020	.020
16...	1240	31.0	712	6.2	8.1	110	.5	--	.240	--	.020
29...	1440	30.9	1130	6.5	7.6	106	.6	--	--	--	--
JUL											
16...	1330	29.7	1070	6.6	7.8	100	.5	9.6	--	--	--
AUG											
03...	1510	31.5	1120	5.9	7.7	76	--	--	--	--	--
SEP											
17...	1430	32.0	1010	6.7	8.0	110	--	8.9	--	.020	--

DATE	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS HYDRO. + ORTHO DIS. (MG/L AS P) (00677)	PHOSPHORUS HYDRO. + ORTHO TOTAL (MG/L AS P) (00678)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	HARDNESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
APR											
21...	E1.3	.300	.310	E.020	E.030	.010	.02	.02	9.5	210	51
JUN											
01...	--	--	--	--	--	--	--	--	--	--	--
16...	1.1	.410	.400	.020	<.020	<.010	<.01	<.01	9.3	210	46
16...	E1.0	.420	--	<.020	--	--	--	<.01	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUL											
16...	--	--	--	--	--	--	--	--	--	190	43
AUG											
03...	--	--	--	--	--	--	--	--	--	--	--
SEP											
17...	--	--	.350	--	<.020	<.010	<.01	--	--	200	49

LAGUNA TORTUGUERO BASIN

50038200 LAGUNA TORTUGUERO OUTLET NEAR VEGA BAJA, PR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	SODIUM PERCENT (00932)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
APR											
01...	--	--	--	--	--	250	--	--	--	--	--
01...	--	--	--	--	--	260	--	--	--	--	--
21...	21	140	4	58	4.5	270	33	<.10	8.4	79	7.0
JUN											
01...	--	--	--	--	--	280	--	--	--	--	--
16...	22	150	5	61	4.8	280	34	<.10	10	84	9.3
16...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUL											
16...	20	140	4	61	4.4	240	32	<.10	8.8	73	16
AUG											
03...	--	--	--	--	--	260	--	--	--	--	--
SEP											
17...	20	130	4	57	4.1	250	30	<.10	10	63	9.4

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)
APR										
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
21...	4.5	--	--	761	596	.010	--	--	270	280
JUN										
01...	--	--	--	--	--	--	--	--	--	--
16...	3.7	--	--	696	615	<.010	--	--	270	280
16...	--	--	--	--	--	<.010	--	--	270	270
29...	--	--	--	--	--	--	--	--	--	--
JUL										
16...	7.2	330	140	625	549	--	--	--	270	280
AUG										
03...	--	--	--	--	--	--	--	--	--	--
SEP										
17...	5.0	--	--	622	561	--	--	--	270	270

LAGUNA TORTUGUERO BASIN

50038191 LAGUNA TORTUGUERO STATION NO.2 NEAR VEGA BAJA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18˚27'53", long 66˚27'50", at west side of the lagoon, 2.5 mi (4.0 km) west from the Department of Natural Resourse Docking Facilities.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1974-75, 1998-99

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SALIN-ITY (PPT) (00480)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
MAR 1999												
10...	1300	27.8	1580	9.9	8.4	116	.8	9.3	--	<.010	--	--
APR												
16...	1500	30.5	E1670	8.7	7.9	116	.8	9.5	.290	.010	.010	E1.5
MAY												
14...	1030	29.2	1720	2.2	8.2	125	.9	9.7	.470	<.010	<.010	E1.6
JUN												
16...	1315	30.9	1690	9.1	7.9	105	.8	12	.150	.020	.010	.87
JUL												
16...	1255	28.9	1590	8.0	8.6	93	.8	--	--	<.010	--	--
AUG												
20...	1300	31.3	1540	7.9	7.4	100	.8	8.9	.200	<.010	<.010	1.0
SEP												
17...	1350	31.3	1540	9.2	7.9	110	--	8.7	--	<.010	--	--

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS HYDRO. + ORTHO DIS. (MG/L AS P) (00677)	PHOS-PHORUS HYDRO. + ORTHO TOTAL (MG/L AS P) (00678)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
MAR 1999											
10...	--	.060	E.46	.110	--	<.020	<.010	.04	--	--	240
APR											
16...	.230	.300	E1.1	.220	<.020	<.020	<.010	.03	.03	9.0	250
MAY											
14...	.220	.500	E1.1	.210	<.020	<.020	<.010	.04	.03	--	270
JUN											
16...	.240	.200	E.79	.250	<.020	<.020	<.010	<.01	<.01	11	260
JUL											
16...	--	.010	.870	.140	--	<.020	<.010	<.01	--	8.8	210
AUG											
20...	.140	.200	.97	.130	<.020	<.020	<.010	<.01	<.01	8.9	250
SEP											
17...	--	.300	.87	.200	--	<.020	<.010	<.01	--	--	240

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	SODIUM PERCENT (00932)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	BORON, DIS-SOLVED (UG/L AS B) (01020)
MAR 1999											
10...	56	24	200	6	64	5.4	380	46	<.10	5.7	89
APR											
16...	57	25	210	6	64	5.9	410	50	<.10	7.9	91
MAY											
14...	65	27	220	6	63	7.0	420	51	<.10	9.4	99
JUN											
16...	58	27	230	6	65	6.3	410	55	<.10	9.3	100
JUL											
16...	47	23	190	6	66	5.2	370	48	<.10	8.0	72
AUG											
20...	57	26	190	5	62	5.8	390	50	<.10	11	81
SEP											
17...	57	23	190	5	63	5.2	360	47	<.10	11	75

LAGUNA TORTUGUERO BASIN

50038191 LAGUNA TORTUGUERO STATION NO.2 NEAR VEGA BAJA, PR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)
MAR 1999											
10...	5.5	1.2	200	200	868	787	--	.570	<.100	270	280
APR											
16...	6.7	.30	--	--	957	837	.010	2.60	<.100	450	460
MAY											
14...	7.0	.50	--	--	1010	876	<.010	.760	<.100	260	270
JUN											
16...	6.4	.70	--	--	942	860	<.010	2.30	<.100	270	280
JUL											
16...	3.8	1.1	110	E11	867	748	--	1.20	<.100	260	270
AUG											
20...	7.6	.50	--	--	924	791	<.010	.830	<.100	270	270
SEP											
17...	6.7	.30	--	--	860	761	--	1.10	<.100	270	270

50038193 LAGUNA TORTUGUERO STATION NO.4 NEAR VEGA BAJA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18˚27'55", long 66˚26'40", at south from the outlet channel, 1.2 mi (2.0 km) west from the Department of Natural Resourse Docking Facilities.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1974-75, 1998-99

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SALIN-ITY (PPT) (00480)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
MAR 1999												
10...	1530	28.0	1060	9.6	8.4	112	.5	8.5	--	.010	--	--
APR												
16...	1440	30.1	1140	8.7	8.0	115	.6	--	.220	<.010	.010	E1.2
MAY												
14...	1145	29.3	1180	2.4	8.4	115	.6	9.7	.260	.010	.010	E1.3
JUN												
16...	1650	30.8	1150	8.7	8.4	98	.6	12	.140	.020	.020	1.0
JUL												
16...	1330	29.0	1140	7.6	8.1	110	.6	--	--	<.010	--	--
AUG												
20...	1440	--	--	--	--	--	--	8.9	.270	<.010	.010	1.3
SEP												
17...	1450	31.5	1140	9.3	8.1	120	--	8.8	--	--	--	--

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS HYDRO. + ORTHO DIS. (MG/L AS P) (00677)	PHOS-PHORUS HYDRO. + ORTHO TOTAL (MG/L AS P) (00678)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
MAR 1999											
10...	--	.090	E.50	.340	--	<.020	<.010	.02	--	--	190
APR											
16...	.430	.200	E.88	.420	<.020	E.020	<.010	.02	.02	--	190
MAY											
14...	.530	.200	E1.1	.520	<.020	<.020	<.010	.02	.02	--	210
JUN											
16...	.380	.100	E.85	.380	.020	E.020	.020	<.01	<.01	9.6	200
JUL											
16...	--	.200	.84	.430	--	.040	<.010	<.01	--	8.5	200
AUG											
20...	.400	.300	.99	.410	<.020	<.020	<.010	<.01	<.01	8.3	210
SEP											
17...	--	.300	.77	.420	--	<.020	<.010	<.01	--	--	210

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	SODIUM PERCENT (00932)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	BORON, DIS-SOLVED (UG/L AS B) (01020)
MAR 1999											
10...	46	18	120	4	57	3.5	230	27	<.10	6.3	67
APR											
16...	45	20	130	4	59	4.3	260	31	<.10	7.7	72
MAY											
14...	48	21	130	4	57	3.9	260	33	<.10	9.2	79
JUN											
16...	43	22	150	5	62	4.6	270	34	<.10	9.9	82
JUL											
16...	45	21	140	4	60	4.3	240	30	<.10	9.2	64
AUG											
20...	48	21	150	5	61	4.5	270	33	<.10	10	64
SEP											
17...	50	20	130	4	58	3.9	240	30	<.10	10	62

LAGUNA TORTUGUERO BASIN

50038193 LAGUNA TORTUGUERO STATION NO.4 NEAR VEGA BAJA, PR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)
MAR 1999											
10...	11	.90	--	--	595	520	--	2.20	<.100	250	260
APR											
16...	3.3	<.20	--	--	676	569	.010	2.00	<.100	450	460
MAY											
14...	3.0	<.20	--	--	693	577	.010	.510	<.100	270	280
JUN											
16...	5.1	.40	--	--	657	594	<.010	2.10	<.100	260	270
JUL											
16...	4.0	.20	440	66	630	553	--	2.30	<.100	270	270
AUG											
20...	8.3	.90	--	--	681	607	<.010	1.10	<.100	270	270
SEP											
17...	6.0	.40	--	--	622	556	--	1.50	<.100	270	280

50038194 LAGUNA TORTUGUERO STATION NO.5 NEAR VEGA BAJA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18˚27'52", long 66˚25'50", at east side of the lagoon, 0.63 mi (1.0 km) west from the Department of Natural Resourse Docking Facilities.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1974-75, 1998-99

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	TEMPER-ATURE WATER (DEG C) (00010)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO3 (00410)	SALIN-ITY (PPT) (00480)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
MAR 1999												
10...	1640	27.9	1060	10.1	8.4	114	.5	8.6	--	.010	--	--
APR												
16...	1550	30.3	1120	9.1	7.9	107	.6	9.9	.180	<.010	.010	E1.6
MAY												
14...	1415	29.7	1150	2.9	8.4	107	.6	10	.220	<.010	<.010	E4.7
JUN												
16...	1600	30.9	1150	8.9	8.4	94	.6	10	.100	.010	.010	.82
JUL												
16...	1440	29.4	1160	9.1	8.1	92	.6	--	--	<.010	--	--
AUG												
20...	1615	31.8	1120	8.0	8.3	100	.6	--	.120	<.010	<.010	1.0
SEP												
17...	1545	31.8	1140	9.8	8.3	100	--	9.2	--	<.010	--	--

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS HYDRO. + ORTHO DIS. (MG/L AS P) (00677)	PHOS-PHORUS HYDRO. + ORTHO TOTAL (MG/L AS P) (00678)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
MAR 1999											
10...	--	.070	E.53	.270	--	<.020	<.010	.02	--	--	190
APR											
16...	.240	.100	E.90	.180	<.020	E.020	<.010	.03	.02	9.6	190
MAY											
14...	.260	.200	E.95	.270	E.030	<.020	<.010	.02	.03	--	200
JUN											
16...	.230	.100	E.76	.230	<.020	E.020	<.010	<.01	<.01	8.9	190
JUL											
16...	--	--	.79	.18	--	<.020	<.010	<.01	--	--	190
AUG											
20...	.120	.100	.85	.130	<.020	<.020	<.010	<.01	<.01	--	--
SEP											
17...	--	.200	.68	.230	--	<.020	<.010	<.01	--	--	200

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	SODIUM PERCENT (00932)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	BORON, DIS-SOLVED (UG/L AS B) (01020)
MAR 1999											
10...	45	19	120	4	57	3.6	240	27	<.10	6.3	67
APR											
16...	42	20	140	4	61	4.3	260	31	<.10	7.9	64
MAY											
14...	45	21	140	4	60	4.8	260	33	<.10	9.2	79
JUN											
16...	41	21	150	5	63	4.6	280	35	<.10	9.9	81
JUL											
16...	41	21	140	4	62	4.4	250	31	<.10	9.5	64
AUG											
20...	--	--	--	--	--	--	--	--	--	--	--
SEP											
17...	46	20	140	4	60	4.1	240	30	<.10	10	63

LAGUNA TORTUGUERO BASIN

50038194 LAGUNA TORTUGUERO STATION NO.5 NEAR VEGA BAJA, PR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML) (31679)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)	PLANK-TON BIOMASS ASH WT (MG/L) (81353)	PLANK-TON BIOMASS DRY WT (MG/L) (81354)
MAR 1999											
10...	6.8	<.20	--	--	577	531	--	.760	<.100	270	270
APR											
16...	1.4	.20	--	--	652	570	.010	1.30	<.100	450	460
MAY											
14...	3.0	.20	--	--	716	579	<.010	.580	<.100	260	260
JUN											
16...	3.4	<.20	--	--	674	599	<.010	1.80	<.100	250	260
JUL											
16...	3.1	.70	100	4	631	553	--	1.80	<.100	270	270
AUG											
20...	--	--	--	--	--	--	<.010	.790	<.100	280	290
SEP											
17...	3.7	.20	--	--	628	551	--	2.30	<.100	270	270

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS IN SAINT THOMAS, U.S.V.I.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

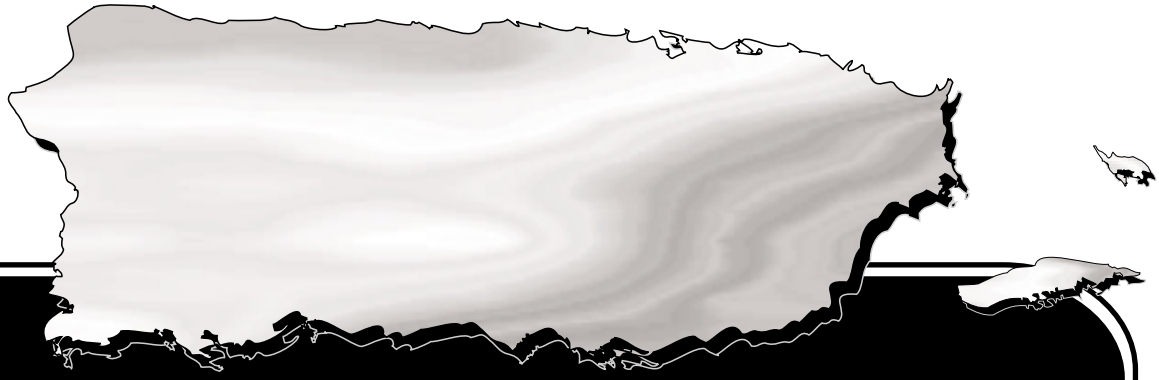
DATE	TIME	SAM-PLING DEPTH (FEET) (00003)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	TRANS-PAR-ENCY (SECCHI DISK) (IN) (00077)
50263000	VESSUP BAY WEST (LAT 18˚19'33"N LONG 064˚51'12"W)						
JUL 1999							
29...	0720	5.70	29.2	762	--	1.8	68.4
50263500	VESSUP BAY EAST (LAT 18˚19'41"N LONG 064˚50'57"W)						
JUL 1999							
29...	0650	11.5	29.3	762	--	.70	106
50265700	BENNER BAY NORTH (LAT 18˚19'18"N LONG 064˚52'03"W)						
JUL 1999							
28...	0825	7.20	30.9	763	--	2.9	36.0
50265900	BENNER BAY SOUTH (LAT 18˚19'06"N LONG 064˚52'11"W)						
JUL 1999							
28...	0900	6.50	30.2	763	--	1.9	78.0
50276000	TURPENTINE RUN AT MARIENDAL, (LAT 18˚19'48"N LONG 064˚52'58"W)						
JUL 1999							
28...	1210	--	28.8	762	.53	44	--
50278500	MANGROVE LAGOON EAST (LAT 18˚19'01"N LONG 064˚ 52'50"W)						
JUL 1999							
27...	0745	6.10	30.0	762	--	1.9	73.0
50278800	MANGROVE LAGOON WEST (LAT 18˚19'00"N LONG 064˚52'53"W)						
JUL 1999							
27...	0705	4.30	30.2	762	--	6.1	27.0

MISCELLANEOUS STATION ANALYSES

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS IN SAINT THOMAS, U.S.V.I.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SALIN-ITY (PPT) (00480)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616)
50263000 VESSUP BAY WEST (LAT 18˚19'33"N LONG 064˚51'12"W)							
JUL 1999							
29...	55200	8.0	36.7	4.0	--	39020	<6
50263500 VESSUP BAY EAST (LAT 18˚19'41"N LONG 064˚50'57"W)							
JUL 1999							
29...	55100	7.9	36.6	5.3	--	39370	<12
50265700 BENNER BAY NORTH (LAT 18˚19'18"N LONG 064˚52'03"W)							
JUL 1999							
28...	54700	8.0	36.3	4.4	--	39220	230
50265900 BENNER BAY SOUTH (LAT 18˚19'06"N LONG 064˚52'11"W)							
JUL 1999							
28...	54700	8.1	36.3	5.1	--	39420	<11
50276000 TURPENTINE RUN AT MARIENDAL, (LAT 18˚19'48"N LONG 064˚52'58"W)							
JUL 1999							
28...	1420	7.8	--	6.1	8.5	910	35000
50278500 MANGROVE LAGOON EAST (LAT 18˚19'01"N LONG 064˚ 52'50"W)							
JUL 1999							
27...	53700	8.0	35.1	3.0	--	38210	56
50278800 MANGROVE LAGOON WEST (LAT 18˚19'00"N LONG 064˚52'53"W)							
JUL 1999							
27...	53800	8.0	35.8	3.8	--	39470	<11

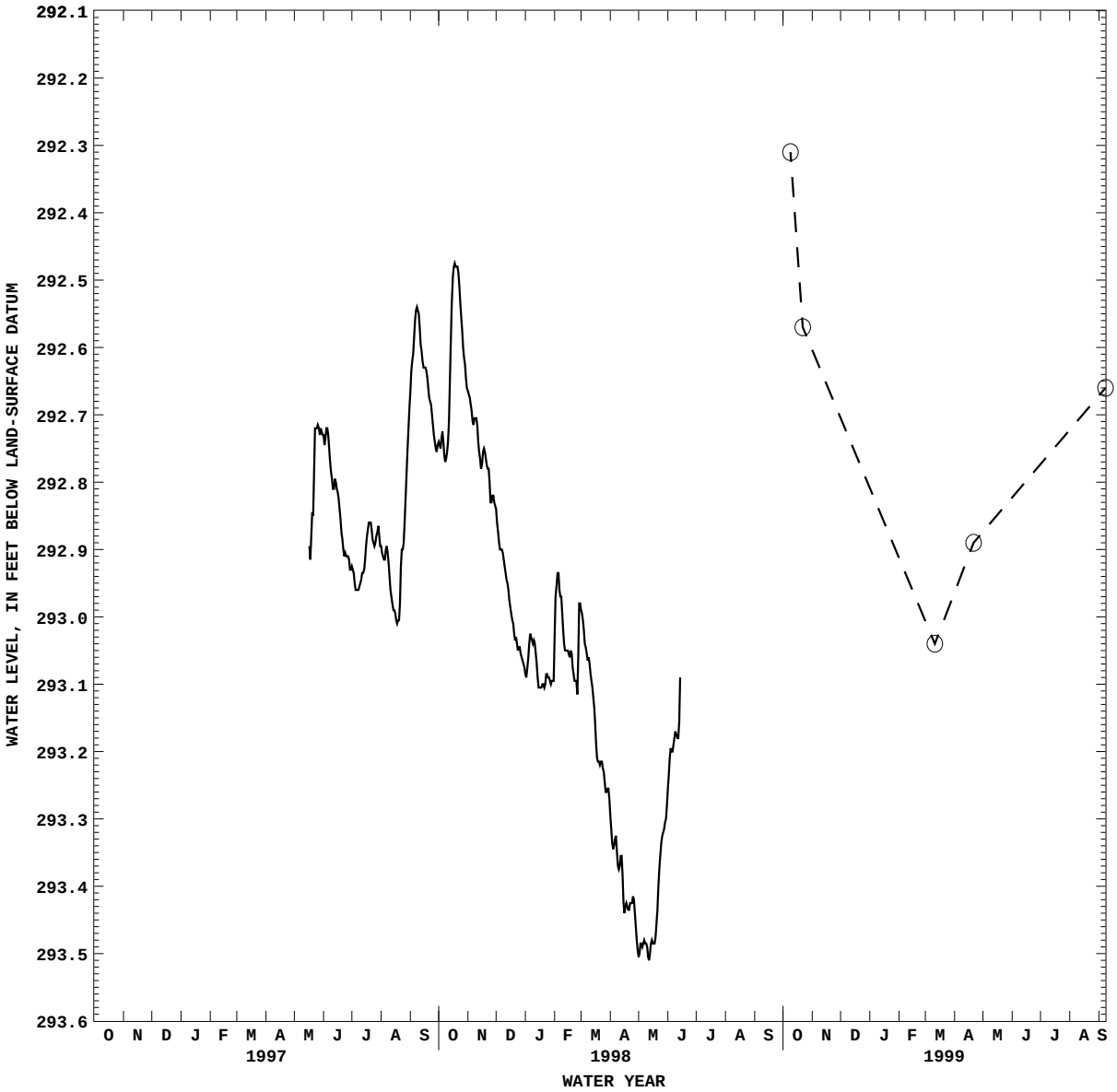


Ground-Water Records for Puerto Rico

182925067031100. Local number, 1001.
LOCATION.--Lat 18°29'25", long 67°03'11", Hydrologic Unit 21010002, 0.15 mi northwest of Hwy 472, 1.90 mi northwest of the intersection of Hwy 112 with Hwy 2, and 1.32 mi east of Hwy 466. Owner: Otilio Milán, Name: Otilio No. 1.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 0-10 ft (0-3.05 m), open hole 10-347 ft (3.05-105.8 m). Depth 347 ft (105.8 m).
DATUM.--Elevation of land-surface datum is about 295 ft (89.9 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of the 4 in (0.10 m) casing, 3.08 ft (0.94 m), above land-surface datum.
REMARKS.--Recording observation well. Eletronic Data Logger (EDL), installed on May 16, 1997, removed on June 16, 1998. Formerly published as local number OT-1.
PERIOD OF RECORD.--May 16, 1997 to current year. From October 9, 1998, tape down measurements only.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 292.3 ft (89.1 m), below land-surface datum, Oct. 9, 1998; lowest water level recorded, 293.5 ft (89.5 m), below land-surface datum, May 12, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 9	292.31	Mar. 11	293.04	Apr. 21	292.89	Sept. 8	292.66
Oct. 22	292.57						

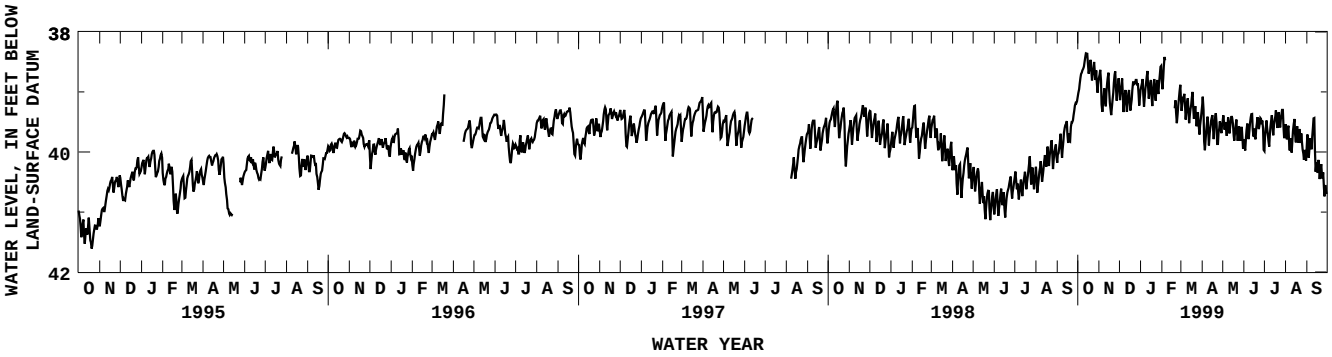


182422067015100. Local number, 165.
LOCATION.--Lat 18°24'22", long 67°01'51", Hydrologic Unit 21010003, 5.60 mi northeast of Moca plaza, 4.70 mi southeast of Aguadilla US Naval Reservation radio antenna, and 1.63 mi northwest of La Virgen del Rosario Church. Owner: PR Aqueduct and Sewer Authority, Name: Saltos # 1 (Mateo Pérez).
AQUIFER.--Cibao Formation. Aguada Limestone.
WELL CHARACTERISTICS.--Drilled production water-table well, diameter 16 in (0.40 m), cased 16 in (0.40 m) 0-40.0 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).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 689 ft (210 m), above mean sea level.
Measuring point: Hole on pump base, 0.50 ft (0.15 m), above land-surface datum. Prior to October 6, 1988, hole on top of pipe on top of 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. Automated Digital Recoder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 18, 1998. 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, 38.24 ft (11.6 m), below land-surface datum, Oct. 16, 1998; lowest water level measured, 70.6 ft (21.5 m), below land-surface datum, June 18, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39.11	38.80	38.71	39.01	38.61	38.82	39.31	39.52	39.85	40.13	39.58	40.00
2	39.04	38.74	39.24	38.92	39.04	39.36	39.13	39.43	39.72	39.84	39.49	39.76
3	38.99	38.67	39.03	38.89	38.87	39.27	39.03	39.35	40.10	39.66	39.90	39.66
4	38.92	38.59	38.93	38.83	38.67	39.14	39.56	39.69	39.85	39.56	39.68	40.19
5	38.81	39.03	38.84	38.74	38.48	39.04	40.08	39.57	39.68	39.39	39.59	40.00
6	38.71	39.38	38.71	39.33	38.35	39.12	39.86	39.43	39.59	39.80	39.53	39.86
7	38.69	39.28	39.42	39.16	38.59	38.94	39.71	39.81	39.46	39.62	40.07	39.68
8	38.66	39.15	39.25	39.00	---	39.55	39.58	39.65	39.88	40.00	39.88	40.06
9	38.62	38.99	39.09	38.89	---	39.37	39.45	39.50	39.69	39.82	39.66	39.85
10	38.61	38.89	39.01	38.80	---	39.25	39.37	39.35	39.59	39.63	40.13	39.66
11	38.54	39.34	38.92	38.70	---	39.13	40.02	39.76	39.45	39.50	39.89	39.51
12	38.48	39.14	39.41	38.60	---	39.08	39.76	39.62	39.39	39.41	39.70	39.37
13	38.36	38.89	39.25	39.19	---	39.62	39.62	39.52	39.35	39.36	39.59	39.50
14	38.36	38.81	39.04	39.03	---	39.42	39.52	39.44	39.38	39.85	39.47	40.40
15	38.38	38.72	39.02	38.89	---	39.32	39.45	39.36	39.84	39.59	39.43	40.26
16	38.32	38.64	38.91	38.83	---	39.26	39.40	39.50	39.64	39.51	39.98	40.08
17	38.75	39.26	39.36	38.77	---	39.15	39.37	39.55	39.58	39.45	39.70	40.46
18	38.64	39.10	39.26	39.33	---	39.04	39.89	39.90	39.91	39.36	39.60	40.24
19	38.61	39.49	39.20	39.14	---	38.96	39.68	39.72	39.67	39.25	39.54	40.02
20	38.51	39.28	39.05	38.96	39.33	39.53	39.49	39.63	39.56	39.68	39.97	40.54
21	38.42	39.21	38.89	38.82	39.21	39.36	39.37	39.53	39.48	39.52	39.72	40.36
22	38.89	39.07	38.79	38.75	39.07	39.28	39.34	39.39	39.36	39.40	39.51	40.25
23	38.72	38.95	38.89	39.28	39.61	39.19	39.72	39.92	39.67	39.27	39.97	40.15
24	38.70	38.74	38.84	39.01	39.43	39.66	40.01	39.71	39.57	39.67	39.73	40.55
25	38.56	38.68	38.86	38.85	39.31	39.48	39.72	39.64	39.51	39.51	39.65	40.34
26	38.44	38.63	38.74	38.75	39.16	39.36	39.64	39.50	39.36	39.42	40.05	40.34
27	38.92	39.26	38.86	39.15	39.05	39.32	39.57	39.92	39.53	39.33	39.86	40.83
28	38.68	39.03	38.92	38.92	38.94	39.80	39.41	39.71	39.54	39.27	40.20	40.65
29	38.60	38.91	38.79	38.81	---	39.62	39.77	39.63	39.41	39.33	40.06	40.45
30	39.08	38.83	39.31	38.64	---	39.50	39.60	39.53	39.80	39.88	39.87	40.81
31	38.94	---	39.14	38.52	---	39.39	---	40.05	---	39.66	40.29	---
MEAN	38.68	38.98	39.02	38.92	38.98	39.30	39.58	39.61	39.61	39.57	39.78	40.13

WTR YR 1999 MEAN 39.36 HIGHEST 38.24 OCT. 16, 1998 LOWESt 40.88 SEPT. 27, 30, 1999

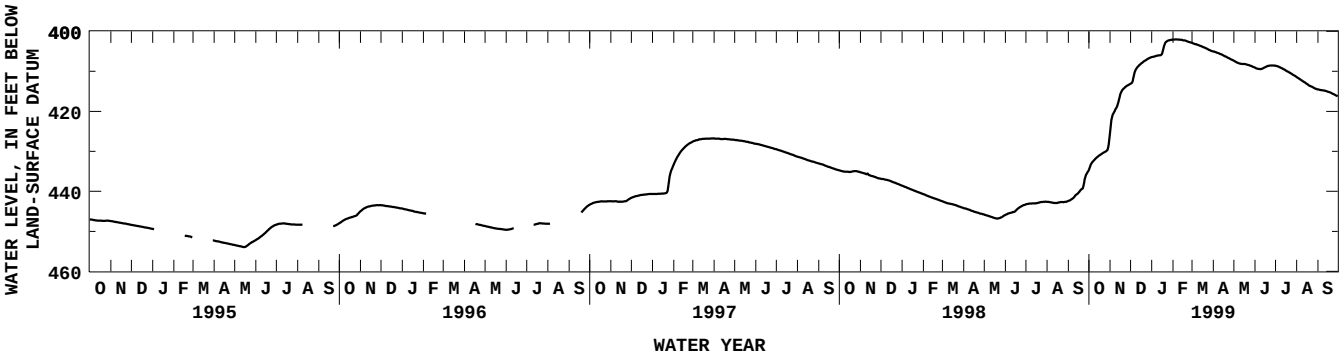


182647066552400. Local number, 202.
LOCATION.--Lat 18°26'47", long 66°55'24", Hydrologic Unit 21010002, 2.22 mi southeast of Quebradillas plaza, 1.29 mi north of Escuela José de Diego, and 1.99 mi northwest of El Calvario Church. Owner: PR Aqueduct and Sewer Authority, Name: Carmelo Barreto García well.
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 (0-168 m), perforated 270-529 ft (82.3-161 m). Depth 550 ft (168 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 18, 1998.
PERIOD OF RECORD.--November 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 401.9 ft (122 m), below land-surface datum, Feb. 6, 1999; lowest water level recorded, 453.9 ft (138 m), below land-surface datum, May 14, 15, 16, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	434.88	426.27	413.14	406.47	402.05	402.86	405.01	407.32	409.03	408.61	411.38	414.49
2	434.48	424.45	413.05	406.41	402.06	402.94	405.04	407.40	409.15	408.62	411.48	414.50
3	433.93	422.72	412.97	406.38	402.06	403.01	405.08	407.49	409.21	408.68	411.61	414.55
4	433.46	421.66	412.75	406.35	402.04	403.07	405.13	407.58	409.28	408.73	411.72	414.63
5	433.10	421.03	412.17	406.29	402.02	403.13	405.23	407.69	409.35	408.75	411.83	414.67
6	432.85	420.63	411.29	406.25	402.04	403.18	405.28	407.76	409.40	408.85	411.96	414.70
7	432.64	420.35	410.55	406.19	402.04	403.21	405.34	407.84	409.41	408.93	412.07	414.72
8	432.43	420.03	409.99	406.14	402.04	403.26	405.39	407.93	409.42	408.99	412.20	414.73
9	432.23	419.67	409.59	406.09	402.05	403.35	405.45	407.99	409.44	409.08	412.28	414.76
10	432.05	419.35	409.31	406.06	402.05	403.39	405.52	408.02	409.43	409.17	412.41	414.77
11	431.88	419.05	409.08	406.01	402.06	403.46	405.60	408.08	409.38	409.23	412.51	414.80
12	431.71	418.66	408.88	405.97	402.09	403.53	405.68	408.12	409.34	409.34	412.63	414.83
13	431.51	418.12	408.68	406.00	402.10	403.61	405.72	408.14	409.27	409.45	412.73	414.90
14	431.42	417.53	408.47	405.98	402.10	403.66	405.82	408.17	409.19	409.53	412.84	414.97
15	431.29	416.82	408.35	405.90	402.17	403.70	405.92	408.17	409.08	409.61	412.99	415.02
16	431.14	416.09	408.22	405.78	402.22	403.81	406.00	408.17	408.98	409.71	413.12	415.09
17	431.00	415.51	408.03	405.41	402.25	403.89	406.11	408.16	408.93	409.83	413.20	415.12
18	430.90	415.09	407.93	404.72	402.27	403.94	406.19	408.19	408.82	409.94	413.30	415.19
19	430.78	414.79	407.80	404.01	402.28	404.01	406.27	408.24	408.73	410.02	413.45	415.22
20	430.67	414.55	407.66	403.42	402.31	404.10	406.32	408.28	408.68	410.10	413.58	415.30
21	430.54	414.39	407.50	402.99	402.41	404.17	406.40	408.33	408.64	410.20	413.66	415.39
22	430.44	414.24	407.38	402.72	402.44	404.24	406.53	408.36	408.60	410.30	413.71	415.49
23	430.33	414.08	407.31	402.56	402.54	404.35	406.63	408.40	408.56	410.39	413.80	415.58
24	430.26	413.87	407.20	402.43	402.61	404.42	406.69	408.47	408.55	410.51	413.89	415.67
25	430.14	413.77	407.08	402.33	402.67	404.50	406.76	408.54	408.55	410.60	413.97	415.75
26	430.05	413.66	406.97	402.28	402.72	404.60	406.88	408.60	408.54	410.73	414.05	415.82
27	429.93	413.53	406.88	402.22	402.78	404.68	406.99	408.65	408.54	410.84	414.14	415.92
28	429.82	413.42	406.77	402.18	402.83	404.76	407.05	408.75	408.53	410.96	414.23	416.03
29	429.62	413.33	406.68	402.17	---	404.85	407.11	408.82	408.54	411.05	414.35	416.10
30	428.94	413.26	406.59	402.12	---	404.92	407.21	408.90	408.57	411.14	414.40	416.19
31	427.83	---	406.53	402.09	---	404.97	---	408.95	---	411.26	414.47	---
MEAN	431.36	417.33	408.86	404.58	402.26	403.86	406.01	408.18	408.97	409.78	413.03	415.16

WTR YR 1999 MEAN 410.84 HIGHEST 401.95 FEB. 6, 1999 LOWEST 435.05 OCT. 1, 1998

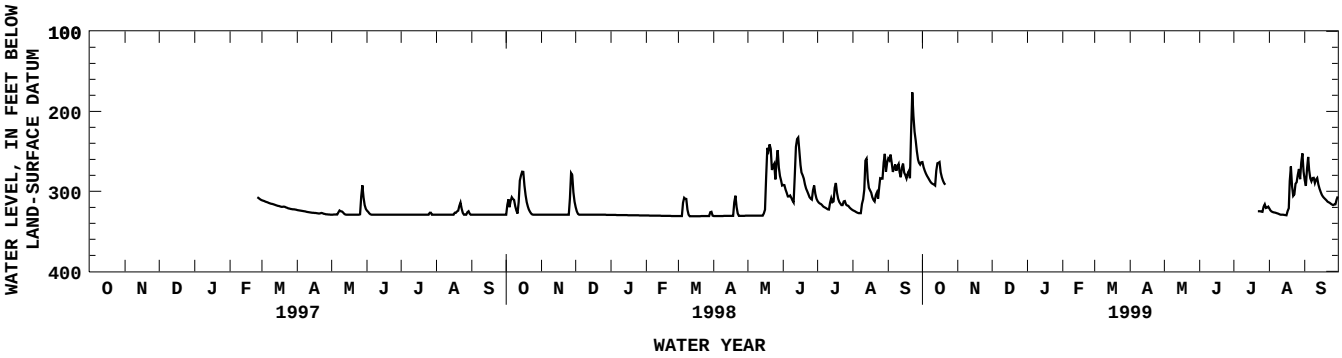


182723066511200. Local number, 1026.
LOCATION.--Lat 18°27'23", long 66°51'12", Hydrologic Unit 21010002, 1.60 mi south of the intersection of Hwy 119 with Hwy 2, 1.35 mi east of Hwy 119 of, and 0.01 mi east of Hwy 486. Owner: PR Aqueduct and Sewer Authority, Name: Zanja 4.
AQUIFER.--Aguada Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (0.30 m). Depth 585 ft (178 m).
INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 360 ft (110 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of the 4 in (0.10 m) casing, 3.00 ft (0.91 m), above land-surface datum.
REMARKS.--Recording observation well. Eletronic Data Logger (EDL), installed on February 25, 1997. Record is poor when the water level is below the level of the pressure transducer which is set at 331 ft (101 m), below land-surface datum. Formerly published as local number Z-4.
PERIOD OF RECORD.--February 25, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 161.8 ft (49.3 m), below land-surface datum, Sept. 22, 1998; lowest water level recorded, 331.2 ft (101 m), below land-surface datum, Mar. 11, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	258.73	---	---	---	---	---	---	---	---	---	320.30	281.75
2	267.93	---	---	---	---	---	---	---	---	---	322.79	290.04
3	272.00	---	---	---	---	---	---	---	---	---	324.54	296.31
4	276.26	---	---	---	---	---	---	---	---	---	325.54	247.47
5	279.42	---	---	---	---	---	---	---	---	---	326.33	266.50
6	281.86	---	---	---	---	---	---	---	---	---	326.40	280.09
7	284.33	---	---	---	---	---	---	---	---	---	326.62	286.92
8	287.16	---	---	---	---	---	---	---	---	---	327.30	287.89
9	288.99	---	---	---	---	---	---	---	---	---	327.80	278.66
10	290.80	---	---	---	---	---	---	---	---	---	328.29	287.38
11	290.83	---	---	---	---	---	---	---	---	---	328.99	292.02
12	292.25	---	---	---	---	---	---	---	---	---	329.24	278.66
13	293.26	---	---	---	---	---	---	---	---	---	329.24	287.94
14	255.06	---	---	---	---	---	---	---	---	---	329.37	294.60
15	274.80	---	---	---	---	---	---	---	---	---	329.40	298.63
16	253.94	---	---	---	---	---	---	---	---	---	329.75	302.48
17	272.75	---	---	---	---	---	---	---	---	---	330.02	305.84
18	279.67	---	---	---	---	---	---	---	---	---	319.48	307.65
19	284.92	---	---	---	---	---	---	---	---	---	322.66	308.94
20	288.66	---	---	---	---	---	---	---	---	---	251.92	310.41
21	291.04	---	---	---	---	---	---	---	---	---	286.20	311.92
22	292.52	---	---	---	---	---	---	---	---	324.76	300.48	313.60
23	---	---	---	---	---	---	---	---	---	324.79	310.98	313.69
24	---	---	---	---	---	---	---	---	---	324.76	296.53	314.93
25	---	---	---	---	---	---	---	---	---	325.17	284.66	316.18
26	---	---	---	---	---	---	---	---	---	325.77	292.73	316.95
27	---	---	---	---	---	---	---	---	---	325.44	265.62	317.45
28	---	---	---	---	---	---	---	---	---	313.02	278.62	315.67
29	---	---	---	---	---	---	---	---	---	319.23	290.96	316.74
30	---	---	---	---	---	---	---	---	---	322.60	236.41	303.51
31	---	---	---	---	---	---	---	---	---	318.10	268.88	---
MEAN	279.87	---	---	---	---	---	---	---	---	322.36	308.65	297.69

WTR YR 1999 MEAN 299.78 HIGHEST 214.92 AUG. 29, 1999 LOWEST 330.03 AUG. 17, 1999



182431066463400. Local number, 1027.
LOCATION.--Lat 18°24'31", long 66°46'34", Hydrologic Unit 21010005, 0.02 mi west of the intersectiom of Hwy 129 with Hwy 130, 1.68 mi southeast of the intersection of Hwy 130 with Hwy 490, and 3.00 mi east of Río Camuy. Owner: PR Aqueduct and Sewer Authority, Name: Campo Alegre 4.
AQUIFER.--Aguada Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m). Depth 220 ft (67.1 m).
INSTRUMENTATION.--Eletronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 606.8 ft (185 m), above mean sea level.
Measuring point: Shelter floor on top of the 4 in (0.10 m) casing, 3.25 ft (0.99 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on Sept. 27, 1996, replaced by an Electronic Data Logger (EDL), installed on Jan. 14, 1997. Formerly published as local number CA-4.
PERIOD OF RECORD.--September 27, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 183.5 ft (55.9 m), below land-surface datum, Apr. 9, 1999; lowest water level recorded, 212.6 ft (64.8 m), below land-surface datum, May 28, 1998.

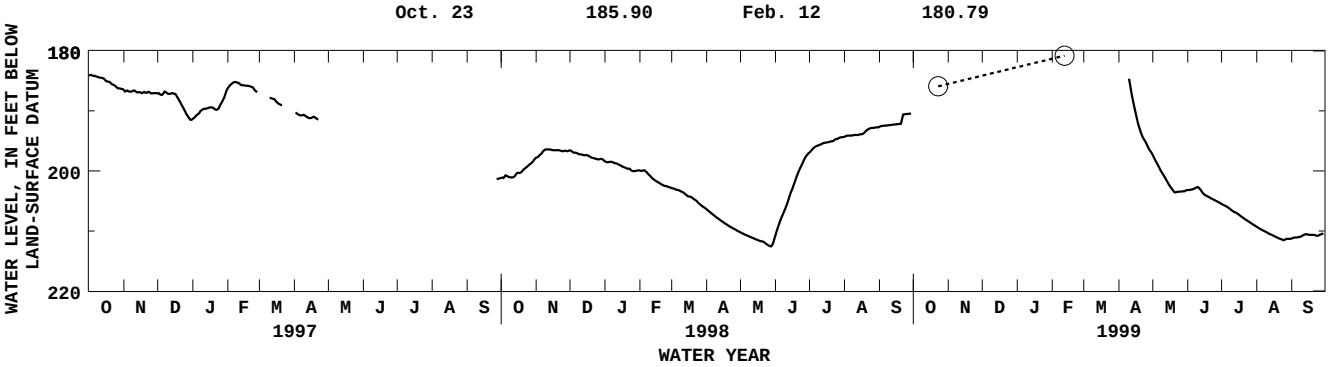
WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	197.18	203.21	205.44	209.25	211.28
2	---	---	---	---	---	---	---	197.56	203.17	205.54	209.36	211.22
3	---	---	---	---	---	---	---	197.97	203.19	205.64	209.47	211.12
4	---	---	---	---	---	---	---	198.34	203.16	205.74	209.58	211.09
5	---	---	---	---	---	---	---	198.68	203.08	205.84	209.70	211.09
6	---	---	---	---	---	---	---	199.03	203.04	205.94	209.80	211.10
7	---	---	---	---	---	---	---	199.40	202.98	206.09	209.91	211.07
8	---	---	---	---	---	---	---	199.74	202.85	206.21	210.01	211.03
9	---	---	---	---	---	---	---	200.07	202.79	206.33	210.10	210.98
10	---	---	---	---	---	---	184.20	200.35	202.67	206.51	210.21	210.91
11	---	---	---	---	---	---	185.11	200.66	202.70	206.66	210.30	210.80
12	---	---	---	---	---	---	186.31	201.00	202.97	206.78	210.41	210.68
13	---	---	---	---	---	---	187.36	201.32	203.13	206.93	210.50	210.59
14	---	---	---	---	---	---	188.29	201.66	203.45	206.92	210.59	210.56
15	---	---	---	---	---	---	189.28	202.02	203.70	207.04	210.68	210.58
16	---	---	---	---	---	---	190.05	202.33	203.91	207.16	210.78	210.60
17	---	---	---	---	---	---	190.93	202.62	204.05	207.31	210.87	210.65
18	---	---	---	---	---	---	191.79	202.89	204.15	207.46	210.96	210.65
19	---	---	---	---	---	---	192.51	203.13	204.25	207.60	211.04	210.67
20	---	---	---	---	---	---	193.12	203.41	204.35	207.75	211.13	210.64
21	---	---	---	---	---	---	193.62	203.60	204.45	207.88	211.21	210.64
22	---	---	---	---	---	---	194.05	203.55	204.55	208.02	211.29	210.68
23	---	---	---	---	---	---	194.54	203.51	204.65	208.15	211.37	210.76
24	---	---	---	---	---	---	194.77	203.47	204.74	208.26	211.44	210.82
25	---	---	---	---	---	---	195.09	203.47	204.84	208.37	211.52	210.83
26	---	---	---	---	---	---	195.48	203.45	204.94	208.50	211.61	210.65
27	---	---	---	---	---	---	195.90	203.42	205.04	208.63	211.33	210.58
28	---	---	---	---	---	---	196.26	203.41	205.14	208.77	211.31	210.52
29	---	---	---	---	---	---	196.64	203.40	205.24	208.90	211.33	210.47
30	---	---	---	---	---	---	196.83	203.39	205.34	209.02	211.35	210.35
31	---	---	---	---	---	---	---	203.21	---	209.12	211.33	---
MEAN	---	---	---	---	---	---	192.01	201.52	203.86	207.24	210.64	210.79

WTR YR 1999 MEAN 205.02 HIGHEST 183.48 APR. 9, 1999 LOWEST 211.64 AUG. 26, 27, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level
Oct. 23	185.90	Feb. 12	180.79

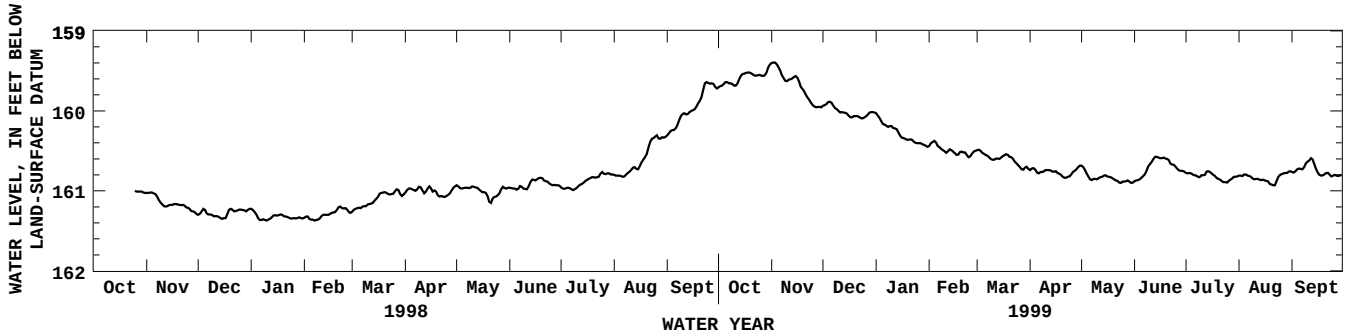


182756066454700. Local number, 1051.
LOCATION.--Lat 18°27'56", long 66°45'47", Hydrologic Unit 21010002, 0.04 mi north of Hwy 653, 1.86 mi west of Hwy 129, and 1.55 mi west of the University of Puerto Rico, Arecibo Campus. Owner: Vaqueria Barreto, Name: Barreto #01.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m). Depth 300 ft (91.4 m).
INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 164 ft (50.0 m), above mean sea level, from topographic map. Measuring point: Top of white PVC cap 3.37 ft (1.03 m), above land-surface datum.
REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on October 24, 1997. Well is affected by marine tides. Formerly published as local number BARR-1.
PERIOD OF RECORD.--October 24, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 159.4 ft (48.6 m), below land-surface datum, Nov. 1, 2, 3, 1998; lowest water level recorded, 161.4 ft (49.2 m), below land-surface datum, Jan. 6, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159.72	159.41	159.95	160.02	160.46	160.49	160.75	160.68	160.89	160.77	160.82	160.76
2	159.69	159.39	159.92	160.04	160.42	160.49	160.73	160.69	160.87	160.78	160.80	160.77
3	159.69	159.40	159.94	160.08	160.39	160.48	160.71	160.72	160.87	160.78	160.82	160.77
4	159.68	159.39	159.89	160.10	160.39	160.52	160.72	160.76	160.86	160.77	160.81	160.74
5	159.65	159.45	159.89	160.16	160.36	160.53	160.75	160.80	160.85	160.79	160.78	160.72
6	159.63	159.46	159.88	160.17	160.43	160.54	160.79	160.84	160.82	160.80	160.81	160.72
7	159.65	159.53	159.92	160.17	160.45	160.56	160.77	160.87	160.81	160.81	160.81	160.73
8	159.66	159.58	159.95	160.20	160.46	160.56	160.76	160.86	160.77	160.81	160.82	160.73
9	159.65	159.60	159.98	160.20	160.49	160.60	160.77	160.84	160.72	160.84	160.83	160.68
10	159.68	159.65	159.98	160.18	160.49	160.60	160.74	160.86	160.67	160.82	160.86	160.63
11	159.69	159.61	160.02	160.20	160.52	160.62	160.74	160.85	160.66	160.79	160.85	160.64
12	159.68	159.61	160.02	160.23	160.53	160.60	160.74	160.83	160.62	160.82	160.85	160.60
13	159.63	159.60	160.01	160.21	160.48	160.59	160.74	160.83	160.58	160.78	160.85	160.58
14	159.59	159.59	160.03	160.25	160.48	160.60	160.75	160.82	160.57	160.74	160.87	160.63
15	159.54	159.56	160.02	160.29	160.50	160.60	160.77	160.80	160.58	160.77	160.86	160.70
16	159.54	159.57	160.05	160.33	160.52	160.57	160.75	160.81	160.59	160.76	160.86	160.75
17	159.53	159.60	160.07	160.34	160.54	160.56	160.76	160.83	160.59	160.80	160.88	160.79
18	159.52	159.67	160.09	160.34	160.56	160.55	160.79	160.82	160.59	160.80	160.87	160.81
19	159.52	159.72	160.07	160.36	160.53	160.53	160.78	160.84	160.58	160.83	160.90	160.81
20	159.52	159.73	160.06	160.36	160.50	160.57	160.82	160.84	160.61	160.85	160.93	160.80
21	159.54	159.78	160.07	160.36	160.52	160.58	160.83	160.87	160.59	160.85	160.91	160.78
22	159.55	159.82	160.06	160.35	160.52	160.58	160.84	160.87	160.64	160.87	160.95	160.77
23	159.57	159.85	160.09	160.37	160.52	160.62	160.83	160.88	160.68	160.89	160.91	160.78
24	159.55	159.88	160.09	160.40	160.58	160.65	160.82	160.91	160.66	160.89	160.84	160.82
25	159.56	159.92	160.10	160.40	160.58	160.66	160.82	160.89	160.69	160.89	160.81	160.82
26	159.54	159.94	160.07	160.41	160.56	160.70	160.77	160.88	160.71	160.90	160.79	160.80
27	159.58	159.95	160.07	160.40	160.51	160.71	160.76	160.89	160.74	160.85	160.79	160.80
28	159.55	159.96	160.03	160.41	160.51	160.75	160.74	160.87	160.75	160.87	160.77	160.82
29	159.56	159.94	160.02	160.42	---	160.72	160.72	160.87	160.75	160.82	160.78	160.81
30	159.48	159.96	160.01	160.43	---	160.70	160.69	160.90	160.75	160.83	160.77	160.80
31	159.43	---	160.02	160.44	---	160.70	---	160.90	---	160.82	160.75	---
MEAN	159.59	159.67	160.01	160.28	160.49	160.60	160.76	160.84	160.70	160.82	160.84	160.75

WTR YR 1999 MEAN 160.45 HIGHEST 159.38 NOV. 1, 2, 3, 1998 LOWEST 160.95 AUG. 22, 1999



182737066370900. Local number, 204.
LOCATION.--Lat 18°27'37", long 66°37'09", Hydrologic Unit 21010002, 5.26 mi west of Barceloneta plaza, 1.58 mi north of Hwy 2 km 63.7, and 3.67 mi southwest of Escuela Agustín Balseiro. Owner: Sucesión Marquez, Name: Gilberto Rivera well.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Abandoned unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 7, 1997.
PERIOD OF RECORD.--October 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 50.0 ft (15.2 m), below land-surface datum, May 14, 1986; lowest water level recorded, 53.1 ft (16.2 m), below land-surface datum, Jan. 29, 1995.

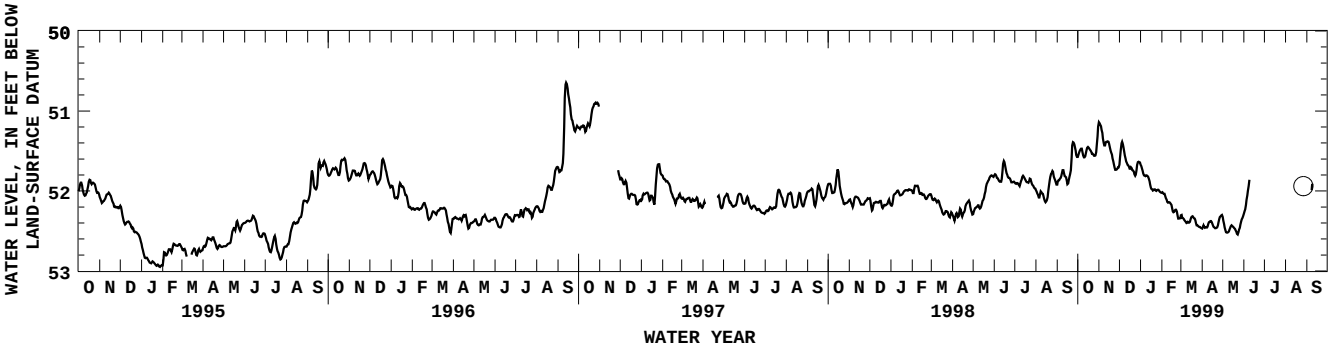
WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51.57	51.14	51.71	51.65	52.03	52.34	52.46	52.30	52.31	---	---	---
2	51.58	51.14	51.63	51.69	52.01	52.27	52.48	52.35	52.26	---	---	---
3	51.52	51.17	51.54	51.69	52.02	52.33	52.43	52.39	52.24	---	---	---
4	51.52	51.17	51.43	51.74	52.04	52.34	52.43	52.44	52.22	---	---	---
5	51.48	51.21	51.38	51.76	52.03	52.34	52.46	52.47	52.13	---	---	---
6	51.48	51.26	51.39	51.80	52.04	52.36	52.46	52.51	52.09	---	---	---
7	51.46	51.29	51.44	51.81	52.08	52.37	52.45	52.52	52.02	---	---	---
8	51.48	51.40	51.47	51.81	52.10	52.38	52.45	52.52	51.98	---	---	51.99
9	51.54	51.40	51.55	51.82	52.12	52.39	52.46	52.52	51.90	---	---	51.91
10	51.57	51.46	51.56	51.79	52.15	52.41	52.43	52.51	51.82	---	---	---
11	51.59	51.40	51.63	51.82	52.14	52.38	52.39	52.50	---	---	---	---
12	51.57	51.38	51.63	51.81	52.14	52.39	52.39	52.47	---	---	---	---
13	51.56	51.39	51.67	51.83	52.14	52.40	52.38	52.45	---	---	---	---
14	51.50	51.38	51.68	51.86	52.15	52.39	52.37	52.43	---	---	---	---
15	51.47	51.38	51.68	51.90	52.17	52.38	52.38	52.43	---	---	---	---
16	51.45	51.39	51.72	51.94	52.18	52.34	52.40	52.44	---	---	---	---
17	51.45	51.43	51.72	51.98	52.24	52.32	52.42	52.45	---	---	---	---
18	51.47	51.48	51.72	51.97	52.27	52.32	52.45	52.46	---	---	---	---
19	51.47	51.51	51.69	51.99	52.26	52.31	52.45	52.47	---	---	---	---
20	51.50	51.53	51.74	52.00	52.26	52.34	52.46	52.48	---	---	---	---
21	51.49	51.56	51.74	51.98	52.23	52.34	52.47	52.50	---	---	---	---
22	51.54	51.62	51.75	51.98	52.24	52.35	52.46	52.52	---	---	---	---
23	51.53	51.64	51.77	51.98	52.23	52.38	52.46	52.55	---	---	---	---
24	51.54	51.69	51.81	52.01	52.28	52.43	52.45	52.54	---	---	---	---
25	51.55	51.73	51.81	51.99	52.34	52.43	52.41	52.49	---	---	---	---
26	51.57	51.74	51.78	51.99	52.35	52.43	52.37	52.48	---	---	---	---
27	51.55	51.73	51.70	51.98	52.34	52.44	52.33	52.44	---	---	---	---
28	51.56	51.73	51.65	51.99	52.34	52.45	52.32	52.40	---	---	---	---
29	51.47	51.71	51.63	52.00	---	52.45	52.31	52.36	---	---	---	---
30	51.38	51.70	51.64	52.02	---	52.45	52.30	52.35	---	---	---	---
31	51.25	---	51.64	52.01	---	52.47	---	52.32	---	---	---	---
MEAN	51.51	51.46	51.64	51.89	52.18	52.38	52.42	52.45	52.10	---	---	51.95

WTR YR 1999 MEAN 51.99 HIGHEST 51.12 NOV. 1, 2, 1998 LOWEST 52.59 MAY 7, 8, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level
Aug. 27	51.94



182616066364100. Local number, 1052.
LOCATION.--Lat 18°26'16", long 66°36'41", Hydrologic Unit 21010002, 3.00 west of the intersection of Hwy 140 with Hwy 2 (Cruce Davila), 0.32 mi southwest of Hwy 22, 0.15 mi north of Hwy 2, and 0.22 mi northeast of the intersection of Hwy 2 with Hwy 639. Owner: PR Aqueduct and Sewer Authority, Name: PRASA Encantada 1.
AQUIFER.--Tertiary Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 312 ft (95.0 m), above mean sea level, from topographic map. Measuring point: Shelter floor 3.40 ft (1.04 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on Aug. 23, 1996, replaced by an Electronic Data Logger (EDL), installed on January 13, 1997. Formerly published as local number EN-1.
PERIOD OF RECORD.--August 23, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 312.23 ft (95.2 m), below land-surface datum, Sept. 13, 14, 1996; lowest water level recorded, 313.84 ft (95.7 m), below land-surface datum, April 3, 1998.

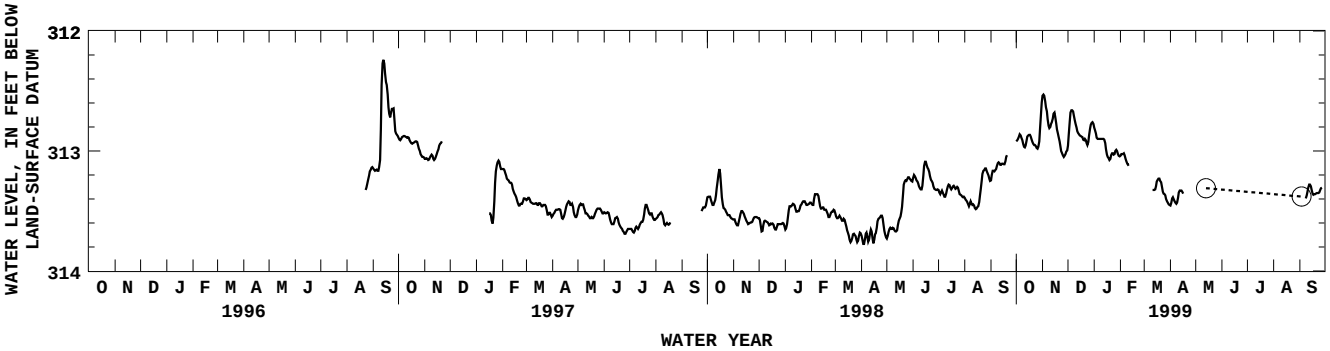
WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	312.92	312.55	313.00	312.79	313.05	---	313.45	---	---	---	---	---
2	312.92	312.53	312.91	312.82	313.03	---	313.46	---	---	---	---	---
3	312.90	312.53	312.82	312.83	313.02	---	313.41	---	---	---	---	---
4	312.90	312.55	312.70	312.88	313.03	---	313.38	---	---	---	---	---
5	312.86	312.62	312.66	312.90	313.02	---	313.39	---	---	---	---	---
6	312.86	312.65	312.66	312.90	313.02	---	313.42	---	---	---	---	---
7	312.88	312.69	312.66	312.90	313.05	---	313.42	---	---	---	---	---
8	312.90	312.78	312.68	312.90	313.08	---	313.44	---	---	---	---	313.40
9	312.92	312.80	312.73	312.90	313.09	---	313.44	---	---	---	---	313.39
10	312.96	312.82	312.76	312.90	313.12	---	313.42	---	---	---	---	313.35
11	312.97	312.78	312.79	312.90	313.11	313.33	313.36	---	---	---	---	313.33
12	312.97	312.77	312.82	312.90	313.11	313.32	313.33	---	---	---	---	313.28
13	312.94	312.75	312.85	312.90	---	313.33	313.33	---	---	---	---	313.28
14	312.89	312.71	312.85	312.91	---	313.32	313.33	---	---	---	---	313.28
15	312.87	312.67	312.87	312.96	---	313.32	313.33	---	---	---	---	313.31
16	312.87	312.69	312.87	313.01	---	313.27	313.35	---	---	---	---	313.34
17	312.86	312.74	312.88	313.05	---	313.24	313.36	---	---	---	---	313.37
18	312.87	312.80	312.88	313.05	---	313.24	---	---	---	---	---	313.36
19	312.89	312.84	312.89	313.07	---	313.22	---	---	---	---	---	313.36
20	312.92	312.87	312.92	313.08	---	313.24	---	---	---	---	---	313.36
21	312.93	312.90	312.90	313.05	---	313.26	---	---	---	---	---	313.35
22	312.95	312.94	312.90	313.02	---	313.26	---	---	---	---	---	313.35
23	312.95	312.98	312.92	313.02	---	313.33	---	---	---	---	---	313.35
24	312.95	313.02	312.95	313.02	---	313.35	---	---	---	---	---	313.35
25	312.97	313.02	312.95	313.04	---	313.36	---	---	---	---	---	313.34
26	312.98	313.05	312.90	313.01	---	313.36	---	---	---	---	---	313.31
27	312.98	313.05	312.84	312.99	---	313.38	---	---	---	---	---	313.31
28	312.95	313.03	312.79	312.99	---	313.42	---	---	---	---	---	313.30
29	312.89	313.02	312.77	313.01	---	313.42	---	---	---	---	---	---
30	312.74	312.99	312.76	313.04	---	313.44	---	---	---	---	---	---
31	312.64	---	312.76	313.04	---	313.45	---	---	---	---	---	---
MEAN	312.90	312.80	312.83	312.96	313.06	313.33	313.39	---	---	---	---	313.34

WTR YR 1999 MEAN 313.03 HIGHEST 312.53 NOV. 1, 2, 3, 1998 LOWEST 313.48 APR. 5-10, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level
May 13	313.31	Sept. 3	313.38

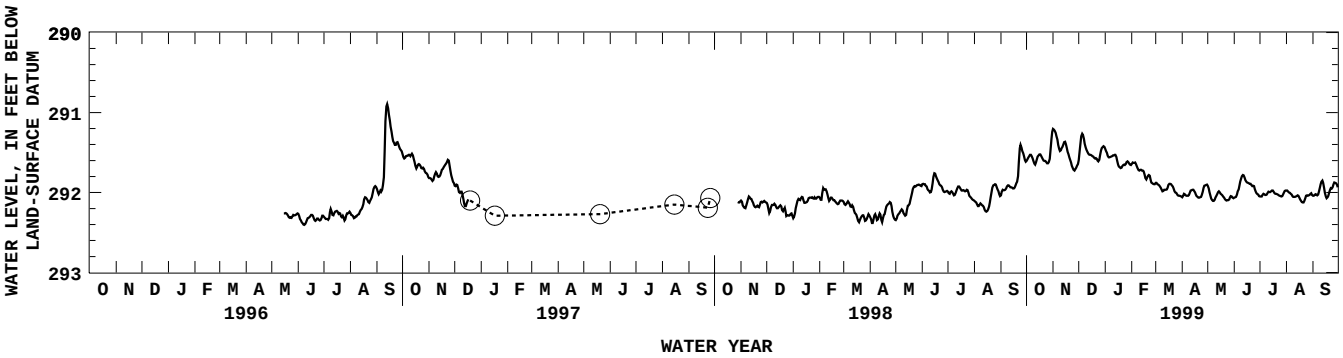


182626066345100. Local number, 1053.
LOCATION.--Lat 18°26'26", long 66°34'51", Hydrologic Unit 21010002, 1.45 mi south of Hwy 682, 1.15 mi northwest of the intersection of Hwy 140 with Hwy 2 (Cruce Dávila), 0.48 mi north of Hwy 2, and approximately 100 feet south of Hwy 22. Owner: PR Aqueduct and Sewer Authority, Name: Tiburones 1.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Drilled water-table well, diameter 12 in (0.30 m). Depth 320 ft (97.5 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval. Prior to December 19, 1996, pressure transducer with integrated electronic data logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 295 ft (89.9 m), above mean sea level, from topographic map. Measuring point: Top of 4 in (0.10 m) PVC cap, above shelter floor, 3.40 ft (1.04 m), above land-surface datum.
REMARKS.--Recording observation well. Electronic Data Logger (EDL), re-installed on October 27, 1997. Formerly published as local number TI-1.
PERIOD OF RECORD.--May 14, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 290.88 ft (88.7 m), below land-surface datum, Sept. 13, 14, 1996; lowest water level measured, 292.79 ft (89.2 m), below land-surface datum, Jan. 17, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	291.61	291.21	291.64	291.44	291.66	291.89	292.05	291.90	292.07	292.06	291.98	292.04
2	291.60	291.20	291.55	291.47	291.63	291.87	292.07	291.93	292.06	292.04	291.97	292.04
3	291.57	291.23	291.45	291.49	291.62	291.89	292.02	291.97	292.06	292.06	291.98	292.04
4	291.56	291.23	291.32	291.52	291.64	291.90	292.01	292.02	292.05	292.04	292.00	292.02
5	291.53	291.28	291.27	291.56	291.62	291.90	292.03	292.06	292.00	292.02	292.00	292.02
6	291.53	291.31	291.26	291.56	291.63	291.92	292.04	292.09	291.97	292.01	292.01	292.03
7	291.53	291.37	291.30	291.56	291.66	291.93	292.04	292.10	291.95	292.03	292.02	292.04
8	291.56	291.44	291.36	291.55	291.69	291.95	292.04	292.11	291.88	292.03	292.03	292.01
9	291.59	291.47	291.42	291.55	291.71	291.98	292.04	292.10	291.85	292.03	292.06	291.97
10	291.62	291.49	291.45	291.54	291.73	291.99	292.02	292.08	291.80	292.02	292.05	291.91
11	291.66	291.45	291.48	291.53	291.72	291.97	291.98	292.05	291.79	291.99	292.06	291.88
12	291.64	291.44	291.50	291.54	291.71	291.96	291.97	292.03	291.77	291.99	292.05	291.85
13	291.61	291.42	291.52	291.52	291.72	291.97	291.97	292.01	291.80	292.00	292.05	291.85
14	291.56	291.38	291.53	291.54	291.73	291.96	291.96	291.98	291.83	291.99	292.04	291.91
15	291.54	291.36	291.53	291.57	291.72	291.96	291.97	291.99	291.86	291.98	292.03	291.98
16	291.53	291.37	291.53	291.63	291.75	291.92	291.99	292.01	291.87	291.97	292.05	292.03
17	291.52	291.42	291.54	291.67	291.80	291.89	292.01	292.02	291.88	291.98	292.08	292.07
18	291.53	291.47	291.55	291.68	291.84	291.89	292.04	292.03	291.88	292.00	292.09	292.07
19	291.55	291.51	291.55	291.69	291.83	291.89	292.05	292.04	291.89	292.02	292.12	292.05
20	291.58	291.54	291.58	291.70	291.80	291.90	292.06	292.06	291.89	292.01	292.12	292.03
21	291.59	291.58	291.57	291.68	291.78	291.92	292.07	292.07	291.89	292.02	292.13	291.98
22	291.61	291.61	291.57	291.66	291.78	291.93	292.06	292.09	291.92	292.02	292.12	291.95
23	291.60	291.64	291.59	291.65	291.80	291.97	292.06	292.10	291.92	292.03	292.09	291.94
24	291.61	291.69	291.61	291.65	291.87	292.00	292.05	292.10	291.91	292.04	292.05	291.96
25	291.63	291.70	291.61	291.66	291.88	292.00	292.01	292.09	291.93	292.04	292.03	291.91
26	291.64	291.73	291.57	291.63	291.89	292.01	291.97	292.10	291.98	292.05	292.04	291.88
27	291.63	291.72	291.50	291.61	291.89	292.03	291.92	292.07	292.00	292.05	292.04	291.87
28	291.61	291.70	291.45	291.61	291.90	292.04	291.91	292.05	292.02	292.04	292.03	291.89
29	291.55	291.68	291.44	291.63	---	292.04	291.91	292.04	292.02	292.01	292.03	291.88
30	291.39	291.65	291.42	291.65	---	292.04	291.90	292.06	292.03	291.99	292.00	291.92
31	291.27	---	291.42	291.65	---	292.05	---	292.07	---	291.97	292.02	---
MEAN	291.57	291.48	291.49	291.59	291.75	291.95	292.01	292.05	291.93	292.02	292.04	291.97

WTR YR 1999 MEAN 291.82 HIGHEST 291.20 NOV. 1, 2, 1998 LOWEST 292.15 MAY 6-9, 1999

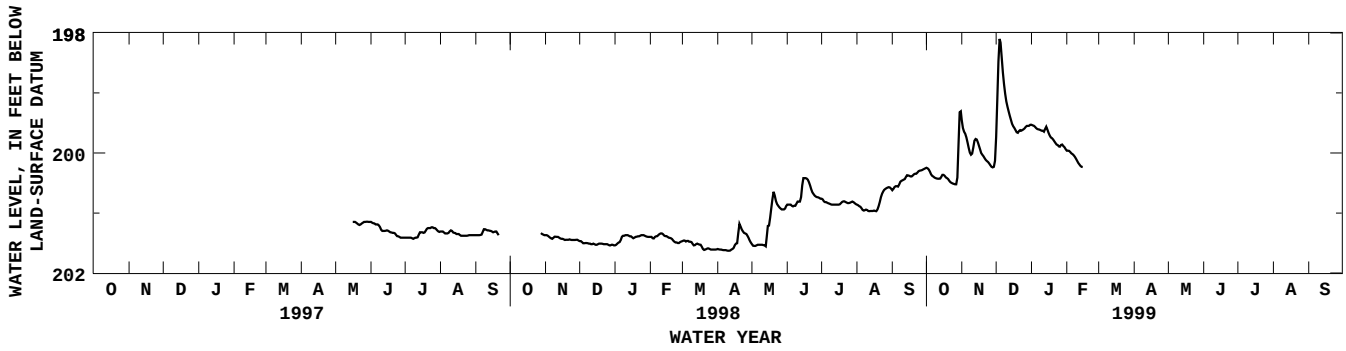


182603066333601. Local number, 1054.
LOCATION.--Lat 18°26'03", long 66°33'36", Hydrologic Unit 21010002, 0.70 south of the intersection of Hwy 140 with Hwy 22, 0.35 mi east of the intersection of Hwy 140 with Hwy 2, and 1.35 mi northeast of the intersection of Hwy 140 with Hwy 666. Owner: PR Aqueduct and Sewer Authority, Name: Florida Afuera No. 2.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Drilled water-table well, diameter 16 in (0.41 m), cased 0-270 ft (0-82.3 m), screened 200-270 ft (61.0-82.3 m). Depth 270 ft (82.3 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 213.3 ft (65.0 m), above mean sea level from topographic map. Measuring point: Shelter floor on top of the 4 in (0.10 m) casing, 4.00 ft (1.22 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on August 23, 1996, replaced by an Electronic Data Logger (EDL), installed on January 17, 1997. Formerly published as local number FA-2.
PERIOD OF RECORD.--August 23, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 198.03 ft (60.36 m), below land-surface datum, Dec. 4, 5, 1998; lowest water level recorded, 201.63 ft (61.5 m), below land-surface datum, Apr. 10, 11, 12, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	200.25	199.38	200.04	199.52	199.96	---	---	---	---	---	---	---
2	200.24	199.53	199.43	199.54	199.96	---	---	---	---	---	---	---
3	200.27	199.64	198.80	199.54	199.96	---	---	---	---	---	---	---
4	200.28	199.65	198.14	199.55	199.97	---	---	---	---	---	---	---
5	200.34	199.71	198.06	199.57	200.00	---	---	---	---	---	---	---
6	200.37	199.77	198.26	199.60	200.01	---	---	---	---	---	---	---
7	200.39	199.88	198.56	199.60	200.03	---	---	---	---	---	---	---
8	200.40	199.95	198.75	199.61	200.05	---	---	---	---	---	---	---
9	200.42	200.04	198.95	199.61	200.08	---	---	---	---	---	---	---
10	200.42	200.02	199.07	199.63	200.11	---	---	---	---	---	---	---
11	200.43	200.00	199.21	199.63	200.15	---	---	---	---	---	---	---
12	200.43	199.82	199.25	199.63	200.18	---	---	---	---	---	---	---
13	200.43	199.77	199.36	199.66	200.20	---	---	---	---	---	---	---
14	200.42	199.76	199.40	199.54	200.23	---	---	---	---	---	---	---
15	200.37	199.79	199.49	199.58	200.23	---	---	---	---	---	---	---
16	200.36	199.86	199.54	199.64	200.24	---	---	---	---	---	---	---
17	200.37	199.91	199.57	199.69	---	---	---	---	---	---	---	---
18	200.39	199.98	199.60	199.73	---	---	---	---	---	---	---	---
19	200.42	200.02	199.64	199.75	---	---	---	---	---	---	---	---
20	200.42	200.04	199.67	199.76	---	---	---	---	---	---	---	---
21	200.45	200.07	199.66	199.79	---	---	---	---	---	---	---	---
22	200.48	200.10	199.61	199.82	---	---	---	---	---	---	---	---
23	200.49	200.13	199.63	199.85	---	---	---	---	---	---	---	---
24	200.51	200.14	199.63	199.87	---	---	---	---	---	---	---	---
25	200.51	200.16	199.61	199.87	---	---	---	---	---	---	---	---
26	200.52	200.19	199.60	199.91	---	---	---	---	---	---	---	---
27	200.52	200.22	199.58	199.88	---	---	---	---	---	---	---	---
28	200.52	200.24	199.55	199.85	---	---	---	---	---	---	---	---
29	200.30	200.24	199.55	199.87	---	---	---	---	---	---	---	---
30	199.41	200.22	199.55	199.90	---	---	---	---	---	---	---	---
31	199.23	---	199.54	199.91	---	---	---	---	---	---	---	---
MEAN	200.33	199.94	199.30	199.71	200.09	---	---	---	---	---	---	---

WTR YR 1999 MEAN 199.85 HIGHEST 198.03 DEC. 4, 5, 1998 LOWEST 200.52 OCT. 23-28, 1998



182642066394900. Local number, 1055.
LOCATION.--Lat 18°26'42", long 66°39'49", Hydrologic Unit 21010002, 0.27 mi south southeast of Escuela Federico Degetau, 2.20 mi west of intersection of Hwy 2 with Hwy 22, and 2.47 mi east southeast of Central Cambalache. Owner: PR Aqueduct and Sewer Authority, Name: Santana Park.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Active production well.
DATUM.--Elevation of land-surface datum is about 62.0 ft (18.9 m), above mean sea level, from topographic map. Measuring point: Access hole in steel covering well, 0.55 ft (0.17 m), above land-surface datum. Prior Mar. 26, 1999, top of steel casing, 1.70 ft (0.52 m).
REMARKS.--Observation well.
PERIOD OF RECORD.--September 21, 1995 to September 3, 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.71 ft (15.15 m), below land-surface datum, Sept. 19, 1996; lowest water level measured, 52.09 ft (15.88 m), below land-surface datum, Sept. 3, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INSTANTANEOUS OBSERVATIONS

Date	Water level
Sept. 21	50.36

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996
INSTANTANEOUS OBSERVATIONS

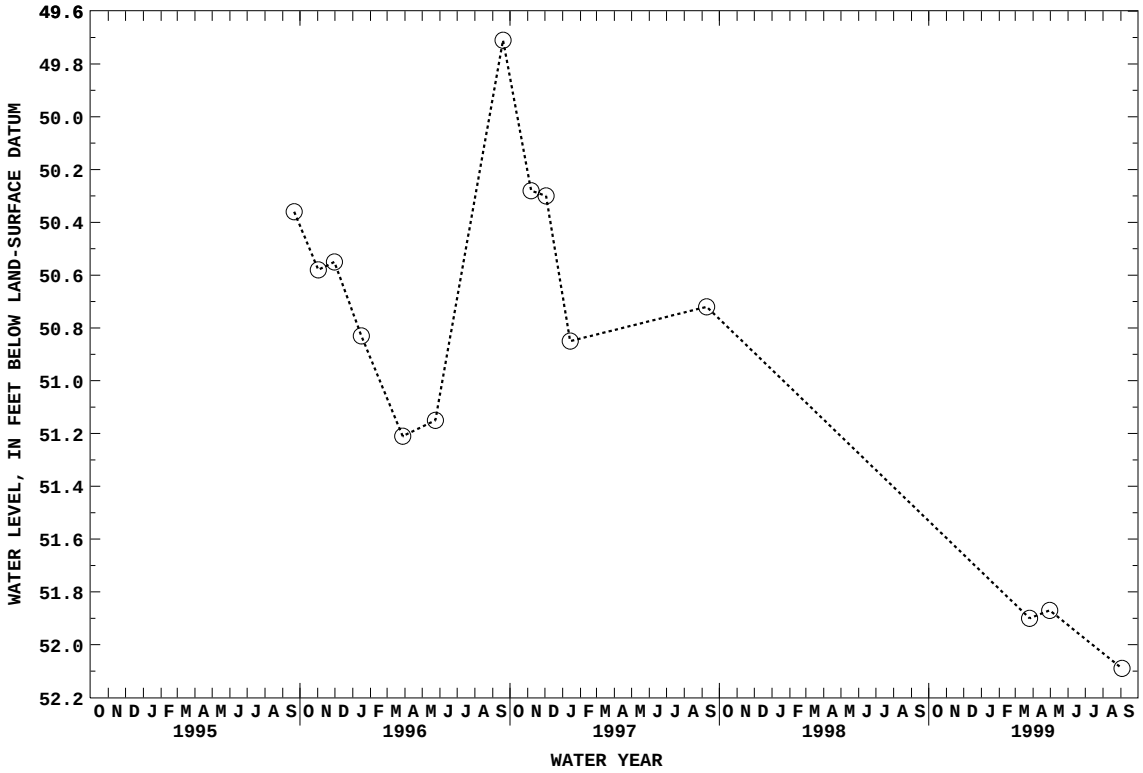
Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 2	50.58	Jan. 16	50.83	May 24	51.15	Sept. 19	49.71
Nov. 30	50.55	Mar. 28	51.21				

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 7	50.28	Dec. 3	50.30	Jan. 14	50.85	Sept. 9	50.72

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level
Mar. 26	51.90	Apr. 30	51.87	Sept. 3	52.09



182639066385200. Local number, 1056.
LOCATION.--Lat 18°26'39", long 66°38'52", Hydrologic Unit 21010002, 0.19 mi south of Hwy 2, 1.14 mi west of intersection of Hwy 2 with the Hwy 22, 1.18 mi east southeast of Escuela Federico Degetau. Owner: PR Aqueduct and Sewer Authority, Name: Santana 1.
AQUIFER.--Upper Aquifer.
WELL CHARACTERISTICS.--Abandoned production well, diameter 12 in (0.30 m), open screen 175-220 ft (53.34-60.96 m). Depth 220 ft (60.96 m).
DATUM.--Elevation of land-surface datum is about 131.0 ft (39.92 m), above mean sea level, from topographic map. Measuring point: Lowert point 1 3/8 in slanted access pipe, 0.50 ft (0.15 m), above land-surface datum.
REMARKS.--Observation well.
PERIOD OF RECORD.--August 10, 1995 to September 3, 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 101.60 ft (30.97 m), below land-surface datum, Aug. 20, 1997; lowest water level measured, 107.54 ft (32.78 m), below land-surface datum, June 3, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level
Aug. 10	103.12	Sept. 21	102.49

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level
Nov. 30	102.77	Sept. 19	101.63

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INSTANTANEOUS OBSERVATIONS

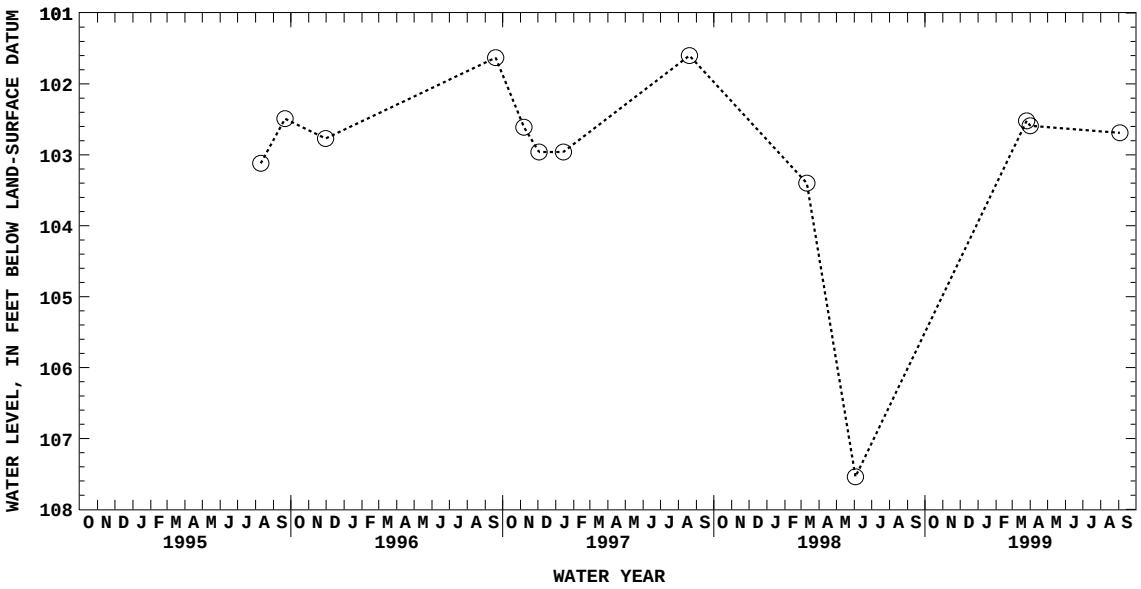
Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 7	102.61	Dec. 3	102.96	Jan. 14	102.96	Aug. 20	101.60

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level
Mar. 11	103.40	June 3	107.54

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level
Mar. 26	102.52	Apr. 1	102.59	Sept. 3	102.69



182543066341500. Local number, 205.
LOCATION.--Lat 18°25'43", long 66°34'15", Hydrologic Unit 21010002, 300 ft (91.4 m) west of Hwy 140, 0.50 mi southwest of Cruce Dávila, and 1.30 mi southwest of intersection of Hwy 140 with Hwy 22. Owner: US Geological Survey, Name: NC-5.
AQUIFER.--Montebello/Cibao Limestone.
WELL CHARACTERISTICS.--Deep test well, diameter 2.5 in (0.01 m) 0-1070 ft (0-326.1 m), open screened 1070-2564 ft (326.1-781.5 m). Depth 2564 ft (781.5 m).
DATUM.--Elevation of land-surface datum is about 312 ft (95.1 m), above mean sea level, from topographic map. Measuring point: Top of black PVC pipe, 1.25 ft (0.38 m), above land-surface datum.
REMARKS.--Observation well. Automated Digital Recorder (ADR), installed on December 10, 1986 and removed on September 30, 1989. Formerly published as 182544066341500.
PERIOD OF RECORD.--December, 1986 to September 28, 1999.
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, 89.97 ft (27.42 m), below land-surface datum, Sept. 28, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 21	37.68	Feb. 27	40.48	Aug. 27	42.27	Sept. 2	42.02
Feb. 7	38.99	Apr. 16	42.99				

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Dec. 16	29.12	Apr. 6	45.27	Aug. 27	44.53	Sept. 10	46.32
Feb. 11	44.50	June 22	43.83				

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level
Nov. 6	46.64	Nov. 8	46.71	May 10	54.30

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 25	56.20	Jan. 20	63.96	July 27	64.09	Aug. 10	65.70
Nov. 7	56.47	May 9	62.30				

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 30	67.82	Mar. 21	81.84	Aug. 13	73.91	Sept. 20	30.39

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 4	52.60	Jan. 16	78.12	May 15	76.48	Aug. 7	77.67
Nov. 7	82.07	Feb. 21	75.26	May 16	76.58	Sept. 23	78.99
Dec. 3	77.87	Apr. 1	75.55				

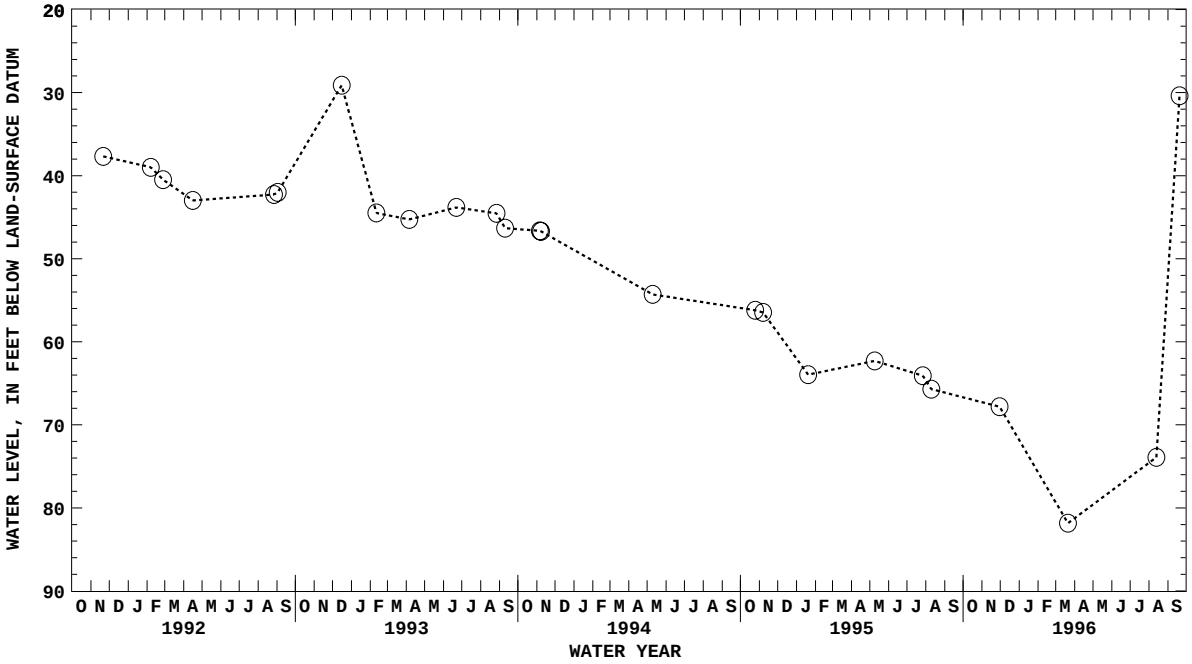
WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATIONS

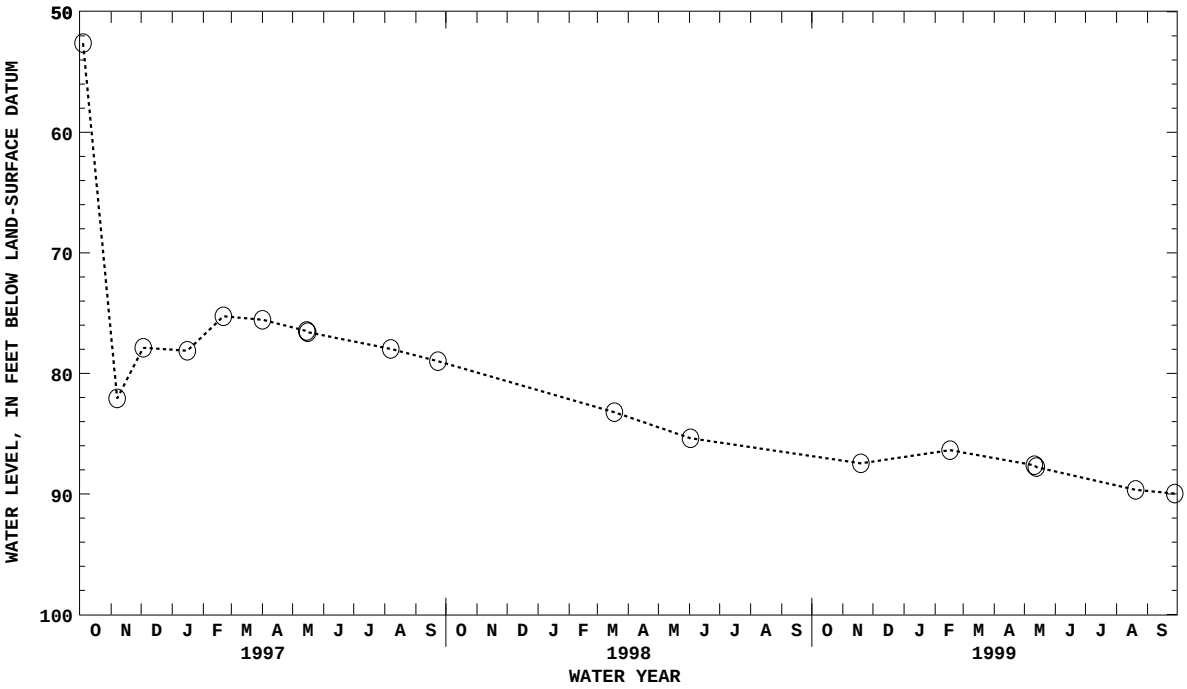
Date	Water level	Date	Water level
Mar. 18	83.22	June 2	85.38

RIO GRANDE DE MANATI BASIN--continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 19	87.46	Mar. 12	86.37	May 13	87.77	Sept. 28	89.97
Feb. 16	86.16	May 11	87.62	Aug. 20	89.66		



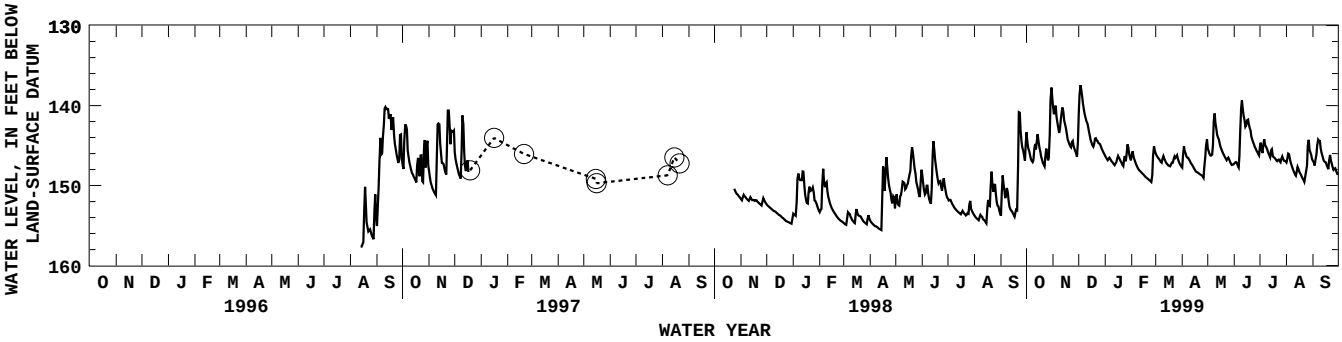


182209066340600. Local number, 1057.
LOCATION.--Lat 18°22'09", long 66°34'06", Hydrologic Unit 21010002, 0.20 north of the intersection of Hwy 140 with Hwy 642, 1.15 mi south of the intersection of Hwy 140 with Hwy 641, and approximately 100 ft west of Hwy 140. Owner: PR Aqueduct and Sewer Authority, Name: Florida 1.
AQUIFER.--Cibao Formation.
WELL CHARACTERISTICS.--Drilled water-table well, diameter 12 in (0.30 m), Depth 200 ft (61.0 m).
INSTRUMENTATION.--Pressure transducer with an electronic data logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 607 ft (185 m), above mean sea level from topographic map. Measuring point: Shelter floor 4.00 ft (1.22 m), above land-surface datum.
REMARKS.--Recording observation well. Formerly published as local number FL-1.
PERIOD OF RECORD.--August 12, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 137.91 ft (42.0 m), below land-surface datum, Sept. 22, 1998; lowest water level recorded, 157.63 ft (48.0 m), below land-surface datum, Aug. 14, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142.43	139.64	142.25	146.21	147.01	145.84	147.70	145.03	147.45	146.33	147.03	146.92
2	144.27	140.54	139.92	146.41	145.30	146.12	147.83	145.60	147.06	143.87	147.20	146.93
3	145.08	141.64	137.49	146.58	146.13	146.33	144.65	145.91	147.15	145.41	146.23	147.30
4	145.54	139.20	137.42	146.78	146.52	146.50	145.55	146.16	146.99	145.79	145.77	147.69
5	145.86	140.82	138.53	146.85	146.86	146.62	145.82	146.35	147.35	146.08	146.40	145.87
6	146.40	141.87	139.26	146.41	147.18	146.79	146.20	146.13	147.64	143.65	146.92	146.41
7	147.02	142.44	140.25	146.61	147.45	146.94	146.55	146.12	147.84	144.76	147.35	143.51
8	146.78	143.06	140.82	146.80	147.70	147.08	146.41	143.78	144.69	145.15	147.64	144.99
9	147.35	143.75	141.32	146.97	147.89	147.20	146.65	140.24	141.90	145.11	147.91	143.83
10	146.30	142.09	141.82	147.13	148.05	146.16	146.81	141.73	138.70	145.50	148.21	145.01
11	144.37	141.34	142.07	147.26	148.18	146.48	147.03	142.67	140.02	145.82	148.48	145.62
12	145.25	140.45	142.38	147.39	148.27	146.75	147.27	143.25	141.10	146.11	148.69	146.07
13	145.72	140.05	142.95	147.50	148.37	147.00	147.38	144.10	141.49	146.37	148.86	146.48
14	143.02	141.48	143.52	146.99	148.50	147.23	147.58	143.93	142.32	146.57	147.76	146.81
15	144.13	142.25	144.08	147.15	148.58	147.32	147.79	144.59	142.97	144.63	147.57	147.12
16	144.95	142.49	144.51	146.21	148.72	147.44	147.97	145.05	141.90	146.27	148.26	146.97
17	145.48	143.07	144.83	146.38	148.86	147.53	148.15	145.39	141.78	146.42	148.30	147.27
18	146.07	143.98	145.08	146.62	148.95	147.58	148.31	145.67	141.72	146.48	148.59	147.57
19	146.68	144.41	145.22	146.84	149.05	147.62	148.32	145.88	142.91	146.59	148.82	147.83
20	146.89	144.68	144.46	147.05	149.12	147.08	148.40	146.11	142.64	146.73	149.00	148.08
21	147.42	144.95	143.81	147.27	149.23	147.20	148.48	146.32	143.62	146.88	149.23	145.75
22	147.30	145.22	144.35	147.48	149.32	147.08	148.58	146.53	144.12	147.02	149.41	146.59
23	147.88	145.19	144.38	147.67	149.42	146.39	148.63	146.73	144.42	146.65	149.64	147.07
24	145.01	143.97	144.45	145.82	149.52	146.33	148.73	146.93	144.73	146.86	147.99	147.50
25	145.77	144.88	144.88	146.82	149.62	146.75	148.76	146.35	145.04	147.02	148.50	147.87
26	146.47	145.23	144.66	147.13	147.83	145.94	148.97	146.65	145.30	147.14	146.51	148.17
27	147.21	145.65	145.01	145.17	144.72	146.45	149.09	146.91	145.54	146.20	143.42	147.64
28	145.93	145.78	145.27	144.52	145.42	146.82	146.26	147.13	145.74	146.53	145.12	148.00
29	141.42	146.21	145.53	145.89	---	147.10	146.64	147.33	145.95	146.79	145.92	148.30
30	137.24	146.60	145.79	146.31	---	147.35	143.42	147.53	146.14	146.98	145.86	148.56
31	138.26	---	146.00	146.69	---	147.55	---	147.25	---	146.84	146.48	---
MEAN	145.15	143.10	142.98	146.67	147.92	146.86	147.33	145.46	144.21	146.08	147.52	146.79

WTR YR 1999 MEAN 145.83 HIGHEST 135.73 OCT. 30, 1998 LOWEST 149.64 AUG. 23, 1999

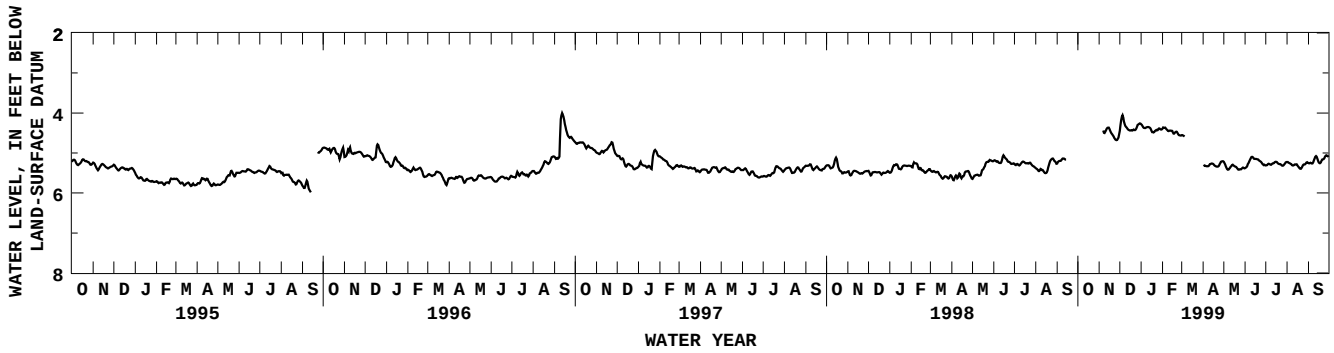


182757066325600. Local number, 206.
LOCATION.--Lat 18°27'57", long 66°32'56", Hydrologic Unit 21010002, 0.84 mi northwest of Barceloneta plaza, 0.64 mi west of Central Plazuela, and 1.96 mi southeast of Escuela Agustín Balseiro. Owner: PR Department of Agriculture, Name: Plazuela No. 2.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m), cased 16 in (0.41 m) 0-85.0 ft (0-25.9 m), open hole 85-101 ft (25.9-30.8 m). Depth 101 ft (30.8 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 7.00 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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 7, 1997.
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, 6.03 ft (1.84 m), below land-surface datum, Sept. 15, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	4.49	4.27	4.41	4.56	---	5.21	5.39	5.32	5.23	5.25
2	---	---	4.40	4.29	4.37	4.55	5.36	5.23	5.37	5.30	5.22	5.25
3	---	---	4.23	4.31	4.35	4.56	5.31	5.27	5.36	5.31	5.23	5.27
4	---	---	4.12	4.34	4.38	4.57	5.31	5.31	5.35	5.29	5.25	5.24
5	---	---	4.05	4.37	4.36	4.58	5.32	5.35	5.30	5.27	5.25	5.25
6	---	---	4.06	4.37	4.37	4.59	5.33	5.40	5.26	5.27	5.27	5.26
7	---	4.40	4.17	4.38	4.40	---	5.33	5.41	5.24	5.28	5.27	5.27
8	---	4.48	4.25	4.37	4.42	---	5.33	5.43	5.19	5.29	5.29	5.25
9	---	4.51	4.30	4.36	4.44	---	5.33	5.40	5.16	5.30	5.31	5.20
10	---	4.49	4.34	4.35	4.46	---	5.32	5.39	5.11	5.29	5.31	5.16
11	---	4.44	4.35	4.35	4.45	---	5.28	5.35	5.10	5.26	5.31	5.11
12	---	4.42	4.37	4.35	4.44	---	5.28	5.34	5.09	5.26	5.29	5.08
13	---	4.37	4.41	4.35	4.44	---	5.27	5.31	5.11	5.26	5.29	5.07
14	---	4.37	4.42	4.37	4.45	---	5.26	5.29	5.14	5.24	5.29	5.11
15	---	4.36	4.43	4.38	4.44	---	5.27	5.30	5.15	5.22	5.28	5.18
16	---	4.37	4.44	4.42	4.46	---	5.27	5.31	5.15	5.22	5.29	5.22
17	---	4.42	4.44	4.48	4.50	---	5.29	5.33	5.15	5.22	5.33	5.25
18	---	4.47	4.43	4.47	4.53	---	5.31	5.34	5.15	5.23	5.34	5.26
19	---	4.50	4.43	4.48	4.50	---	5.32	5.34	5.16	5.26	5.37	5.25
20	---	4.52	4.45	4.49	4.48	---	5.33	5.36	5.16	5.27	5.39	5.22
21	---	4.55	4.42	4.46	4.47	---	5.34	5.38	5.17	5.28	5.40	5.17
22	---	4.57	4.41	4.45	4.46	---	5.34	5.41	5.19	5.28	5.39	5.16
23	---	4.60	4.44	4.43	4.48	---	5.34	5.42	5.20	5.28	5.36	5.16
24	---	4.64	4.42	4.42	4.53	---	5.33	5.42	5.21	5.30	5.32	5.15
25	---	4.66	4.41	4.45	4.55	---	5.30	5.40	5.23	5.31	5.29	5.11
26	---	4.68	4.37	4.41	4.56	---	5.27	5.42	5.26	5.32	5.29	5.08
27	---	4.68	4.31	4.39	4.56	---	5.23	5.40	5.28	5.31	5.29	5.05
28	---	4.67	4.29	4.38	4.57	---	5.21	5.39	5.30	5.30	5.28	5.07
29	---	4.63	4.28	4.40	---	---	5.21	5.36	5.30	5.27	5.26	5.06
30	---	4.60	4.26	4.42	---	---	5.20	5.37	5.29	5.25	5.22	5.08
31	---	---	4.26	4.41	---	---	---	5.38	---	5.22	5.24	---
MEAN	---	4.52	4.34	4.39	4.46	4.57	5.30	5.36	5.22	5.27	5.30	5.17

WTR YR 1999 MEAN 4.93 HIGHEST 4.02 DEC. 5, 1998 LOWEST 5.46 MAY 7, 8, 9, 1999

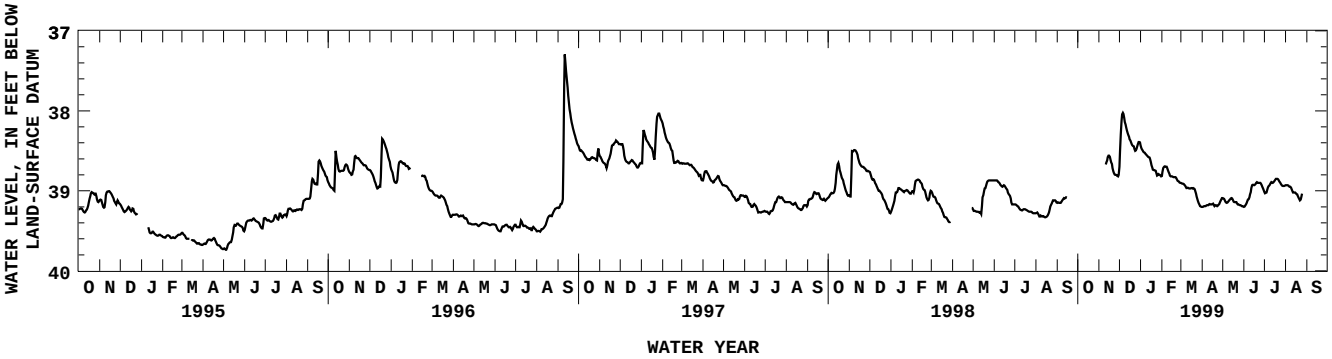


182710066303700. Local number, 207.
LOCATION.--Lat 18°27'10", long 66°30'37", Hydrologic Unit 21010002, 1.92 mi east of Barceloneta plaza, 1.35 mi north of Central Monserrate, and 2.68 mi northeast of Escuela José Cordero. Owner: PR Aqueduct and Sewer Authority, Name: Cantito La Luisa.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-30.0 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).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 59.0 ft (18.0 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 2.80 ft (0.85 m), above land-surface datum. Prior to Nov. 20, 1992, hole on side of casing, 2.00 ft (0.61 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 5, 1997.
PERIOD OF RECORD.--October 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 36.4 ft (11.1 m), below land-surface datum, May 15, 1986; lowest water level recorded, 89.8 ft (27.4 m), below land-surface datum, Oct. 5, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	38.78	38.40	38.82	38.90	39.20	39.09	39.20	39.00	38.93	---
2	---	---	38.62	38.46	38.81	38.90	39.20	39.09	39.20	39.03	38.93	---
3	---	---	38.40	38.47	38.72	38.91	39.20	39.10	39.19	39.03	38.93	---
4	---	---	38.18	38.49	38.71	38.91	39.19	39.10	39.18	39.02	38.93	---
5	---	---	38.07	38.50	38.70	38.91	39.19	39.13	39.16	39.02	38.93	---
6	---	---	38.02	38.52	38.69	38.92	39.19	39.14	39.15	38.97	38.94	---
7	---	---	38.03	38.52	38.70	38.93	39.19	39.15	39.11	38.95	38.95	---
8	---	---	38.05	38.53	38.70	38.94	39.18	39.15	39.11	38.94	38.95	---
9	---	---	38.13	38.54	38.70	38.96	39.18	39.14	39.10	38.93	38.95	---
10	---	---	38.15	38.55	38.73	38.97	39.18	39.13	39.06	38.92	38.97	---
11	---	38.69	38.19	38.56	38.76	38.96	39.18	39.12	39.03	38.89	38.99	---
12	---	38.65	38.22	38.57	38.77	38.96	39.16	39.11	39.00	38.89	39.02	---
13	---	38.64	38.27	38.58	38.80	38.97	39.17	39.10	38.93	38.90	39.02	---
14	---	38.60	38.29	38.58	38.82	38.97	39.17	39.09	38.93	38.90	39.02	---
15	---	38.56	38.31	38.59	38.82	38.97	39.17	39.09	38.92	38.89	39.02	---
16	---	38.56	38.34	38.62	38.82	38.97	39.17	39.10	38.93	38.88	39.02	---
17	---	38.56	38.37	38.67	38.82	38.96	39.16	39.13	38.93	38.87	39.04	---
18	---	38.59	38.37	38.69	38.83	38.97	39.16	39.14	38.92	38.85	39.04	---
19	---	38.64	38.41	38.73	38.83	38.97	39.19	39.14	38.91	38.85	39.05	---
20	---	38.65	38.42	38.74	38.83	38.96	39.19	39.14	38.89	38.85	39.08	---
21	---	38.68	38.44	38.74	38.83	38.98	39.18	39.14	38.89	38.85	39.09	---
22	---	38.75	38.44	38.74	38.83	38.98	39.18	39.14	38.90	38.86	39.12	---
23	---	38.76	38.45	38.75	38.84	39.03	39.19	39.17	38.90	38.88	39.12	---
24	---	38.79	38.50	38.75	38.87	39.04	39.19	39.17	38.90	38.89	39.10	---
25	---	38.80	38.50	38.80	38.88	39.10	39.18	39.17	38.90	38.90	39.06	---
26	---	38.80	38.49	38.82	38.88	39.11	39.17	39.18	38.90	38.92	39.01	---
27	---	38.80	38.46	38.79	38.89	39.15	39.16	39.18	38.92	38.93	---	---
28	---	38.81	38.44	38.79	38.90	39.16	39.13	39.18	38.94	38.94	---	---
29	---	38.82	38.39	38.80	---	39.19	39.12	39.19	38.96	38.94	---	---
30	---	38.82	38.39	38.80	---	39.19	39.09	39.19	38.98	38.94	---	---
31	---	---	38.39	38.82	---	39.20	---	39.19	---	38.94	---	---
MEAN	---	38.70	38.34	38.64	38.80	39.00	39.17	39.14	39.00	38.92	39.01	---

WTR YR 1999 MEAN 38.88 HIGHEST 38.02 DEC. 6, 7, 1998 LOWEST 39.20 MAR. 31, APR. 1-3, 5-8 MAY 31, JUNE 1-3, 1999

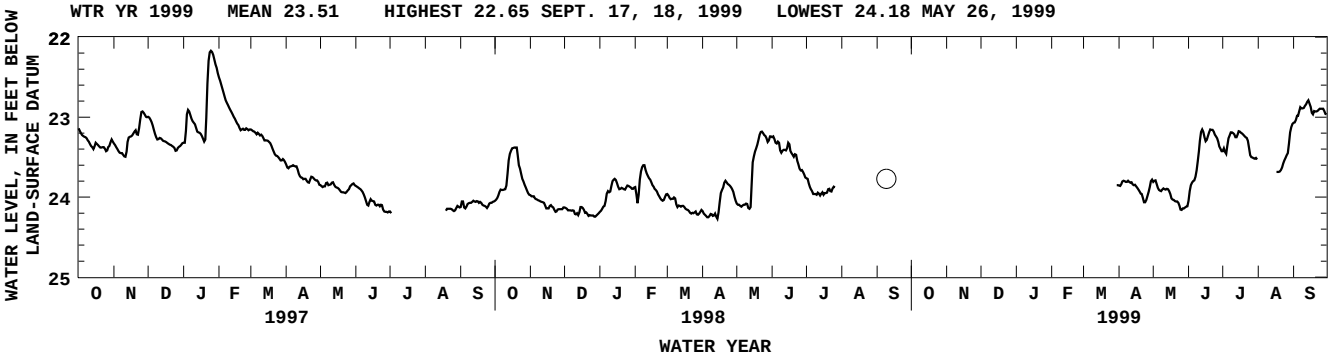


182549066304300. Local number, 166.
LOCATION.--Lat 18°25'49", long 66°30'43", Hydrologic Unit 21010002, 0.95 mi east of the Rio Grande de Manatí Hwy 2 bridge, 0.40 mi southwest of Central Monserrate, 1.07 mi east of the intersection of Hwy 666 with Hwy 2, 1.20 mi west of the intersection of Hwy 685 with Hwy 2, 0.01 mi north of Hwy 2. Owner: PR Aqueduct and Sewer Authority Name: Manatí 3.
AQUIFER.--Alluvial deposits.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 0-100 ft (0-39.49 m), diameter 14 in (0.36 m), cased 0-140 ft (0-42.7 m), slotted 80-90 ft (24.7-27.4 m), and 130-140 ft (39.6-42.7 m). Depth 140 ft (42.7 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 29.50 ft (9.0 m), above mean-sea level, from topographic map. Measuring point: A hole in the side of the 20 in (0.51 m) diameter well casing, 1.65 ft (0.50 m) above land-surface datum. Prior May 31, 1996, top of 14 in (0.36 m) casing, 0.80 ft (0.24 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 31, 1996. Formerly published as 182542066305200. From September 9, 1998, monthly measurements only. Electronic Data Logger (EDL), installed on March 29, 1999.
PERIOD OF RECORD.--January 1982 to December 1984, discontinued, May 31, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 22.11 ft (6.74 m), below land-surface datum, Jan. 25, 1997; lowest water level measured, 26.36 ft (8.04 m), below land-surface datum, Feb. 3, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	23.84	23.81	24.11	23.45	23.56	23.08
2	---	---	---	---	---	---	23.87	23.81	23.98	23.40	---	23.06
3	---	---	---	---	---	---	23.85	23.78	23.87	23.38	---	23.07
4	---	---	---	---	---	---	23.82	23.80	23.83	23.49	---	23.00
5	---	---	---	---	---	---	23.79	23.87	23.81	23.43	---	22.97
6	---	---	---	---	---	---	23.80	23.90	23.79	23.28	---	23.00
7	---	---	---	---	---	---	23.80	23.92	23.79	23.25	---	22.86
8	---	---	---	---	---	---	23.82	23.92	23.70	23.21	---	22.89
9	---	---	---	---	---	---	23.80	23.93	23.63	23.17	---	22.89
10	---	---	---	---	---	---	23.79	23.88	23.47	23.21	---	22.89
11	---	---	---	---	---	---	23.83	23.90	23.38	23.19	---	22.88
12	---	---	---	---	---	---	23.81	23.90	23.21	23.24	---	22.84
13	---	---	---	---	---	---	23.82	23.91	23.16	23.26	---	22.84
14	---	---	---	---	---	---	23.86	23.88	23.15	23.24	---	22.78
15	---	---	---	---	---	---	23.84	23.92	23.22	23.19	---	22.80
16	---	---	---	---	---	---	23.85	23.93	23.28	23.16	---	22.86
17	---	---	---	---	---	---	23.88	23.99	23.32	23.20	23.68	22.88
18	---	---	---	---	---	---	23.89	24.04	23.25	23.19	23.69	23.01
19	---	---	---	---	---	---	23.92	24.02	23.22	23.22	23.68	22.92
20	---	---	---	---	---	---	23.94	24.05	23.16	23.22	23.69	22.93
21	---	---	---	---	---	---	23.97	24.05	23.15	23.25	23.67	22.93
22	---	---	---	---	---	---	23.95	24.06	23.17	23.25	23.65	22.93
23	---	---	---	---	---	---	24.07	24.05	23.15	23.27	23.61	22.92
24	---	---	---	---	---	---	24.06	24.09	23.21	23.32	23.55	22.90
25	---	---	---	---	---	---	24.07	24.13	23.23	23.45	23.53	22.89
26	---	---	---	---	---	---	24.00	24.18	23.25	23.50	23.49	22.90
27	---	---	---	---	---	---	23.97	24.14	23.28	23.50	23.46	22.89
28	---	---	---	---	---	---	23.90	24.14	23.34	23.51	23.44	22.90
29	---	---	---	---	---	---	23.85	24.14	23.39	23.52	23.22	22.95
30	---	---	---	---	---	23.84	23.75	24.12	23.40	23.52	23.16	22.97
31	---	---	---	---	---	23.86	---	24.12	---	23.50	23.09	---
MEAN	---	---	---	---	---	23.85	23.88	23.98	23.43	23.32	23.51	22.92

WTR YR 1999 MEAN 23.51 HIGHEST 22.65 SEPT. 17, 18, 1999 LOWEST 24.18 MAY 26, 1999

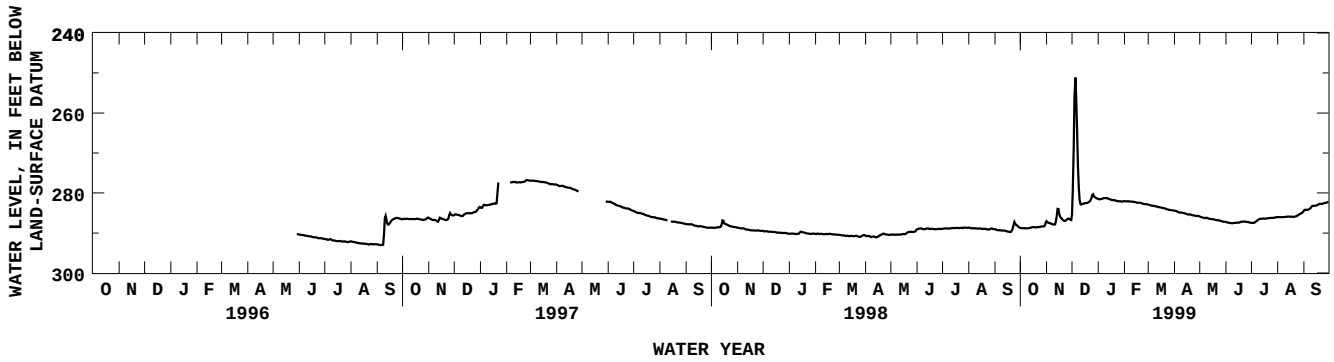


182506066280200. Local number, 1076.
LOCATION.--Lat 18°25'06", long 66°28'02", Hydrologic Unit 21010002, 0.72 mi southwest of the intersection of Hwy 686 with Hwy 670, 0.73 mi southeast of intersection of Hwy 149 with Hwy 670, and 0.78 mi northeast of Escuela Sabana Seca. Owner: US Geological Survey, WRD, Name: USGS Hill 2.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), screened 360-410 ft (110-125 m). Depth 410 ft (125 m).
INSTRUMENTATION.--Pressure transducer with integrated electronic data logger--60 minutes interval.
DATUM.--Elevation of land-surface datum is about 312 ft (95.0 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.76 ft (1.15 m), above land-surface datum.
REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on May 28, 1996. Formerly published as local number HI-2.
PERIOD OF RECORD.--May 28, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 249.79 ft (76.1 m), below land-surface datum, Dec. 5, 1998; lowest water level recorded, 293.09 ft (89.3 m), below land-surface datum, Sept. 5, 6, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	288.71	286.83	286.75	281.44	282.04	282.84	284.42	285.85	287.23	287.49	286.05	284.62
2	288.74	287.25	283.93	281.52	282.08	282.94	284.43	285.92	287.30	287.45	286.06	284.26
3	288.81	287.38	275.07	281.57	282.06	282.98	284.47	286.03	287.35	287.48	286.05	284.19
4	288.81	287.45	262.33	281.54	282.11	283.06	284.56	286.07	287.41	287.47	286.04	284.22
5	288.78	287.47	250.00	281.47	282.05	283.15	284.67	286.16	287.44	287.44	286.05	284.24
6	288.78	287.61	252.28	281.47	282.08	283.18	284.79	286.19	287.50	287.23	286.05	284.22
7	288.81	287.75	260.34	281.40	282.08	283.18	284.87	286.23	287.51	287.18	286.04	284.10
8	288.85	287.80	269.06	281.30	282.13	283.20	284.88	286.33	287.55	286.94	286.06	284.00
9	288.83	287.79	276.96	281.27	282.16	283.31	284.90	286.22	287.63	286.77	286.01	283.88
10	288.83	287.89	280.82	281.26	282.14	283.25	284.90	286.17	287.55	286.61	286.00	283.58
11	288.83	287.94	282.60	281.27	282.16	283.36	284.98	286.33	287.44	286.47	285.97	283.32
12	288.79	287.74	282.99	281.20	282.26	283.40	285.04	286.38	287.46	286.44	285.95	283.20
13	288.70	286.57	282.83	281.43	282.23	283.49	285.03	286.44	287.49	286.47	285.92	283.22
14	288.68	284.78	282.67	281.52	282.25	283.54	285.08	286.49	287.48	286.45	285.89	283.21
15	288.61	283.19	282.69	281.52	282.36	283.53	285.18	286.58	287.40	286.39	285.93	283.22
16	288.51	284.81	282.64	281.61	282.41	283.62	285.25	286.54	287.37	286.39	285.97	283.12
17	288.52	285.79	282.50	281.75	282.44	283.69	285.34	286.54	287.43	286.42	285.87	283.04
18	288.57	286.09	282.54	281.77	282.44	283.70	285.39	286.59	287.28	286.43	285.87	282.95
19	288.61	286.37	282.53	281.81	282.44	283.72	285.40	286.66	287.22	286.38	285.98	282.77
20	288.61	286.59	282.43	281.74	282.43	283.81	285.35	286.72	287.18	286.34	286.00	282.72
21	288.57	286.81	282.33	281.82	282.54	283.87	285.40	286.79	287.19	286.34	285.94	282.68
22	288.52	286.97	282.18	281.95	282.56	283.90	285.53	286.77	287.14	286.30	285.84	282.73
23	288.55	287.05	281.91	281.95	282.71	284.06	285.60	286.77	287.13	286.25	285.89	282.74
24	288.48	286.85	281.71	282.00	282.76	284.11	285.59	286.86	287.16	286.26	285.68	282.67
25	288.44	286.82	280.98	282.05	282.79	284.16	285.59	286.94	287.24	286.23	285.63	282.60
26	288.39	286.46	279.95	282.09	282.74	284.20	285.67	286.97	287.24	286.21	285.54	282.48
27	288.42	286.40	280.68	282.06	282.82	284.28	285.78	287.01	287.27	286.24	285.32	282.45
28	288.35	286.47	281.00	282.08	282.84	284.25	285.75	287.08	287.27	286.21	285.16	282.47
29	288.36	286.59	281.10	282.16	---	284.28	285.69	287.15	287.34	286.16	285.16	282.33
30	288.27	286.72	281.29	282.13	---	284.33	285.71	287.19	287.37	286.06	285.01	282.24
31	287.78	---	281.40	282.07	---	284.39	---	287.15	---	286.06	284.82	---
MEAN	288.60	286.74	278.02	281.68	282.36	283.64	285.17	286.55	287.35	286.60	285.80	283.25

WTR YR 1999 MEAN 284.65 HIGHEST 249.79 DEC. 5,1998 LOWEST 288.88 OCT. 3, 1998



182308066260400. Local number, 210.
LOCATION.--Lat 18°23'08", long 66°26'04", Hydrologic Unit 21010002, 4.88 mi southeast of Manatí plaza, 5.24 mi southwest of Vega Baja plaza, and 2.25 mi west of Escuela Evaristo Camacho. Owner: Gelo Martínez, Name: Gelo Martínez well.
AQUIFER.--Lares Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.20 m), cased 8 in (0.20 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 574 ft (174.9 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.30 ft (1.01 m), above land-surface datum. Prior to January 14, 1993, hole on side of casing, 2.00 ft (0.61 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 17, 1997.
PERIOD OF RECORD.--October 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 40.56 ft (12.4 m), below land-surface datum, May 22, 1986; lowest water level recorded, 85.50 ft (26.1 m), below land-surface datum, Oct. 14, 15, 1994.

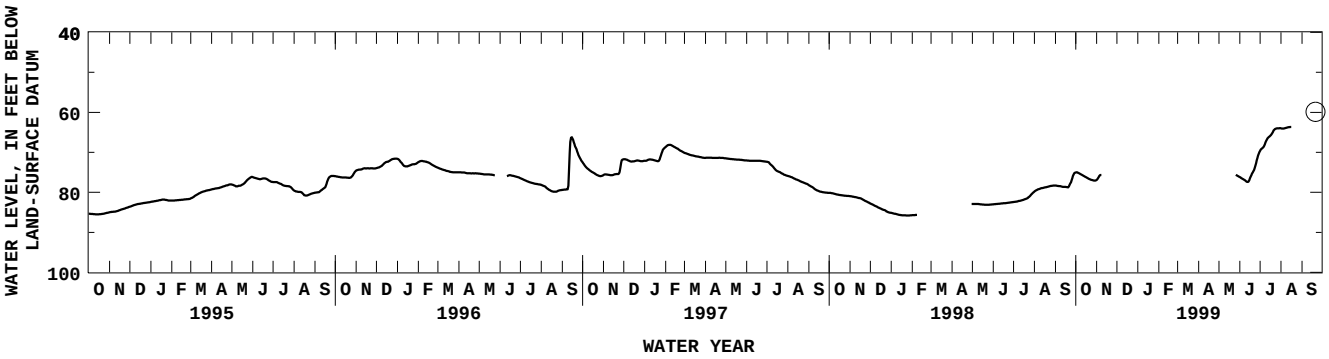
WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75.06	77.01	---	---	---	---	---	---	76.14	69.77	63.97	---
2	74.99	76.86	---	---	---	---	---	---	76.25	69.43	64.02	---
3	75.00	76.61	---	---	---	---	---	---	76.36	69.23	64.05	---
4	75.03	76.33	---	---	---	---	---	---	76.46	69.06	64.05	---
5	75.11	76.02	---	---	---	---	---	---	76.56	68.93	64.05	---
6	75.18	75.79	---	---	---	---	---	---	76.65	68.78	64.03	---
7	75.26	75.68	---	---	---	---	---	---	76.78	68.58	63.97	---
8	75.36	75.65	---	---	---	---	---	---	76.87	68.25	63.93	---
9	75.48	75.66	---	---	---	---	---	---	76.98	67.75	63.88	---
10	75.56	---	---	---	---	---	---	---	77.15	67.32	63.81	---
11	75.64	---	---	---	---	---	---	---	77.29	66.92	63.77	---
12	75.75	---	---	---	---	---	---	---	77.40	66.63	63.74	---
13	75.85	---	---	---	---	---	---	---	77.40	66.40	63.71	---
14	75.94	---	---	---	---	---	---	---	77.34	66.21	63.68	---
15	76.03	---	---	---	---	---	---	---	77.21	66.07	63.64	---
16	76.13	---	---	---	---	---	---	---	76.75	65.93	63.64	---
17	76.21	---	---	---	---	---	---	---	76.29	65.78	63.66	---
18	76.33	---	---	---	---	---	---	---	75.89	65.61	---	---
19	76.43	---	---	---	---	---	---	---	75.50	65.40	---	---
20	76.54	---	---	---	---	---	---	---	75.16	65.04	---	---
21	76.63	---	---	---	---	---	---	---	74.91	64.67	---	---
22	76.70	---	---	---	---	---	---	---	74.63	64.42	---	---
23	76.77	---	---	---	---	---	---	---	74.23	64.24	---	---
24	76.86	---	---	---	---	---	---	---	73.70	64.12	---	---
25	76.91	---	---	---	---	---	---	---	73.05	64.06	---	---
26	76.94	---	---	---	---	---	---	75.58	72.36	64.02	---	---
27	77.00	---	---	---	---	---	---	75.65	71.67	64.00	---	---
28	77.06	---	---	---	---	---	---	75.75	71.09	63.99	---	---
29	77.08	---	---	---	---	---	---	75.85	70.56	63.99	---	---
30	77.07	---	---	---	---	---	---	75.96	70.16	64.00	---	---
31	77.01	---	---	---	---	---	---	76.02	---	63.89	---	---
MEAN	76.09	76.18	---	---	---	---	---	75.80	75.29	66.21	63.86	---

WTR YR 1999 MEAN 71.74 HIGHEST 63.63 AUG. 15, 16, 1999 LOWEST 77.40 JUNE 12, 13, 14, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level
Sept. 21	59.88

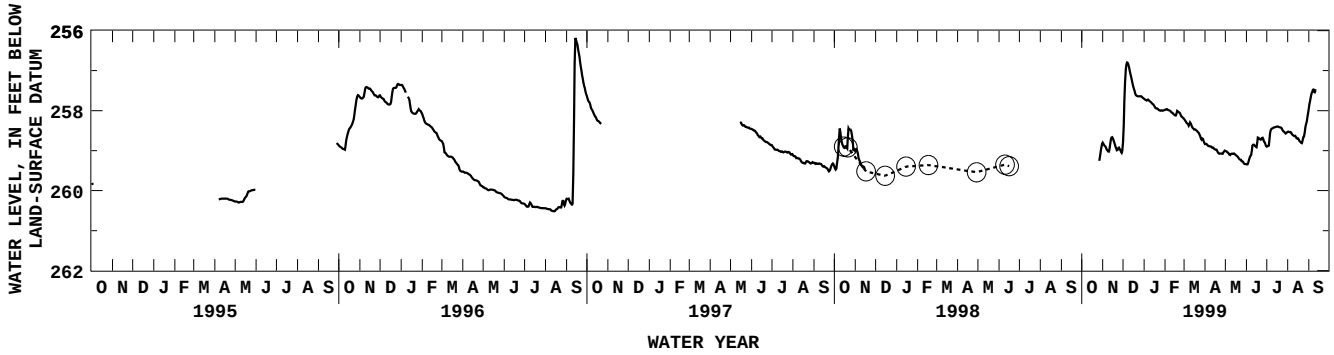


182548066265700. Local number 1077.
LOCATION.Lat 18°25'48", long 66°26'57", Hydrologic Unit 21010002, 0.92 mi east of the intersection of Hwy 686 with Hwy 670, 0.79 mi south of Hwy 2, 0.27 mi east of the intersection of Hwy 672 with Hwy 670, and 0.01 mi south of Hwy 670. Owner: Puerto Rico Aqueduct and Sewer Authority, Name: Coto Sur No. 7.
AQUIFER.--Tertiary Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 270.0 ft (82.3 m), above mean sea level, from topographic map. Measuring point: Top of 20 in (0.51 m) casing, 2.30 ft (0.70 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorded (ADR), installed on July 11, 1994, replaced by an Electronic Data Logger (EDL), installed on May 15, 1997. From Oct. 15, 1997, monthly measurements only. Formerly published as local number CS-7.
PERIOD OF RECORD.--July 11, 1994 to September 14, 1999, discontinued.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 254.41 ft (77.54 m), below land-surface datum, Sept. 15, 1996; lowest water level recorded, 260.63 ft (79.44 m), below land-surface datum, Aug. 14, 15, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	258.79	258.95	257.70	257.98	258.20	258.83	258.99	259.34	258.92	258.54	258.00
2	---	258.81	258.64	257.71	257.98	258.22	258.84	259.03	259.33	258.88	258.52	257.89
3	---	258.84	258.06	257.73	257.97	258.23	258.82	259.00	259.36	258.89	258.53	257.80
4	---	258.87	257.49	257.73	257.96	258.28	258.84	259.04	259.31	258.88	258.54	257.70
5	---	258.89	257.06	257.74	257.97	258.29	258.86	259.05	259.25	258.87	258.54	257.60
6	---	258.91	256.88	257.75	257.99	258.33	258.88	259.06	259.20	258.60	258.53	257.56
7	---	258.95	256.81	257.72	257.98	258.32	258.89	259.08	259.14	258.50	258.56	257.51
8	---	259.00	256.78	257.73	258.00	258.37	258.88	259.12	259.12	258.48	258.60	257.45
9	---	258.99	256.83	257.75	258.00	258.38	258.91	259.10	259.10	258.44	258.61	257.50
10	---	259.05	256.88	257.77	258.02	258.29	258.88	259.07	258.90	258.45	258.62	257.56
11	---	259.00	256.98	257.77	258.05	258.30	258.92	259.08	258.85	258.43	258.64	257.52
12	---	258.95	257.04	257.80	258.05	258.35	258.93	259.07	258.85	258.42	258.63	257.47
13	---	258.74	257.14	257.81	258.06	258.39	258.92	259.09	258.85	258.42	258.63	257.53
14	---	258.70	257.19	257.84	258.10	258.43	258.93	259.05	258.88	258.41	258.68	---
15	---	258.65	257.28	257.84	258.09	258.45	258.97	259.09	258.90	258.41	258.70	---
16	---	258.68	257.37	257.86	258.12	258.46	258.95	259.09	258.91	258.40	258.70	---
17	---	258.72	257.43	257.90	258.12	258.48	258.99	259.12	258.92	258.40	258.69	---
18	---	258.76	257.47	257.92	258.12	258.46	258.96	259.12	258.67	258.39	258.73	---
19	---	258.83	257.54	257.95	258.01	258.48	258.99	259.15	258.68	258.41	258.77	---
20	---	258.88	257.60	257.94	258.00	258.50	259.04	259.15	258.69	258.41	258.78	---
21	---	258.93	257.63	257.95	258.04	258.51	259.05	259.20	258.71	258.42	258.80	---
22	---	258.97	257.62	257.96	258.03	258.54	259.08	259.19	258.71	258.42	258.82	---
23	---	259.01	257.65	257.98	258.06	258.55	259.07	259.24	258.74	258.43	258.81	---
24	---	258.95	257.63	257.99	258.07	258.59	259.07	259.21	258.70	258.46	258.67	---
25	---	258.92	257.65	257.99	258.14	258.61	259.07	259.25	258.67	258.49	258.65	---
26	---	258.93	257.63	258.01	258.14	258.68	259.07	259.28	258.69	258.52	258.65	---
27	259.31	258.98	257.65	257.98	258.17	258.73	259.08	259.26	258.75	258.52	258.45	---
28	259.20	259.00	257.63	258.00	258.18	258.72	259.07	259.30	258.79	258.55	258.36	---
29	259.09	259.05	257.65	258.00	---	258.68	259.03	259.32	258.81	258.57	258.32	---
30	258.98	259.06	257.67	258.00	---	258.73	259.01	259.34	258.85	258.58	258.23	---
31	258.86	---	257.68	257.98	---	258.80	---	259.33	---	258.54	258.13	---
MEAN	259.09	258.89	257.47	257.86	258.05	258.46	258.96	259.14	258.92	258.53	258.59	257.62

WTR YR 1999 MEAN 258.46 HIGHEST 256.76 DEC. 8, 1998 LOWEST 259.38 JUNE 3, 1999

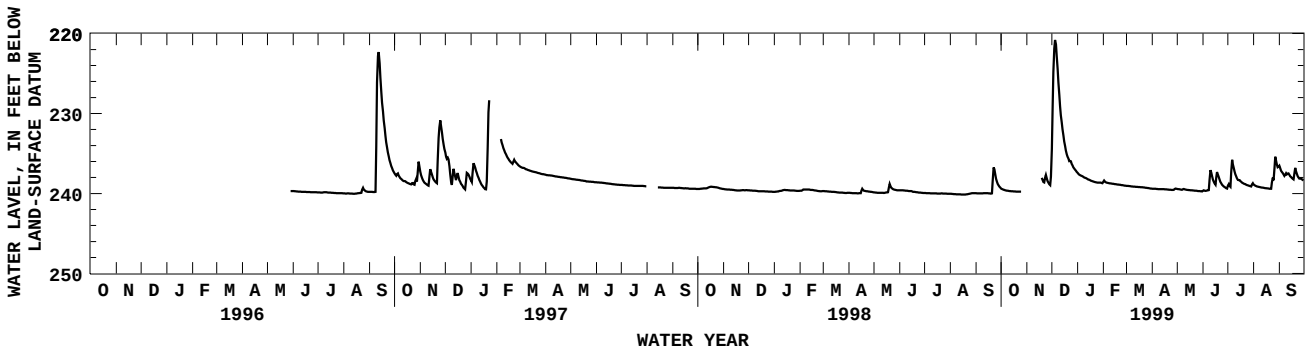


182614066261500. Local number, 1101.
LOCATION.--Lat 18°26'14", long 66°26'15", Hydrologic Unit 21010002, 1.80 mi east of the intersection of Hwy 686 with Hwy 670, 0.30 mi south of Hwy 2, 0.70 mi northeast of Escuela Ramirez de Arellano, and 0.32 mi north of Hwy 670. Owner: US Geological Survey, WRD, Name: Palo Alto 2.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), screened 265-310 ft (80.8-94.5 m). Depth 310 ft (94.5 m).
INSTRUMENTATION.-Pressure transducer with integrated electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 245.5 ft (74.8 m), above mean sea level, from topographic survey. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.79 ft (1.16 m), above land-surface datum.
REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on May 28, 1996. Formerly published as local number PA-2.
PERIOD OF RECORD.--May 28, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 220.55 ft (67.2 m), below land-surface datum, Dec. 6 1998; lowest water level recorded, 240.14 ft (73.2 m), below land-surface datum, Aug. 18, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	239.34	---	236.82	237.35	238.72	239.03	239.39	239.43	239.73	239.40	238.81	236.34
2	239.41	---	232.05	237.47	238.31	239.04	239.40	239.44	239.57	238.71	238.93	236.70
3	239.45	---	226.75	237.57	238.45	239.04	239.40	239.45	239.64	238.95	238.99	237.02
4	239.49	---	222.86	237.67	238.55	239.06	239.40	239.47	239.67	239.12	239.05	237.29
5	239.54	---	220.86	237.74	238.61	239.07	239.40	239.49	239.65	239.20	239.10	237.34
6	239.57	---	220.73	237.75	238.65	239.09	239.42	239.50	239.62	235.49	239.12	237.55
7	239.60	---	221.99	237.82	238.69	239.10	239.43	239.53	239.60	236.06	239.16	237.73
8	239.62	---	223.63	237.89	238.70	239.11	239.44	239.54	239.58	236.63	239.18	237.86
9	239.65	---	225.28	237.96	238.72	239.14	239.45	239.38	239.56	237.06	239.20	237.38
10	239.66	---	226.92	238.02	238.73	239.14	239.45	239.46	237.05	237.43	239.22	237.52
11	239.68	---	228.47	238.04	238.75	239.15	239.45	239.50	237.08	237.74	239.25	237.67
12	239.70	---	229.73	238.10	238.78	239.15	239.45	239.52	237.66	238.00	239.26	237.36
13	239.70	---	230.70	238.16	238.79	239.16	239.45	239.54	238.09	238.21	239.28	237.60
14	239.72	---	231.55	238.22	238.79	239.17	239.46	239.55	238.42	238.38	239.30	237.77
15	239.72	---	232.39	238.26	238.82	239.18	239.46	239.56	238.66	238.25	239.32	237.90
16	239.73	---	233.14	238.31	238.83	239.19	239.46	239.57	238.82	238.39	239.33	238.00
17	239.73	---	233.79	238.36	238.85	239.20	239.47	239.58	238.96	238.51	239.34	238.10
18	239.74	---	234.38	238.41	238.86	239.20	239.48	239.59	237.02	238.59	239.35	238.19
19	239.76	237.87	234.90	238.45	238.88	239.21	239.49	239.59	237.60	238.67	239.38	238.26
20	239.76	238.21	235.33	238.48	238.88	239.21	239.50	239.60	237.71	238.72	239.40	236.58
21	239.77	238.47	235.45	238.52	238.90	239.22	239.51	239.62	238.14	238.78	239.41	237.01
22	239.77	238.66	235.83	238.55	238.91	239.23	239.52	239.63	238.43	238.82	239.41	237.40
23	239.77	238.56	236.05	238.57	238.93	239.25	239.53	239.64	238.65	238.86	239.42	237.70
24	239.78	237.41	235.81	238.59	238.95	239.27	239.54	239.65	238.82	238.92	237.81	237.93
25	239.77	237.95	236.15	238.62	238.97	239.28	239.54	239.66	238.96	238.96	238.20	238.08
26	239.77	238.30	236.40	238.64	238.98	239.29	239.54	239.68	239.07	238.99	238.50	238.20
27	---	238.57	236.62	238.65	239.01	239.31	239.54	239.69	239.16	239.03	235.14	238.01
28	---	238.77	236.83	238.62	239.02	239.32	239.52	239.70	239.23	239.07	235.66	238.17
29	---	238.91	236.92	238.63	---	239.34	239.35	239.70	239.30	239.10	236.29	238.27
30	---	238.97	237.09	238.66	---	239.36	239.40	239.71	239.35	239.12	236.50	238.34
31	---	---	237.23	238.69	---	239.38	---	239.73	---	238.62	236.93	---
MEAN	239.66	238.39	231.70	238.22	238.79	239.19	239.46	239.57	238.76	238.38	238.62	237.64

WTR YR 1999 MEAN 238.16 HIGHEST 220.55 DEC. 6, 1998 LOWEST 239.79 OCT. 23, 24, 25, 1998

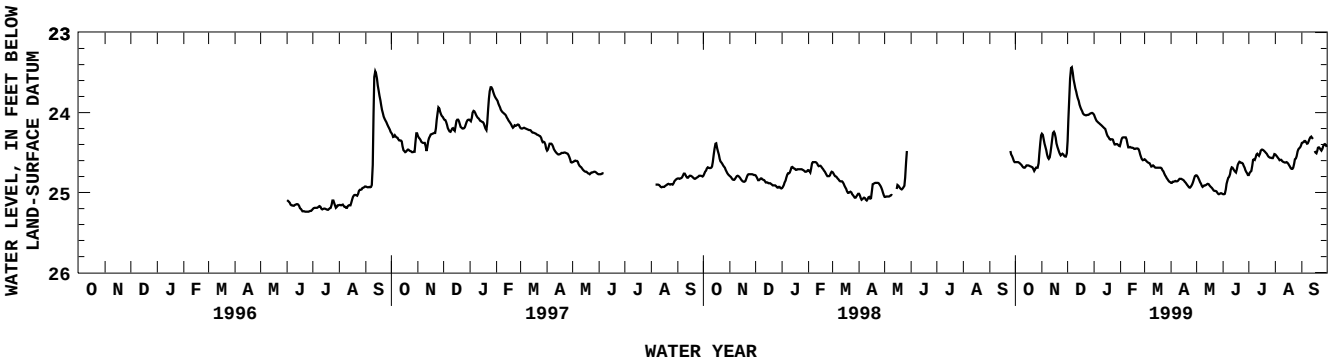


182712066251700. Local number, 1102.
LOCATION.--Lat 18°27'12", long 66°25'17", Hydrologic Unit 21010002, 0.60 mi north of the intersection of Hwy 687 with Hwy 2, 0.55 mi southeast of the eastern shoreline of Laguna Tortuguero, 0.32 mi east of Laguna Rica, and 0.12 mi west of Hwy 687. Owner: US Geological Survey WRD, Name: USGS Tortuguero TW-3.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), screened 68-218 ft (20.7-66.4 m). Depth 218 ft (66.4 m).
INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 30.0 ft (9.0 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.40 ft (1.04 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on June 10, 1999. Formerly published as local number TO-3.
PERIOD OF RECORD.--May 31, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 23.39 ft (7.13 m), below land-surface datum, Dec. 6, 1998; lowest water level recorded, 25.26 ft (7.70 m), below land-surface datum, June 21, 22, 23, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.62	24.26	24.47	24.02	24.42	24.59	24.87	24.78	25.02	24.79	24.52	24.39
2	24.62	24.27	24.24	24.04	24.35	24.58	24.89	24.79	25.02	24.77	24.53	24.37
3	24.62	24.29	23.94	24.07	24.32	24.60	24.87	24.81	25.02	24.74	24.54	24.38
4	24.62	24.37	23.67	24.10	24.31	24.61	24.86	24.83	25.01	24.74	24.56	24.36
5	24.62	24.41	23.48	24.11	24.31	24.62	24.87	24.86	24.91	24.72	24.57	24.35
6	24.63	24.44	23.41	24.12	24.31	24.63	24.85	24.88	24.87	24.60	24.59	24.36
7	24.64	24.50	23.46	24.13	24.31	24.63	24.86	24.90	24.82	24.58	24.60	24.38
8	24.65	24.55	23.55	24.14	24.31	24.64	24.86	24.93	24.81	24.59	24.58	24.40
9	24.66	24.58	23.62	24.15	24.36	24.67	24.86	24.93	24.80	24.59	24.60	24.37
10	24.68	24.58	23.67	24.16	24.43	24.68	24.85	24.91	24.74	24.54	24.61	24.34
11	24.69	24.54	23.72	24.17	24.44	24.66	24.83	24.91	24.69	24.51	24.62	24.32
12	24.69	24.46	23.76	24.18	24.43	24.66	24.83	24.91	24.68	24.52	24.62	24.30
13	24.69	24.39	23.81	24.19	24.43	24.68	24.83	24.90	24.70	24.54	24.63	24.30
14	24.66	24.27	23.83	24.20	24.44	24.69	24.83	24.89	24.72	24.54	24.62	24.33
15	24.66	24.24	23.88	24.21	24.44	24.69	24.84	24.89	24.73	24.49	24.62	---
16	24.66	24.24	23.92	24.26	24.44	24.69	24.84	24.90	24.75	24.46	24.63	24.47
17	24.66	24.28	23.95	24.29	24.45	24.69	24.86	24.92	24.75	24.47	24.65	24.49
18	24.67	24.35	23.97	24.30	24.46	24.69	24.87	24.93	24.66	24.46	24.66	24.51
19	24.67	24.42	24.00	24.32	24.45	24.69	24.88	24.94	24.65	24.48	24.69	24.51
20	24.68	24.44	24.02	24.34	24.45	24.69	24.90	24.95	24.62	24.48	24.70	24.45
21	24.68	24.48	24.03	24.34	24.45	24.69	24.91	24.97	24.61	24.50	24.71	24.43
22	24.69	24.51	24.03	24.33	24.45	24.71	24.93	24.98	24.63	24.51	24.70	24.44
23	24.73	24.53	24.04	24.34	24.47	24.73	24.94	24.98	24.63	24.52	24.68	24.45
24	24.73	24.54	24.03	24.34	24.50	24.74	24.94	24.98	24.63	24.55	24.60	24.48
25	24.69	24.51	24.03	24.40	24.55	24.78	24.92	24.99	24.65	24.55	24.57	24.47
26	24.69	24.52	24.03	24.40	24.57	24.79	24.90	25.01	24.68	24.57	24.58	24.44
27	24.69	24.53	24.02	24.40	24.60	24.81	24.88	25.02	24.70	24.56	24.51	24.40
28	24.69	24.55	24.01	24.39	24.59	24.83	24.85	25.02	24.74	24.57	24.46	24.40
29	24.58	24.55	24.01	24.40	---	24.84	24.80	25.01	24.75	24.57	24.46	24.39
30	24.44	24.55	24.00	24.41	---	24.86	24.79	25.01	24.77	24.57	24.43	24.42
31	24.31	---	24.01	24.42	---	24.87	---	25.01	---	24.52	24.44	---
MEAN	24.65	24.44	23.89	24.25	24.43	24.70	24.87	24.93	24.76	24.57	24.59	24.40

WTR YR 1999 MEAN 24.54 HIGHEST 23.39 DEC. 6, 1998 LOWEST 25.04 MAY 31, JUNE 1, 2, 1999

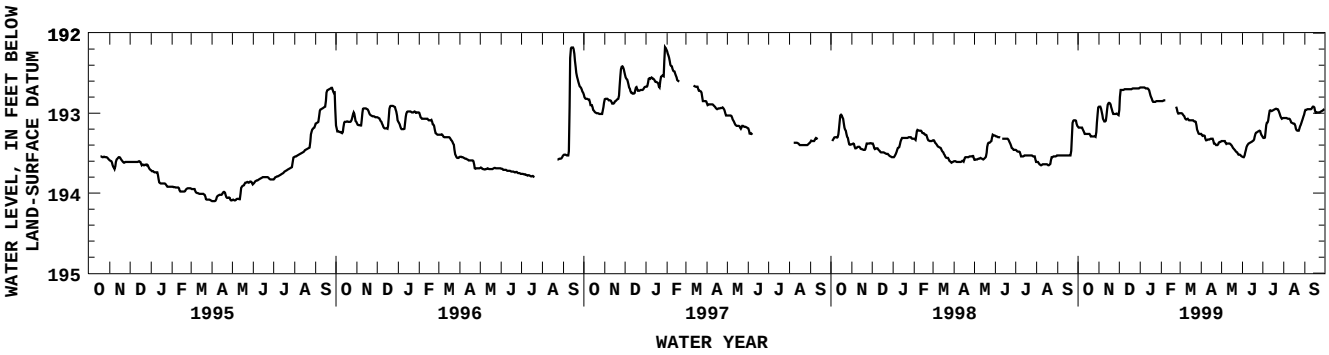


182615066235300. Local number, 211.
LOCATION.--Lat 18°26'15", long 66°23'53", Hydrologic Unit 21010002, 4.46 mi southeast of Manatí plaza, 5.48 mi southwest of Vega Baja plaza, and 1.22 mi east of Hwy 155 km 58.3. Owner: PR Aqueduct and Sewer Authority, Name: Rosario No. 2.
AQUIFER.--Aguada Limestone.
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 (82.3 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 215 ft (65.5 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.10 ft (0.94 m), above land-surface datum. Prior to April 11, 1994, hole on side of casing, 1.15 ft (0.35 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 5, 1997.
PERIOD OF RECORD.--October 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 191.29 ft (58.3 m), below land-surface datum, May 16, 1986; lowest water level recorded, 194.1 ft (59.2 m), below land-surface datum, Mar. 31, Apr. 1 to 7, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193.16	192.92	193.03	192.68	192.85	193.00	193.26	193.35	193.54	193.29	193.06	193.00
2	193.18	192.92	192.89	192.68	192.85	193.00	193.26	193.35	193.55	193.31	193.06	192.96
3	193.18	192.92	192.71	192.68	192.85	193.00	193.29	193.35	193.55	193.31	193.06	192.96
4	193.18	192.92	192.71	192.68	192.85	193.00	193.28	193.35	193.55	193.31	193.06	192.96
5	193.18	192.97	192.71	192.68	192.84	193.01	193.28	193.35	193.51	193.30	193.06	192.95
6	193.18	192.99	192.71	192.68	192.84	193.03	193.28	193.35	193.48	193.18	193.06	192.95
7	193.18	193.06	192.71	192.68	192.84	193.03	193.29	193.35	193.44	193.12	193.07	192.95
8	193.18	193.08	192.71	192.68	192.84	193.05	193.34	193.39	193.41	193.12	193.07	192.95
9	193.22	193.10	192.70	192.69	---	193.07	193.34	193.38	193.40	193.11	193.07	192.95
10	193.22	193.11	192.70	192.69	---	193.08	193.34	193.38	193.38	193.08	193.07	192.95
11	193.26	193.10	192.70	192.69	---	193.08	193.33	193.38	193.38	192.97	193.08	192.95
12	193.26	193.09	192.70	192.69	---	193.07	193.33	193.38	193.37	192.97	193.11	192.94
13	193.26	192.99	192.70	192.69	---	193.07	193.33	193.38	193.37	192.96	193.12	192.92
14	193.26	192.91	192.70	192.71	---	193.09	193.33	193.38	193.36	192.98	193.12	192.92
15	193.26	192.88	192.70	192.72	---	193.09	193.32	193.39	193.36	192.97	193.13	192.92
16	193.26	192.87	192.70	192.77	---	193.09	193.32	193.40	193.35	192.97	193.13	192.94
17	193.26	192.87	192.70	192.79	---	193.09	193.32	193.41	193.35	192.96	193.13	192.99
18	193.26	192.88	192.70	192.81	---	193.09	193.32	193.43	193.34	192.96	193.14	193.00
19	193.26	192.90	192.70	192.83	---	193.09	193.32	193.44	193.32	192.95	193.18	192.99
20	193.29	192.95	192.70	192.86	---	193.09	193.38	193.45	193.27	192.95	193.21	192.99
21	193.29	192.96	192.69	192.86	---	193.09	193.38	193.46	193.25	192.94	193.22	192.99
22	193.29	193.01	192.69	192.86	---	193.11	193.38	193.47	193.24	192.95	193.22	192.99
23	193.29	193.01	192.69	192.86	192.91	193.10	193.40	193.48	193.24	192.95	193.22	192.99
24	193.29	193.01	192.69	192.86	192.93	193.11	193.40	193.49	193.23	192.95	193.22	192.99
25	193.29	193.01	192.69	192.85	192.97	193.11	193.40	193.49	193.23	192.98	193.17	192.98
26	193.29	193.01	192.69	192.85	193.00	193.20	193.40	193.52	193.22	192.99	193.16	192.98
27	193.29	193.01	192.69	192.85	193.01	193.21	193.38	193.52	193.22	193.03	193.14	192.97
28	193.30	193.00	192.69	192.85	193.00	193.25	193.36	193.52	193.23	193.04	193.10	192.97
29	193.17	193.02	192.69	192.85	---	193.26	193.36	193.52	193.27	193.07	193.10	192.96
30	193.07	193.02	192.69	192.85	---	193.26	193.36	193.53	193.28	193.07	193.04	192.95
31	192.94	---	192.69	192.85	---	193.26	---	193.54	---	193.06	193.04	---
MEAN	193.23	192.98	192.72	192.77	192.90	193.10	193.34	193.43	193.36	193.06	193.12	192.96

WTR YR 1999 MEAN 193.09 HIGHEST 192.68 JAN. 1-9, 1999 LOWEST 193.51 JUNE 1-4, 1999

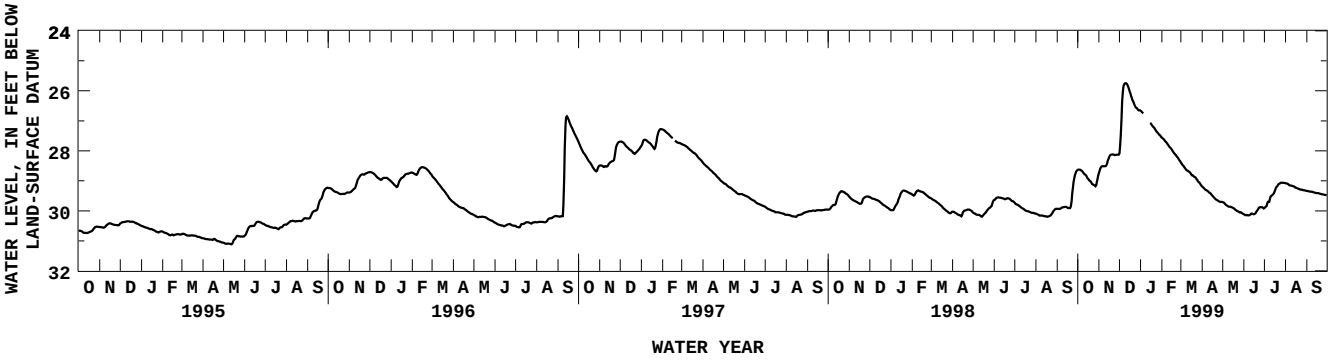


182647066201700. Local number, 70.
LOCATION.--Lat 18°26'47", long 66°20'17", Hydrologic Unit 21010002, 1.52 mi north of Vega Alta plaza, 4.78 mi southwest of Dorado plaza, and 2.01 mi northwest of Escuela Industrial para Mujeres. Owner: PR Aqueduct and Sewer Authority, Name: Sabana Hoyos.
AQUIFER.--Limestone of Tertiary Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in (0.20 m), cased 0-90.0 ft (0-27.4 m), perforated. Depth 90.0 ft (27.4 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 49.0 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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 17, 1998.
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, 31.12 ft (9.48 m), below land-surface datum, May 12, 13, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.64	28.79	28.13	26.65	27.56	28.37	29.18	29.70	30.11	29.93	29.08	29.33
2	28.63	28.69	28.05	26.67	27.56	28.41	29.20	29.72	30.12	29.89	29.08	29.34
3	28.63	28.63	27.71	26.69	27.59	28.44	29.22	29.72	30.14	29.88	29.08	29.34
4	28.63	28.56	27.23	26.73	27.60	28.48	29.24	29.74	30.15	29.85	29.09	29.35
5	28.63	28.53	26.60	26.74	27.63	28.49	29.27	29.77	30.14	29.83	29.11	29.35
6	28.64	28.52	26.13	26.77	27.67	28.54	29.29	29.80	30.14	29.71	29.12	29.36
7	28.66	28.51	25.90	---	27.69	28.56	29.31	29.81	30.15	29.70	29.16	29.36
8	28.67	28.51	25.80	---	27.71	28.59	29.32	29.83	30.15	29.71	29.15	29.37
9	28.70	28.51	25.76	---	27.75	28.63	29.33	29.84	30.15	29.69	29.16	29.36
10	28.74	28.51	25.75	---	27.78	28.65	29.35	29.86	30.14	29.55	29.16	29.37
11	28.77	28.51	25.75	---	27.81	28.65	29.37	29.86	30.12	29.51	29.17	29.38
12	28.79	28.50	25.75	---	27.85	28.68	29.39	29.86	30.10	29.49	29.17	29.39
13	28.80	28.46	25.79	---	27.88	28.69	29.41	29.87	30.09	29.48	29.18	29.39
14	28.81	28.37	25.85	---	27.89	28.71	29.42	29.87	30.09	29.45	29.19	29.40
15	28.89	28.29	25.90	27.07	27.93	28.72	29.46	29.88	30.11	29.43	29.21	29.40
16	28.91	28.25	25.99	27.07	27.96	28.76	29.48	29.89	30.12	29.39	29.23	29.41
17	28.94	28.18	26.04	27.11	27.99	28.81	29.50	29.91	30.11	29.33	29.23	29.41
18	28.97	28.14	26.12	27.14	28.03	28.81	29.54	29.92	30.09	29.26	29.24	29.41
19	29.00	28.13	26.19	27.18	28.06	28.82	29.56	29.94	30.07	29.21	29.25	29.41
20	29.01	28.12	26.27	27.20	28.10	28.84	29.58	29.96	30.01	29.19	29.26	29.43
21	29.03	28.12	26.32	27.22	28.11	28.87	29.61	29.98	29.99	29.15	29.27	29.43
22	29.09	28.12	26.37	27.25	28.14	28.87	29.63	29.99	29.97	29.12	29.28	29.44
23	29.11	28.12	26.44	27.29	28.17	28.90	29.64	30.01	29.91	29.10	29.29	29.44
24	29.12	28.14	26.49	27.34	28.21	28.93	29.65	30.02	29.89	29.09	29.29	29.45
25	29.14	28.14	26.54	27.35	28.23	28.96	29.67	30.03	29.87	29.07	29.29	29.45
26	29.15	28.14	26.57	27.39	28.27	28.99	29.69	30.05	29.88	29.06	29.30	29.46
27	29.16	28.13	26.57	27.41	28.30	29.04	29.69	30.06	29.88	29.06	29.31	29.46
28	29.19	28.13	26.60	27.44	28.34	29.05	29.70	30.04	29.88	29.06	29.31	29.47
29	29.11	28.13	26.65	27.47	---	29.08	29.70	30.07	29.88	29.07	29.32	29.47
30	28.99	28.13	26.65	27.48	---	29.11	29.70	30.08	29.91	29.07	29.32	29.48
31	28.88	---	26.65	27.52	---	29.15	---	30.09	---	29.07	29.33	---
MEAN	28.88	28.33	26.41	27.14	27.92	28.76	29.47	29.91	30.05	29.40	29.21	29.40

WTR YR 1999 MEAN 28.78 HIGHEST 25.75 DEC. 9-12, 1998 LOWRST 30.16 JUNE 7, 1999

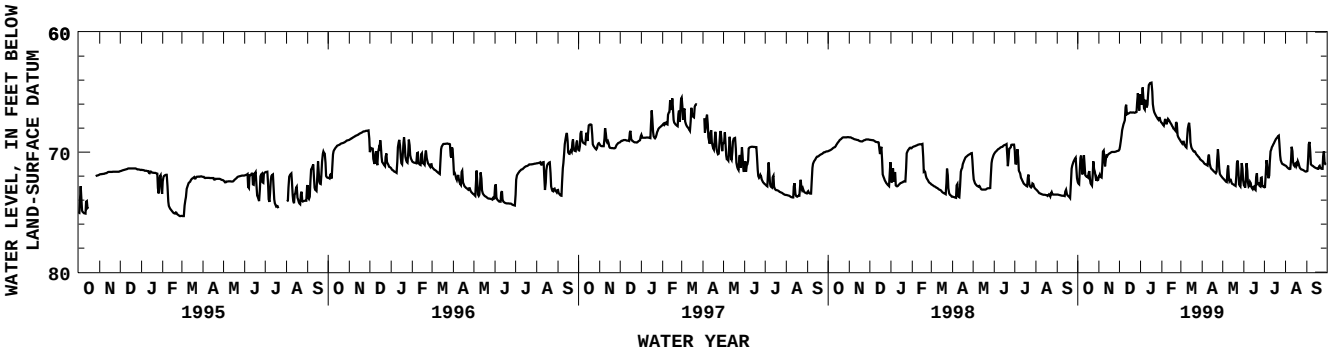


182515066194000. Local number, 212.
LOCATION.--Lat 18°25'15", long 66° 19'40", Hydrologic Unit 21010002, 5.15 mi southwest of Dorado plaza, 0.49 mi north of Vega Alta plaza, and 1.04 mi northwest of Escuela Industrial para Mujeres. Owner: US Geological Survey, WRD, Name: Ponderosa TW-1.
AQUIFER.--Aguada 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).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
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, 2.55 ft (0.78 m), above land-surface datum. Prior to November 3, 1989, hole on top of shelter floor casing, 3.00 ft (0.91 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 17, 1998. 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 (19.2 m), below land-surface datum, July 15, 1987; lowest water level recorded, 75.33 ft (22.9 m), below land-surface datum, Feb. 27, Mar. 4, 5, 6, 1995

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72.42	72.31	69.84	64.53	67.53	69.08	70.71	72.13	72.69	72.91	71.12	71.60
2	72.57	71.78	69.71	65.82	67.61	69.16	70.75	72.20	72.80	72.94	71.12	71.59
3	72.64	72.01	69.35	66.28	67.68	69.25	70.80	72.23	72.90	72.89	71.20	71.55
4	72.69	72.07	68.84	64.86	67.76	69.31	70.89	72.32	73.02	70.80	71.26	69.44
5	70.61	72.10	68.38	64.36	67.81	68.96	70.98	72.36	71.01	70.53	71.34	69.24
6	70.34	72.11	67.98	66.27	67.18	69.32	71.00	72.44	70.86	71.48	71.37	69.06
7	70.24	70.02	67.78	66.40	67.28	69.45	71.03	72.48	72.24	72.15	71.41	70.97
8	71.54	69.92	67.58	66.48	67.67	69.51	71.07	72.51	72.79	72.21	71.40	71.05
9	72.16	69.81	67.43	64.95	67.69	69.58	71.11	70.40	72.95	71.69	71.37	71.11
10	70.32	71.29	67.26	66.52	67.22	69.64	71.14	71.83	72.63	70.03	69.85	71.14
11	70.18	71.09	65.26	66.03	67.24	68.23	69.66	72.34	72.33	69.85	69.27	71.17
12	71.68	70.20	66.85	66.05	67.34	67.85	70.76	72.49	72.86	69.66	70.57	71.22
13	72.15	70.39	66.85	64.46	67.44	67.58	71.13	72.12	72.98	69.51	71.03	71.27
14	71.82	70.28	66.79	64.36	67.55	67.51	71.31	72.49	73.06	69.42	71.13	71.29
15	72.26	70.19	66.77	64.26	67.65	68.91	71.40	72.60	73.10	69.30	71.20	71.33
16	71.85	70.15	66.73	64.23	67.75	69.45	71.45	72.67	72.70	69.20	70.72	71.35
17	72.38	70.12	66.70	64.21	67.85	69.65	71.49	72.69	73.04	69.06	71.11	71.38
18	71.08	70.06	66.69	64.21	67.97	69.75	71.59	72.72	73.13	68.97	71.20	71.39
19	72.10	70.05	66.70	65.67	68.10	69.84	71.62	72.78	73.17	68.86	70.79	71.40
20	72.55	69.99	66.70	66.32	68.07	69.92	71.67	72.80	71.03	68.82	70.73	70.98
21	72.66	69.98	66.70	66.57	68.22	69.99	71.73	72.83	72.48	68.69	71.13	71.30
22	72.74	69.98	66.69	66.74	68.22	69.87	71.80	71.03	72.85	68.64	71.25	71.37
23	72.84	69.98	66.71	66.87	66.77	70.12	71.45	70.75	72.46	68.60	71.37	71.38
24	70.81	69.98	66.72	66.98	68.50	70.18	69.83	70.67	72.79	69.94	71.43	71.39
25	70.72	69.98	66.69	67.07	68.68	70.25	69.69	72.61	72.85	70.60	71.45	71.40
26	72.09	69.97	66.68	67.17	68.79	70.31	71.04	72.78	72.89	70.76	71.47	69.26
27	71.20	69.92	66.64	67.25	68.90	70.38	71.73	72.83	71.39	70.94	71.49	70.61
28	72.73	69.91	65.16	67.35	68.96	70.43	71.88	72.89	72.85	70.99	71.52	70.99
29	72.01	69.90	65.00	66.94	---	70.57	71.98	70.98	72.83	71.02	71.56	71.04
30	72.32	69.89	66.51	67.35	---	70.62	72.04	70.83	72.88	71.04	71.61	71.08
31	72.34	---	66.53	67.47	---	70.67	---	71.94	---	71.09	71.62	---
MEAN	71.81	70.51	67.10	65.94	67.84	69.53	71.16	72.15	72.59	70.41	71.13	70.98

WTR YR 1999 MEAN 70.10 HIGHEST 64.21 JAN. 17, 18, 19, 1999 LOWEST 73.17 JUNE 19, 1999



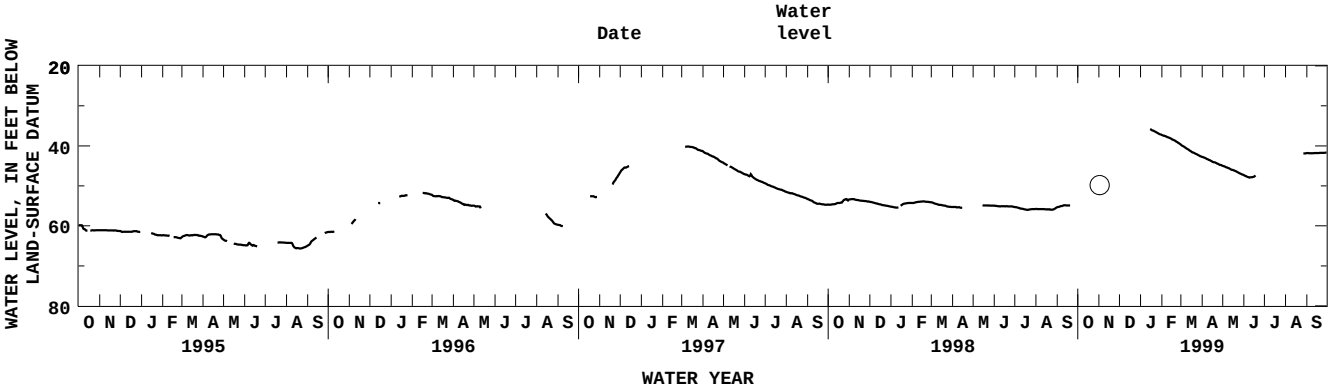
182330066185700. Local number, 213.
LOCATION.--Lat 18°23'30", long 66°18'57", Hydrologic Unit 21010002, 1.82 mi southeast of Vega Alta plaza, 4.23 mi west of Toa Alta plaza, and 1.27 mi northwest off the intersection of Hwy 820 with Hwy 823. Owner: PR Aqueduct and Sewer Authority, Name: Pampano No. 2.
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 (67.6-101 m). Depth 330 ft (101 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 394 ft (120 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 9.32 ft (2.84 m), above land-surface datum. Prior April 27, 1993, hole on side of casing, 2.95 ft (0.90 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 17, 1998.
PERIOD OF RECORD.--October 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.40 ft (10.5 m), below land-surface datum, Dec. 6, 1985; lowest water level recorded, 65.68 ft (20.0 m), below land-surface datum, Aug. 20, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	37.23	39.61	42.73	44.96	47.23	---	---	41.79
2	---	---	---	---	37.32	39.79	42.75	45.02	47.41	---	---	41.79
3	---	---	---	---	37.37	39.92	42.83	45.05	47.45	---	---	41.78
4	---	---	---	---	37.44	40.03	42.90	45.14	47.53	---	---	41.83
5	---	---	---	---	37.46	40.10	42.99	45.21	47.61	---	---	41.82
6	---	---	---	---	37.53	40.19	43.04	45.30	47.70	---	---	41.85
7	---	---	---	---	37.60	40.34	43.17	45.35	47.74	---	---	41.85
8	---	---	---	---	37.67	40.44	43.23	45.42	47.80	---	---	41.84
9	---	---	---	---	37.78	40.59	43.31	45.49	47.91	---	---	41.84
10	---	---	---	---	37.81	40.69	43.37	45.55	47.93	---	---	41.83
11	---	---	---	---	37.86	40.78	43.49	45.66	47.83	---	---	41.82
12	---	---	---	---	37.97	40.88	43.54	45.72	47.83	---	---	41.82
13	---	---	---	---	38.03	41.01	43.63	45.82	47.83	---	---	41.81
14	---	---	---	---	38.08	41.16	43.72	45.90	47.81	---	---	41.81
15	---	---	---	35.76	38.19	41.23	43.82	45.99	47.77	---	---	41.80
16	---	---	---	35.85	38.32	41.34	43.92	46.02	47.75	---	---	41.79
17	---	---	---	35.97	38.42	41.51	44.00	46.04	47.66	---	---	41.79
18	---	---	---	36.06	38.48	41.57	44.05	46.14	47.44	---	---	41.78
19	---	---	---	36.15	38.57	41.63	44.11	46.20	47.34	---	---	41.78
20	---	---	---	36.19	38.62	41.72	44.12	46.29	---	---	---	41.77
21	---	---	---	36.27	38.72	41.81	44.17	46.36	---	---	---	41.76
22	---	---	---	36.37	38.81	41.91	44.31	46.44	---	---	---	41.76
23	---	---	---	36.47	38.98	41.98	44.41	46.53	---	---	---	41.75
24	---	---	---	36.55	39.08	42.04	44.43	46.63	---	---	---	41.75
25	---	---	---	36.63	39.15	42.11	44.50	46.76	---	---	---	41.74
26	---	---	---	36.76	39.31	42.21	44.62	46.83	---	---	---	41.73
27	---	---	---	36.86	39.40	42.33	44.72	46.91	---	---	41.91	41.73
28	---	---	---	36.96	39.51	42.40	44.77	46.98	---	---	41.91	41.72
29	---	---	---	37.06	---	42.52	44.79	47.06	---	---	41.90	41.72
30	---	---	---	37.12	---	42.58	44.83	47.16	---	---	41.90	41.71
31	---	---	---	37.15	---	42.64	---	47.18	---	---	41.89	---
MEAN	---	---	---	36.48	38.24	41.26	43.81	46.04	47.66	---	41.90	41.79

WTR YR 1999 MEAN 42.30 HIGHEST 35.69 JAN. 15, 1999 LOWEST 47.94 JUNE 10, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS



182426066260400. Local number, 1103.
LOCATION.--Lat 18°24'26", long 66°26'04", Hydrologic Unit 21010002, 1.30 mi south of Hwy 670, 1.80 mi south southeast of Escuela C. Ramirez de Arellano, and 2.30 mi south southwest of Morovis exit of the Hwy 22. Owner: US Geological Survey, Name: Perica.
AQUIFER.--Cibao Limestone.
WELL CHARACTERISTICS.--Diameter 4 in (0.10 m), open screened 360-400 ft (110-122 m). Depth 400 ft (122 m).
DATUM.--Elevation of land-surface datum is about 492 ft (150 m), above mean sea level, from topographic map.
REMARKS.--Observation well.
PERIOD OF RECORD.--December 1, 1995 to July 13, 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 200.27 ft (61.04 m), below land-surface datum, Jan. 30, 1997; lowest water level measured, 258.84 ft (78.89 m), below land-surface datum, Jan. 15, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996
INSTANTANEOUS OBSERVATIONS

Date	Water level
Dec. 1	248.53

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INSTANTANEOUS OBSERVATIONS

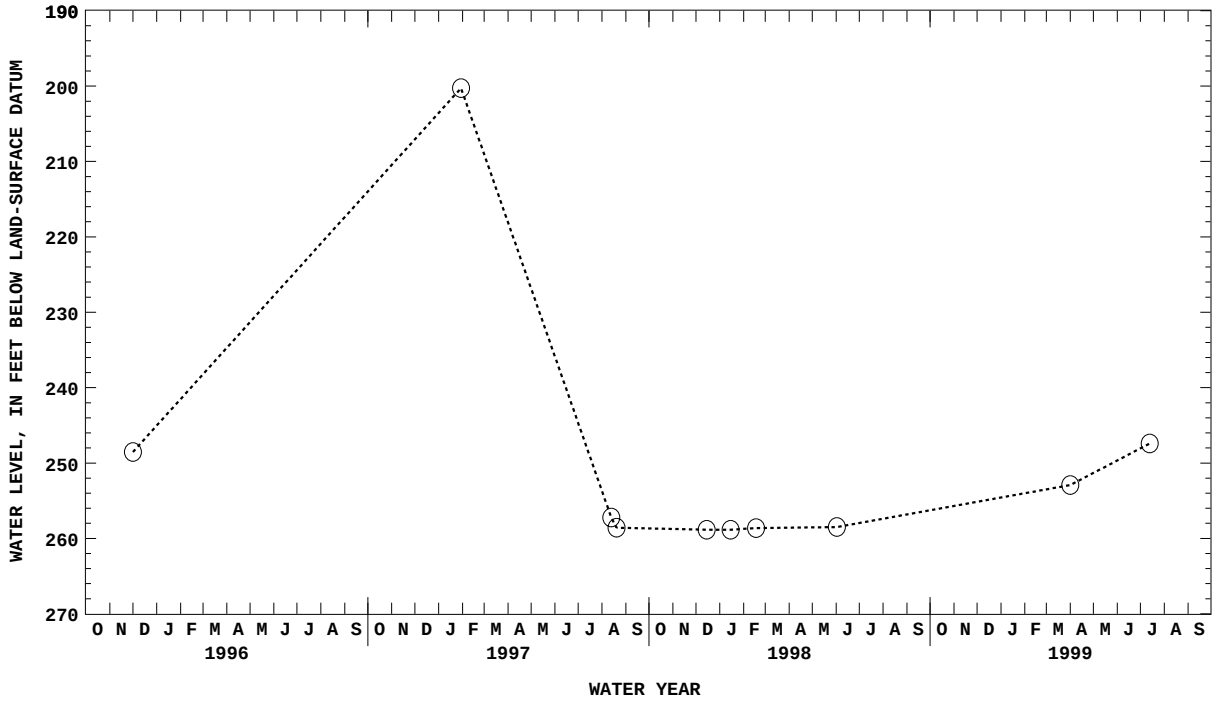
Date	Water level	Date	Water level	Date	Water level
Jan. 30	200.47	Aug. 13	257.22	Aug. 20	257.36

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Dec. 15	258.58	Jan. 15	258.84	Feb. 17	258.63	June 2	258.49

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level
Apr. 1	252.92	July 13	247.41

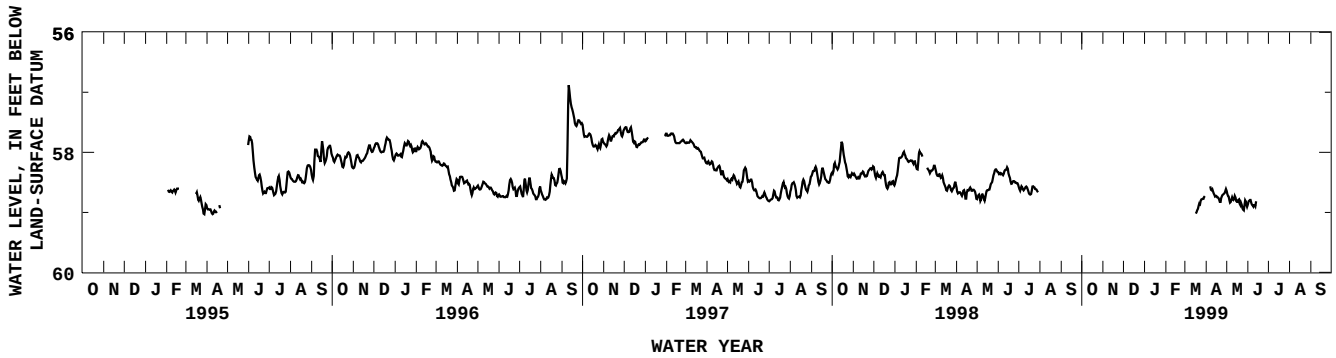


182804066173500. Local number, 1126.
LOCATION.--Lat 18°28'04", long 66°17'35", Hydrologic Unit 21010005, 2.04 mi west of Dorado plaza, 1.15 mi north of Hwy 696, and 0.03 mi south of Hwy 693. Owner: Dorado Airport, Name: Dorado Airport Well.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m). Depth 98.0 ft (29.9 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 62.2 ft (18.9 m), above mean sea level, from topographic survey. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.88 ft (1.18 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR) replaced by an Electronic Data Logger (EDL), installed on November 21, 1997. Water levels affected by nearby pumping well. Electronic Data Logger re-installed on Mar. 16, 1999. Formerly published as local number DA-1.
PERIOD OF RECORD.--February 2, 1995 to July 31, 1998, discontinued, March. 16, 1999 to June 15, 1999, discontinued.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 56.7 ft (17.3 m), below land-surface datum, Sept. 11, 1996; lowest water level recorded, 59.2 ft (18.0 m), below land-surface datum Apr. 16, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	58.62	58.91	---	---	---
2	---	---	---	---	---	---	---	58.67	58.83	---	---	---
3	---	---	---	---	---	---	---	58.72	58.80	---	---	---
4	---	---	---	---	---	---	---	58.74	58.81	---	---	---
5	---	---	---	---	---	---	---	58.73	58.78	---	---	---
6	---	---	---	---	---	---	---	58.87	58.81	---	---	---
7	---	---	---	---	---	---	58.52	58.81	58.88	---	---	---
8	---	---	---	---	---	---	58.61	58.84	58.86	---	---	---
9	---	---	---	---	---	---	58.64	58.72	58.91	---	---	---
10	---	---	---	---	---	---	58.62	58.78	58.90	---	---	---
11	---	---	---	---	---	---	58.61	58.79	58.86	---	---	---
12	---	---	---	---	---	---	58.68	58.80	58.90	---	---	---
13	---	---	---	---	---	---	58.69	58.74	58.90	---	---	---
14	---	---	---	---	---	---	58.73	58.71	58.73	---	---	---
15	---	---	---	---	---	---	58.74	58.80	---	---	---	---
16	---	---	---	---	---	---	58.71	58.82	---	---	---	---
17	---	---	---	---	---	59.04	58.74	58.83	---	---	---	---
18	---	---	---	---	---	59.00	58.76	58.82	---	---	---	---
19	---	---	---	---	---	58.99	58.74	58.77	---	---	---	---
20	---	---	---	---	---	58.94	58.78	58.80	---	---	---	---
21	---	---	---	---	---	58.94	58.79	58.91	---	---	---	---
22	---	---	---	---	---	58.83	58.86	58.85	---	---	---	---
23	---	---	---	---	---	58.87	58.79	58.83	---	---	---	---
24	---	---	---	---	---	58.86	58.74	58.92	---	---	---	---
25	---	---	---	---	---	58.76	58.72	58.95	---	---	---	---
26	---	---	---	---	---	58.81	58.70	58.96	---	---	---	---
27	---	---	---	---	---	58.75	58.70	58.97	---	---	---	---
28	---	---	---	---	---	58.80	58.68	58.81	---	---	---	---
29	---	---	---	---	---	58.75	58.68	58.79	---	---	---	---
30	---	---	---	---	---	58.74	58.60	58.85	---	---	---	---
31	---	---	---	---	---	58.72	---	58.91	---	---	---	---
MEAN	---	---	---	---	---	58.85	58.70	58.81	58.85	---	---	---

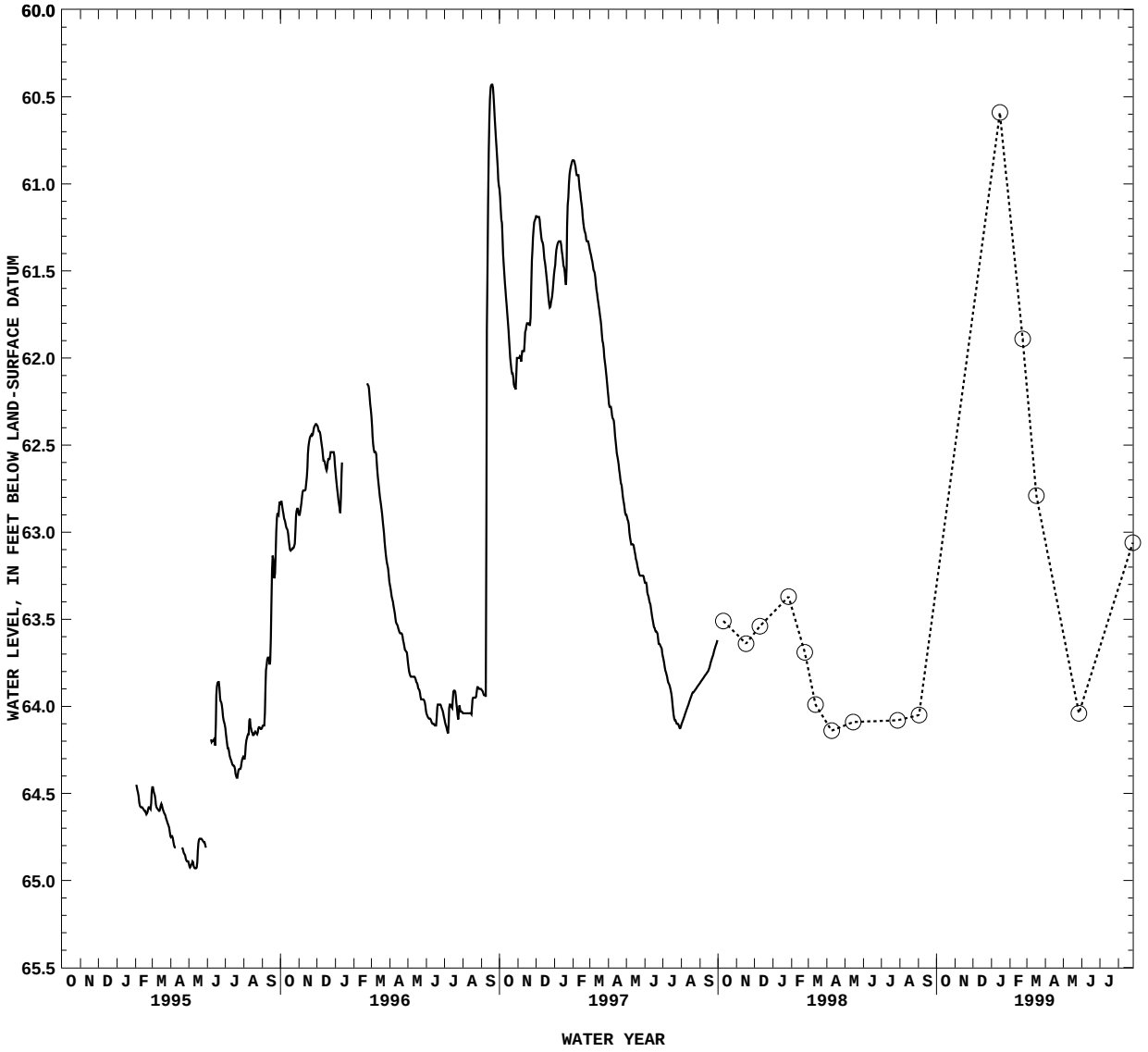
WTR YR 1999 MEAN 58.79 HIGHEST 58.48 APR. 17, 1999 LOWEST 59.16 MAR. 17, 1999



182526066165001. Local number, 1127.
LOCATION.--Lat 18°25'26", long 66°16'50", Hydrologic Unit 21010005, 1.03 mi north of Hwy 2, 0.93 mi west of the intersection of Hwy 659 with Hwy 693, and 0.03 mi north of Hwy 659. Owner: US Geological Survey, WRD, Name: Santa Rosa USGS No. 2.
AQUIFER.--Aguada Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-140 ft (0-42.7 m), screened 120-130 ft (36.6-39.6 m). Depth 140 ft (42.7 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 91.8 ft (28.0 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.31 ft (1.01 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed in February 6, 1997 to September 30, 1997. Monthly measurements only in water year 1998 and 1999. Formerly published as local number SR-2.
PERIOD OF RECORD.--February 2, 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 60.4 ft (18.4 m), below land-surface datum, Sept. 20, 1995; lowest water level recorded, 64.9 ft (19.8 m), below land-surface datum, May 2-5, 10-15, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 15	60.59	Mar. 17	62.79	May 27	64.04	Aug. 27	63.06
Feb. 22	61.89						

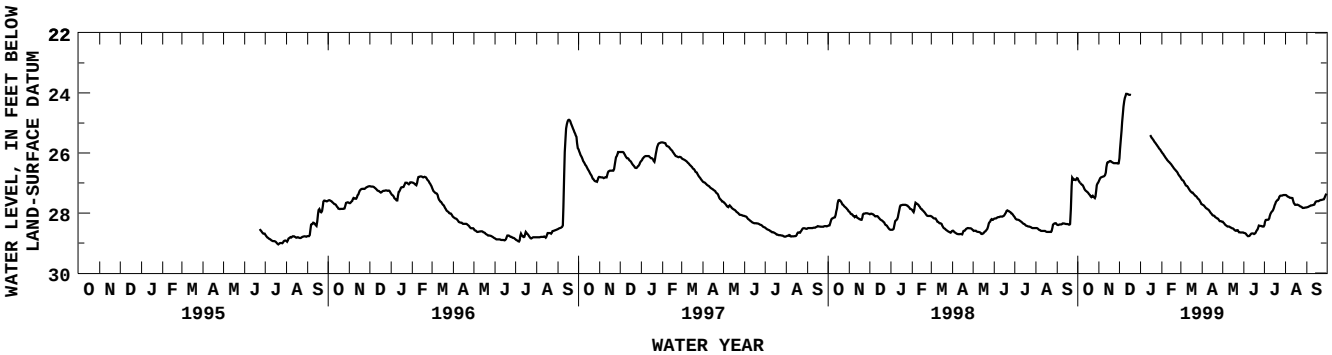


182548066164401. Local number, 1128.
LOCATION.--Lat 18°25'48", long 66°16'44", Hydrologic Unit 2101005, 1.47 mi north of Hwy 2, 0.60 mi south of Hwy 695, 0.04 mi south of the intersection of Hwy 694 with 659, and 0.02 mi east of Hwy 659. Owner: US Geological Survey WRD, Name: Maguayo USGS No. 2
AQUIFER.--Aguada Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-110 ft (0-33.5 m), screened 95-105 ft (29.0-32.0 m). Depth 110 ft (33.5 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 39.4 ft (12.0 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.80 ft (1.16 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 6, 1997. Formerly published as local number MA-2.
PERIOD OF RECORD.--June 22, 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 24.02 ft (7.32 m), below land-surface datum, Dec. 11, 12, 1998; lowest water level recorded, 29.05 ft (8.85 m), below land-surface datum, July 20, 21, 22, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.81	26.99	26.33	---	25.96	26.82	27.71	28.29	28.65	28.45	27.40	27.81
2	26.89	26.88	26.02	---	25.99	26.85	27.72	28.29	28.67	28.36	27.40	27.81
3	26.93	26.87	25.74	---	26.02	26.90	27.74	28.34	28.67	28.24	27.42	27.80
4	26.97	26.81	25.39	---	26.05	26.90	27.74	28.35	28.68	28.23	27.44	27.80
5	26.99	26.81	25.12	---	26.09	26.93	27.78	28.39	28.71	28.23	27.46	27.77
6	27.01	26.80	24.83	---	26.12	26.97	27.81	28.41	28.74	28.23	27.46	27.77
7	27.05	26.79	24.55	---	26.15	27.01	27.84	28.41	28.77	28.23	27.49	27.75
8	27.06	26.79	24.36	---	26.19	27.05	27.85	28.45	28.77	28.21	27.49	27.75
9	27.07	26.77	24.19	---	26.22	27.10	27.86	28.45	28.77	28.16	27.49	27.74
10	27.13	26.76	24.15	---	26.25	27.09	27.89	28.45	28.76	28.04	27.50	27.74
11	27.19	26.71	24.03	---	26.28	27.11	27.89	28.45	28.72	28.01	27.50	27.73
12	27.22	26.60	24.03	---	26.29	27.16	27.92	28.47	28.70	27.95	27.51	27.73
13	27.26	26.35	24.03	---	26.33	27.20	27.97	28.48	28.68	27.95	27.64	27.71
14	27.26	26.31	24.04	---	26.34	27.22	28.00	28.49	28.68	27.90	27.69	27.64
15	27.30	26.31	24.06	25.39	26.38	27.27	28.02	28.51	28.68	27.87	27.72	27.61
16	27.30	26.31	24.06	25.42	26.40	27.28	28.05	28.51	28.70	27.76	27.73	27.61
17	27.34	26.27	24.06	25.47	26.44	27.32	28.08	28.52	28.70	27.74	27.73	27.60
18	27.38	26.27	24.06	25.50	26.47	27.32	28.09	28.55	28.67	27.64	27.73	27.61
19	27.38	26.27	24.07	25.53	26.50	27.32	28.08	28.57	28.65	27.63	27.71	27.60
20	27.43	26.30	---	25.56	26.54	27.37	28.12	28.59	28.59	27.57	27.74	27.59
21	27.46	26.31	---	25.60	26.55	27.38	28.14	28.60	28.56	27.57	27.74	27.57
22	27.49	26.32	---	25.63	26.59	27.42	28.16	28.58	28.55	27.55	27.77	27.57
23	27.41	26.34	---	25.66	26.60	27.44	28.17	28.56	28.42	27.48	27.78	27.56
24	27.44	26.34	---	25.70	26.64	27.44	28.19	28.59	28.42	27.44	27.79	27.56
25	27.47	26.34	---	25.73	26.68	27.48	28.19	28.64	28.43	27.42	27.79	27.55
26	27.49	26.34	---	25.76	26.73	27.51	28.24	28.64	28.43	27.42	27.83	27.55
27	27.52	26.34	---	25.79	26.75	27.53	28.27	28.65	28.43	27.42	27.83	27.53
28	27.39	26.34	---	25.83	26.78	27.56	28.28	28.65	28.45	27.42	27.83	27.46
29	27.12	26.35	---	25.86	---	27.59	28.27	28.65	28.45	27.40	27.83	27.41
30	27.03	26.36	---	25.89	---	27.63	28.29	28.65	28.45	27.40	27.82	27.37
31	26.99	---	---	25.92	---	27.69	---	28.65	---	27.40	27.82	---
MEAN	27.22	26.51	24.59	25.66	26.37	27.25	28.01	28.51	28.62	27.82	27.65	27.64

WTR YR 1999 MEAN 27.31 HIGHEST 24.02 DEC. 11, 12, 1998 LOWEST 28.77 JUNE 6-10, 1999



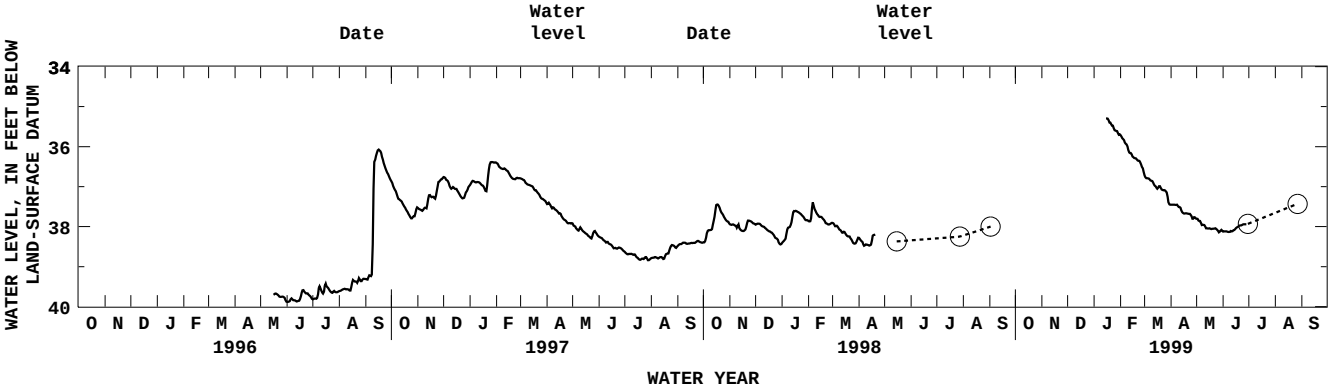
182620066163400. Local number, 1129.
LOCATION.--Lat 18°26'20", long 66°16'34", Hydrologic Unit 2101005, 1.85 mi south of Dorado plaza, 0.70 mi southwest of Laboratorio Dorado, 0.65 mi northwest of the intersection of Hwy 695 with Hwy 693, and 0.09 mi north of Hwy 695. Owner: US Geological Survey, WRD, Name: Higuillar No. 1.
AQUIFER.--Aguada Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-490 ft (0-149.4 m), screened 470-480 ft (143.3-146.3 m). Depth 490 ft (149.4 m)
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 49.2 ft (15.0 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.60 ft (1.10 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 16, 1996, replaced by an Electronic Data Logger (EDL), installed on February 23, 1998. Well screened below freshwater/saltwater interface at approximately 305 ft (93.0 m), below land-surface datum. Formerly published as local number HG-1.
PERIOD OF RECORD.--May 16, 1996 to May 15, 1998. From May 15, 1998 to September 30, 1998, bi-monthly measurements only. January 15, 1999 to June 30, 1999. From June 30, 1999 to August 27, 1999, bi-monthly measurements only.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 35.29 ft (10.8 m), below land-surface datum, Jan. 15, 1999; lowest water level recorded, 39.89 ft (12.2 m), below land-surface datum, June 2, 3, 4, 9, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	35.70	36.70	37.45	37.82	38.13	---	---	---
2	---	---	---	---	35.73	36.74	37.45	37.78	38.12	---	---	---
3	---	---	---	---	35.77	36.79	37.45	37.83	38.12	---	---	---
4	---	---	---	---	35.81	36.79	37.45	37.86	38.12	---	---	---
5	---	---	---	---	35.81	36.79	37.45	37.86	38.12	---	---	---
6	---	---	---	---	35.87	36.80	37.45	37.86	38.12	---	---	---
7	---	---	---	---	35.92	36.80	37.46	37.96	38.14	---	---	---
8	---	---	---	---	35.94	36.84	37.45	37.96	38.13	---	---	---
9	---	---	---	---	35.95	36.85	37.45	37.95	38.14	---	---	---
10	---	---	---	---	36.04	36.85	37.51	37.96	38.12	---	---	---
11	---	---	---	---	36.13	36.87	37.51	37.96	38.10	---	---	---
12	---	---	---	---	36.16	36.92	37.51	38.04	38.14	---	---	---
13	---	---	---	---	36.16	36.97	37.55	38.04	38.09	---	---	---
14	---	---	---	---	36.16	36.98	37.63	38.04	38.09	---	---	---
15	---	---	---	35.30	36.23	37.01	37.65	38.05	38.08	---	---	---
16	---	---	---	35.29	36.26	37.05	37.67	38.04	38.04	---	---	---
17	---	---	---	35.30	36.27	37.06	37.67	38.04	38.03	---	---	---
18	---	---	---	35.30	36.30	36.99	37.67	38.06	38.01	---	---	---
19	---	---	---	35.39	36.28	36.99	37.66	38.06	38.01	---	---	---
20	---	---	---	35.40	36.31	36.99	37.67	38.05	37.98	---	---	---
21	---	---	---	35.40	36.34	37.07	37.67	38.05	37.97	---	---	---
22	---	---	---	35.48	36.35	37.07	37.68	38.05	37.97	---	---	---
23	---	---	---	35.48	36.35	37.09	37.68	38.04	37.97	---	---	---
24	---	---	---	35.48	36.36	37.09	37.68	38.04	37.95	---	---	---
25	---	---	---	35.59	36.42	37.08	37.73	38.08	37.94	---	---	---
26	---	---	---	35.59	36.48	37.11	37.76	38.08	37.94	---	---	---
27	---	---	---	35.61	36.53	37.13	37.84	38.14	37.94	---	---	---
28	---	---	---	35.61	36.56	37.16	37.76	38.14	37.94	---	---	---
29	---	---	---	35.62	---	37.35	37.77	38.12	37.94	---	---	---
30	---	---	---	35.72	---	37.43	37.77	38.08	---	---	---	---
31	---	---	---	35.69	---	37.45	---	38.08	---	---	---	---
MEAN	---	---	---	35.49	36.15	36.99	37.60	38.00	38.05	---	---	---

WTR YR 1999 MEAN 37.18 HIGHEST 35.29 JAN. 15, 1999 LOWEST 38.16 JUNE 6, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

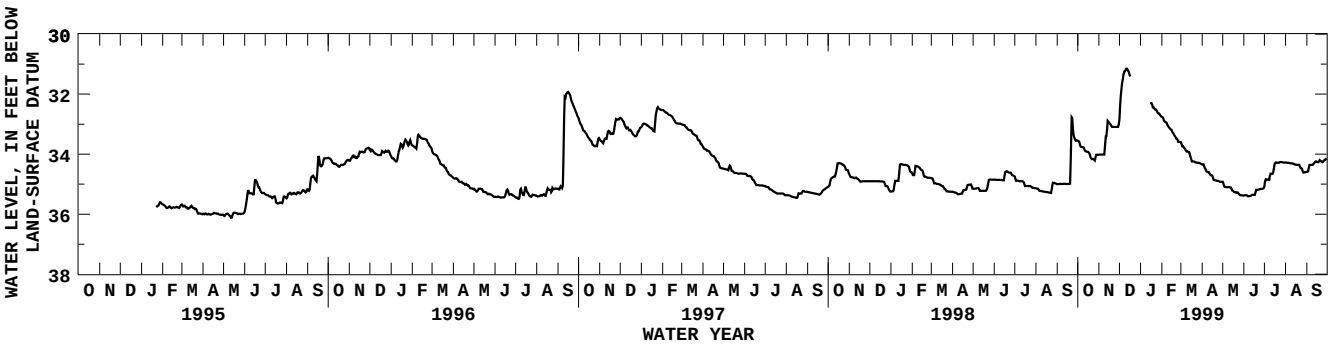


182620066163403. Local number, 1130.
LOCATION.--Lat 18°26'20", long 66°16'34", Hydrologic Unit 2101005, 1.85 mi south of Dorado plaza, 0.70 mi southwest of Laboratorio Dorado, 0.65 mi northwest of the intersection of Hwy 695 with Hwy 693, and 0.09 mi north of Hwy 695. Owner: US Geological Survey, WRD, Name: Higuillar No. 4.
AQUIFER.--Aguada Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-100 ft (0-30.5 m), screened 80-90.0 ft (24.4-27.4 m). Depth 100 ft (30.5 m)
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 49.2 ft (15.0 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.60 ft (1.10 m), above land-©surface datum.
REMARKS.--Recording observation well. Automated Digital recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 6, 1997. Formerly published as local number HG-4.
PERIOD OF RECORD.--January 23, 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 31.10 ft (9.48 m), below land-surface datum, Dec. 11, 12, 1998; lowest water level recorded, 36.15 ft (11.0 m), below land-surface datum, May 1, 11, 13, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33.54	34.02	32.98	---	32.76	33.60	34.34	34.92	35.38	35.14	34.27	34.59
2	33.56	34.02	32.68	---	32.76	33.60	34.34	34.92	35.37	35.01	34.29	34.59
3	33.57	34.01	32.22	---	32.77	33.73	34.34	35.03	35.37	34.83	34.27	34.59
4	33.58	34.01	31.89	---	32.83	33.74	34.34	35.09	35.37	34.83	34.29	34.55
5	33.71	34.01	31.70	---	32.91	33.74	34.46	35.09	35.37	34.85	34.29	34.36
6	33.76	34.01	31.55	---	32.91	33.80	34.48	35.10	35.37	34.85	34.29	34.36
7	33.76	34.01	31.43	---	32.93	33.80	34.52	35.10	35.40	34.85	34.30	34.36
8	33.77	34.01	31.26	---	32.95	33.84	34.59	35.10	35.40	34.87	34.30	34.36
9	33.77	34.01	31.24	---	32.97	33.91	34.59	35.10	35.40	34.84	34.30	34.36
10	33.77	34.01	31.24	---	33.06	33.90	34.60	35.10	35.40	34.65	34.31	34.35
11	33.81	33.41	31.15	---	33.06	33.90	34.60	35.10	35.39	34.65	34.31	34.35
12	33.90	33.40	31.15	---	33.12	33.93	34.60	35.10	35.39	34.65	34.31	34.30
13	33.90	33.40	31.16	---	33.13	33.93	34.70	35.11	35.36	34.66	34.32	34.29
14	33.91	32.89	31.23	---	33.16	33.93	34.70	35.11	35.36	34.65	34.33	34.24
15	33.92	32.90	31.23	32.30	33.19	34.09	34.70	35.21	35.36	34.57	34.34	34.24
16	33.92	32.95	31.34	32.29	33.19	34.09	34.71	35.21	35.36	34.33	34.35	34.25
17	33.93	32.95	31.39	32.30	33.29	34.24	34.74	35.23	35.36	34.32	34.35	34.27
18	33.97	33.01	31.43	32.30	33.29	34.24	34.86	35.26	35.35	34.27	34.35	34.27
19	33.97	33.01	---	32.44	33.33	34.24	34.86	35.26	35.19	34.28	34.36	34.27
20	34.11	33.09	---	32.44	33.39	34.24	34.87	35.27	35.19	34.28	34.36	34.20
21	34.12	33.09	---	32.44	33.39	34.24	34.87	35.27	35.19	34.29	34.36	34.20
22	34.17	33.09	---	32.51	33.47	34.27	34.88	35.30	35.19	34.29	34.36	34.23
23	34.16	33.09	---	32.51	33.48	34.28	34.89	35.26	35.18	34.28	34.47	34.25
24	34.16	33.09	---	32.51	33.48	34.27	34.89	35.29	35.18	34.27	34.47	34.25
25	34.16	33.09	---	32.55	33.59	34.29	34.89	35.32	35.16	34.26	34.47	34.27
26	34.21	33.09	---	32.61	33.59	34.29	34.90	35.35	35.16	34.26	34.50	34.23
27	34.21	33.09	---	32.64	33.59	34.29	34.92	35.37	35.16	34.27	34.61	34.20
28	34.02	33.09	---	32.64	33.59	34.29	34.92	35.37	35.16	34.27	34.62	34.19
29	34.02	33.09	---	32.64	---	34.30	34.92	35.37	35.16	34.28	34.60	34.19
30	34.02	33.09	---	32.71	---	34.31	34.92	35.37	35.13	34.28	34.60	34.13
31	34.02	---	---	32.72	---	34.33	---	35.38	---	34.28	34.60	---
MEAN	33.92	33.40	31.57	32.50	33.19	34.05	34.70	35.20	35.29	34.53	34.39	34.31

WTR YR 1999 MEAN 34.07 HIGHEST 31.10 DEC. 11, 12, 1998 LOWEST 35.40 JUNE 6-11, 1999



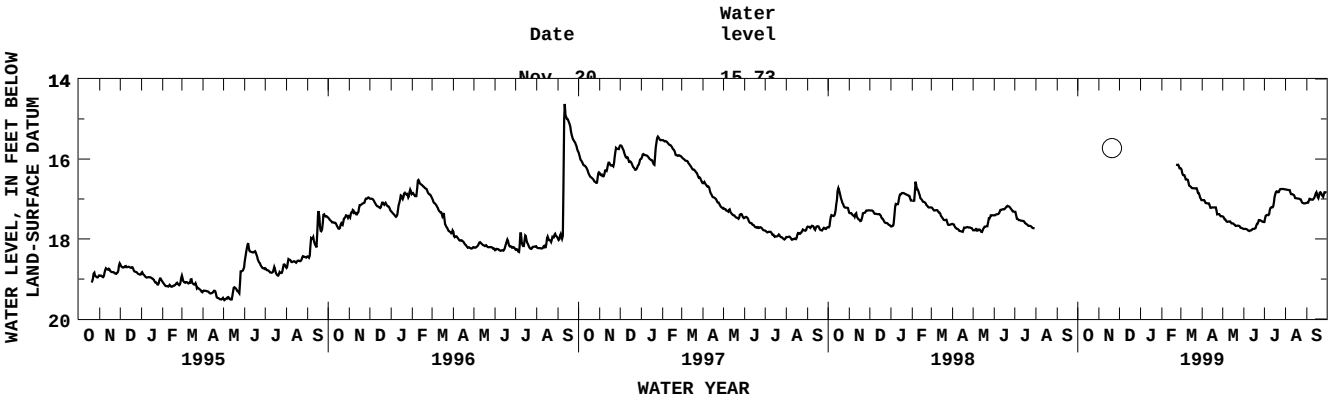
182657066162700. Local number, 1131.
LOCATION.--Lat 18°26'57", long 66°16'27", Hydrologic Unit 21010005, 1.16 mi south of Dorado plaza, 0.45 mi west of Laboratorio Dorado, 1.79 mi southeast of Dorado airport main gate, and 0.19 mi west of the PR Aqueduct and Sewer Authority San Antonio public supply well (San Antonio No. 3). Owner: US Geological Survey, WRD, Name: San Antonio No. 1.
AQUIFER.--Aguada Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-290 ft (0-88.4 m), screened 270-280 ft (82.3-85.3 m). Depth 290 ft (88.4 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 19.6 ft (6.00 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m), casing, 3.20 ft (0.98 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 21, 1997. Formerly published as local number SA-1.
PERIOD OF RECORD.--October 19, 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.97 ft (4.26 m), below land-surface datum, Sept. 11, 1996; lowest water level recorded, 19.56 ft (5.96 m), below land-surface datum, May 3, 4, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	16.23	17.03	17.43	17.75	17.58	16.76	17.10
2	---	---	---	---	---	16.24	17.03	17.44	17.75	17.57	16.76	17.09
3	---	---	---	---	---	16.30	17.03	17.45	17.75	17.42	16.77	17.09
4	---	---	---	---	---	16.40	17.03	17.51	17.75	17.42	16.77	17.09
5	---	---	---	---	---	16.40	17.03	17.51	17.75	17.40	16.77	17.01
6	---	---	---	---	---	16.41	17.09	17.52	17.76	17.40	16.78	16.98
7	---	---	---	---	---	16.40	17.11	17.56	17.78	17.40	16.78	17.02
8	---	---	---	---	---	16.51	17.10	17.57	17.78	17.41	16.78	17.01
9	---	---	---	---	---	16.51	17.11	17.57	17.80	17.34	16.88	17.02
10	---	---	---	---	---	16.51	17.11	17.56	17.80	17.22	16.88	17.02
11	---	---	---	---	---	16.52	17.11	17.56	17.78	17.22	16.88	17.01
12	---	---	---	---	---	16.52	17.11	17.56	17.78	17.20	16.88	16.98
13	---	---	---	---	---	16.66	17.22	17.56	17.78	17.20	16.90	16.96
14	---	---	---	---	---	16.67	17.22	17.61	17.75	17.21	16.90	16.90
15	---	---	---	---	---	16.69	17.22	17.61	17.75	17.15	16.97	16.83
16	---	---	---	---	---	16.69	17.21	17.61	17.75	16.98	16.98	16.83
17	---	---	---	---	---	16.72	17.21	17.61	17.75	16.91	16.98	16.93
18	---	---	---	---	---	16.73	17.21	17.64	17.73	16.84	16.98	16.98
19	---	---	---	---	---	16.73	17.21	17.64	17.73	16.81	16.99	16.98
20	---	---	---	---	---	16.73	17.21	17.67	17.62	16.81	16.99	16.84
21	---	---	---	---	---	16.73	17.21	17.67	17.63	16.83	16.99	16.84
22	---	---	---	---	16.14	16.74	17.21	17.67	17.62	16.83	17.00	16.82
23	---	---	---	---	16.14	16.73	17.39	17.67	17.53	16.82	17.01	16.89
24	---	---	---	---	16.15	16.73	17.38	17.66	17.53	16.76	17.01	16.91
25	---	---	---	---	16.15	16.73	17.38	17.67	17.53	16.75	17.08	16.95
26	---	---	---	---	16.14	16.85	17.38	17.67	17.54	16.75	17.09	16.94
27	---	---	---	---	16.23	16.85	17.38	17.70	17.54	16.75	17.10	16.83
28	---	---	---	---	16.23	16.85	17.43	17.73	17.56	16.75	17.11	16.83
29	---	---	---	---	---	16.96	17.43	17.72	17.57	16.75	17.11	16.83
30	---	---	---	---	---	16.96	17.43	17.73	17.57	16.75	17.11	16.83
31	---	---	---	---	---	17.03	---	17.74	---	16.76	17.10	---
MEAN	---	---	---	---	16.17	16.64	17.21	17.61	17.69	17.06	16.94	16.94

WTR YR 1999 MEAN 17.12 HIGHEST 16.12 FEB. 22, 1999 LOWEST 17.80 JUNE 8-11, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

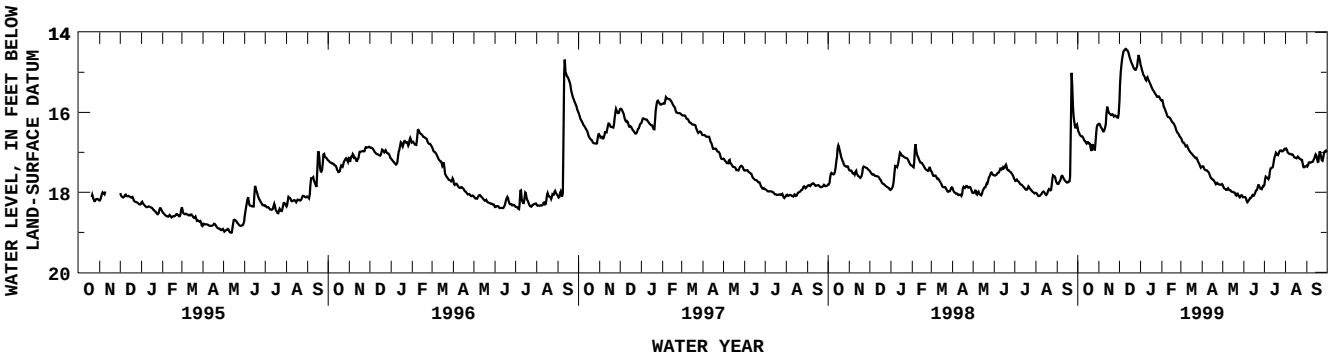


182657066162701. Local number, 1132.
LOCATION.--Lat 18°26'57", long 66°16'27", Hydrologic Unit 21010005, 20 ft north of San Antonio USGS # 1. Owner: US Geological Survey, WRD, Name: San Antonio No. 3.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-80.0 ft (0-24.4 m), screened 65-75.0 ft (19.8-22.9 m). Depth 80.0 ft (24.4 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 19.6 ft (6.00 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m), casing, 3.38 ft (1.03 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 6, 1997. Formerly published as local number SA-3.
PERIOD OF RECORD.--October 19, 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.95 ft (4.25 m), below land-surface datum, Sept. 11, 1996; lowest water level recorded, 19.03 ft (5.80 m), below land-surface datum, May 13, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.33	16.30	15.97	14.76	15.73	16.63	17.33	17.80	18.13	17.85	16.92	17.32
2	16.48	16.27	15.49	14.85	15.68	16.65	17.37	17.83	18.11	17.78	16.93	17.34
3	16.48	16.31	15.13	14.90	15.72	16.70	17.32	17.89	18.13	17.60	16.89	17.36
4	16.54	16.36	14.84	14.97	15.86	16.75	17.40	17.91	18.11	17.61	16.98	17.26
5	16.57	16.39	14.73	15.04	15.87	16.76	17.43	17.90	18.18	17.63	17.02	17.25
6	16.59	16.40	14.60	15.07	15.92	16.76	17.44	17.94	18.23	17.64	17.02	17.25
7	16.60	16.46	14.50	15.10	15.95	16.80	17.45	17.93	18.27	17.67	17.05	17.27
8	16.60	16.48	14.46	15.14	16.02	16.83	17.44	17.95	18.20	17.67	17.04	17.24
9	16.60	16.47	14.44	15.20	16.06	16.87	17.46	17.88	18.20	17.59	17.04	17.24
10	16.67	16.44	14.43	15.20	16.11	16.81	17.49	17.92	18.15	17.40	17.06	17.24
11	16.70	16.33	14.40	15.10	16.12	16.85	17.49	17.95	18.13	17.41	17.06	17.22
12	16.72	16.26	14.44	15.15	16.12	16.91	17.53	17.94	18.15	17.38	17.05	17.15
13	16.72	15.85	14.45	15.19	16.13	16.94	17.59	17.95	18.11	17.39	17.08	17.16
14	16.79	15.87	14.47	15.23	16.15	16.96	17.64	17.97	18.05	17.36	17.12	17.05
15	16.77	15.95	14.52	15.28	16.20	16.99	17.65	18.00	18.08	17.26	17.14	17.06
16	16.73	16.01	14.60	15.29	16.22	17.01	17.67	17.98	18.09	17.11	17.13	17.10
17	16.76	16.03	14.65	15.36	16.25	17.03	17.68	18.00	18.07	17.13	17.15	17.22
18	16.79	16.04	14.70	15.38	16.26	17.05	17.68	18.01	18.00	17.00	17.15	17.26
19	16.75	16.06	14.76	15.43	16.28	17.07	17.72	18.00	17.97	17.02	17.11	17.21
20	16.84	16.08	14.79	15.46	16.32	17.09	17.74	18.04	17.93	17.05	17.10	16.97
21	16.94	16.04	14.82	15.47	16.35	17.11	17.78	18.09	17.95	17.08	17.15	16.98
22	16.99	16.06	14.88	15.51	16.41	17.12	17.81	18.07	17.84	17.06	17.16	17.09
23	16.73	16.09	14.92	15.54	16.46	17.16	17.75	18.00	17.80	16.99	17.17	17.17
24	16.86	16.11	14.91	15.56	16.50	17.14	17.78	18.06	17.84	16.96	17.18	17.22
25	16.92	16.06	14.96	15.60	16.52	17.14	17.78	18.09	17.89	16.95	17.20	17.20
26	16.94	16.10	14.91	15.63	16.54	17.22	17.80	18.12	17.92	16.95	17.18	17.09
27	16.93	16.10	14.87	15.60	16.58	17.24	17.81	18.14	17.90	16.96	17.36	16.99
28	16.62	16.11	14.83	15.61	16.61	17.28	17.80	18.09	17.94	16.99	17.37	16.98
29	16.43	16.15	14.54	15.60	---	17.32	17.82	18.06	17.84	16.95	17.38	16.95
30	16.31	16.11	14.59	15.68	---	17.37	17.78	18.08	17.84	16.95	17.33	16.96
31	16.31	---	14.67	15.67	---	17.40	---	18.12	---	16.90	17.38	---
MEAN	16.68	16.18	14.75	15.31	16.18	17.00	17.61	17.99	18.03	17.27	17.13	17.16

WTR YR 1999 MEAN 16.77 HIGHEST 14.36 DEC. 11, 1998 LOWEST 18.27 JUNE 7, 1999

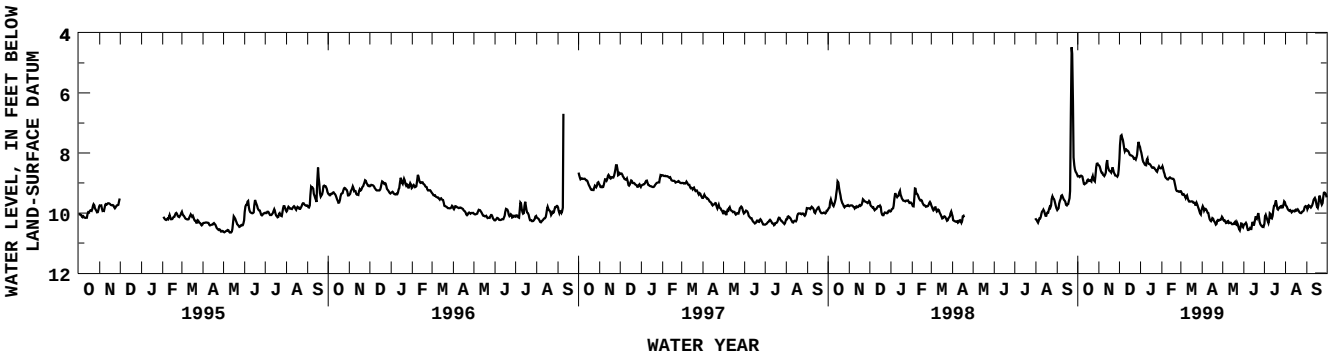


182654066150600. Local number, 1133.
LOCATION.--Lat 18°26'54", long 66°15'06", Hydrologic Unit 21010005, 0.92 mi southeast of the Dorado bridge, 0.66 mi east of Hwy 693, 0.09 mi north of the intersection of Hwy 165 with Hwy 867, and 0.01 mi east of Hwy 165. Owner: US Geological Survey, WRD, Name: Toa Baja TW-1.
AQUIFER.--Tertiary Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-165 ft (0-50.3 m), screened 25-165 ft (7.62-50.3 m) . Depth 167 ft (50.9 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 7.00 ft (2.10 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor on top of 4 in (0.10 m) casing, 3.60 ft (1.10 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 25, 1997. Water levels affected by nearby pumping well. Formerly published as local number TB-1.
PERIOD OF RECORD.-- November 16, 1992 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.04 ft (0.93 m), below land-surface datum, Sept. 10, 1996; lowest water level recorded, 10.68 ft (3.25 m), below land-surface datum May 3, 4, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.77	8.41	8.42	7.84	8.55	9.27	9.81	10.13	10.45	10.47	9.69	9.75
2	8.78	8.41	7.96	7.96	8.44	9.28	9.85	10.20	10.34	10.25	9.77	9.82
3	8.75	8.49	7.50	8.02	8.46	9.36	9.70	10.27	10.40	9.99	9.76	9.93
4	8.80	8.53	7.36	8.16	8.62	9.41	9.96	10.25	10.34	10.13	9.83	9.70
5	8.80	8.69	7.45	8.30	8.63	9.38	9.88	10.24	10.32	10.16	9.90	9.80
6	8.75	8.62	7.53	8.29	8.76	9.37	9.84	10.36	10.41	10.24	9.90	9.73
7	8.76	8.70	7.60	8.38	8.82	9.43	9.88	10.31	10.59	10.33	9.94	9.85
8	8.77	8.75	7.77	8.39	8.84	9.48	9.89	10.35	10.54	10.34	9.92	9.78
9	8.81	8.74	7.94	8.41	8.86	9.53	9.99	10.20	10.59	10.09	9.89	9.78
10	9.01	8.80	7.95	8.41	8.90	9.35	9.99	10.33	10.48	9.93	9.98	9.70
11	9.05	8.65	7.82	8.06	8.87	9.48	10.01	10.34	10.52	10.14	9.98	9.61
12	9.04	8.66	7.94	8.31	8.84	9.55	10.20	10.32	10.55	10.20	9.93	9.52
13	9.00	8.09	7.91	8.36	8.81	9.62	10.21	10.33	10.52	10.16	9.92	9.52
14	9.02	8.38	7.93	8.37	8.81	9.62	10.29	10.31	10.22	10.03	9.94	9.47
15	8.96	8.49	7.96	8.36	8.87	9.62	10.25	10.40	10.38	9.80	9.95	9.65
16	8.87	8.56	8.03	8.41	8.83	9.62	10.19	10.35	10.41	9.73	9.87	9.77
17	8.91	8.60	8.07	8.44	8.87	9.61	10.15	10.38	10.38	9.79	9.90	9.82
18	8.96	8.61	8.09	8.48	8.86	9.61	10.23	10.35	10.16	9.52	9.94	9.84
19	8.89	8.65	8.07	8.50	8.87	9.63	10.28	10.31	10.11	9.64	9.87	9.63
20	8.93	8.66	8.11	8.48	8.95	9.67	10.30	10.28	10.17	9.82	9.89	9.36
21	8.92	8.45	8.09	8.48	9.06	9.65	10.34	10.46	10.20	9.92	9.95	9.48
22	8.99	8.51	8.16	8.50	9.19	9.67	10.43	10.32	10.02	9.86	9.99	9.61
23	8.70	8.63	8.21	8.57	9.25	9.79	10.29	10.30	9.98	9.82	9.99	9.72
24	8.83	8.68	8.13	8.56	9.28	9.67	10.23	10.43	10.24	9.82	10.01	9.72
25	8.89	8.71	8.26	8.64	9.27	9.66	10.24	10.51	10.34	9.82	9.99	9.62
26	8.94	8.79	8.18	8.62	9.28	9.80	10.26	10.56	10.41	9.72	9.93	9.36
27	8.96	8.72	8.10	8.52	9.30	9.79	10.23	10.60	10.40	9.81	9.97	9.29
28	8.56	8.81	8.01	8.46	9.28	9.94	10.22	10.39	10.48	9.83	9.90	9.35
29	8.39	8.76	7.54	8.43	---	9.96	10.24	10.31	10.43	9.79	9.89	9.32
30	8.33	8.71	7.72	8.55	---	10.06	10.12	10.40	10.43	9.63	9.71	9.42
31	8.38	---	7.75	8.47	---	10.03	---	10.50	---	9.60	9.84	---
MEAN	8.82	8.61	7.92	8.38	8.91	9.61	10.12	10.35	10.36	9.95	9.90	9.63

WTR YR 1999 MEAN 9.38 HIGHEST 7.36 DEC. 4, 1998 LOWEST 10.60 MAY 27, 1999

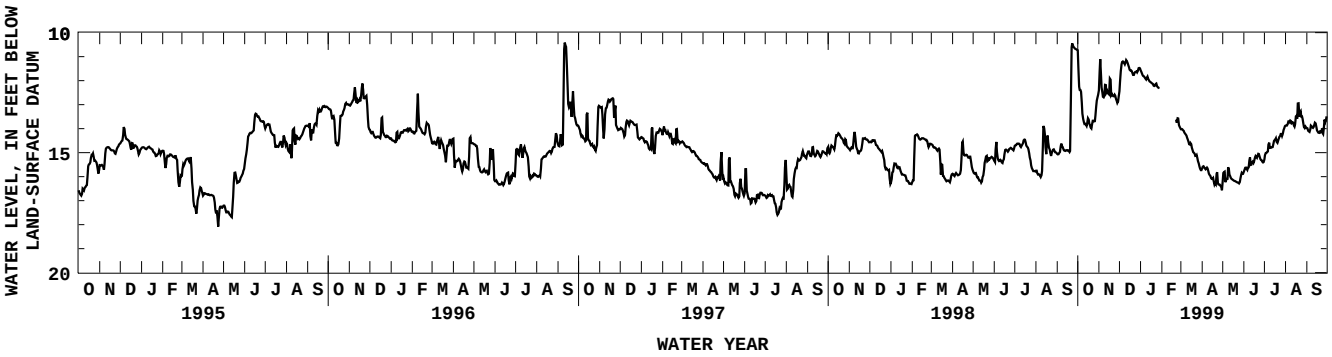


182530066135400. Local number, 216.
LOCATION.--Lat 18°25'30", long 66°13'54", Hydrologic Unit 21010005, 2.61 mi northeast of Toa Alta plaza, 2.73 mi southwest of Sabana Seca U.S. Naval Radio Station, and 1.76 mi southeast of Hwy 2 km 17.7. Owner: PR Aqueduct and Sewer Authority, Name: Pozo Navy-Campanillas.
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).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 13.0 ft (3.96 m), above mean sea level, from topographic map. Measuring point: Hole on side of casing, 1.80 ft (0.55 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 6, 1998. Water levels affected by nearby pumping 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, 18.40 ft (5.61 m), below land-surface datum, Sept. 24, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.73	12.57	12.57	11.51	---	14.01	15.67	16.67	15.84	15.38	13.87	14.02
2	10.74	12.24	12.31	11.61	---	14.03	15.62	15.68	15.74	15.18	13.87	13.93
3	12.15	10.94	11.81	11.66	---	14.01	15.54	16.01	15.67	15.03	13.87	14.04
4	12.34	11.27	11.40	11.73	---	14.04	15.60	15.61	15.59	15.00	13.88	14.13
5	12.43	12.23	11.24	11.82	---	14.09	15.62	15.97	15.65	15.01	13.76	14.09
6	12.36	12.35	11.20	11.80	---	14.11	15.69	16.50	15.70	14.94	13.64	14.19
7	12.57	12.62	11.20	11.85	---	14.21	15.70	15.70	15.74	14.96	13.76	13.87
8	13.25	12.72	11.24	11.90	---	14.21	15.64	16.52	15.52	14.36	13.71	13.88
9	13.51	12.68	11.31	11.93	---	14.27	15.61	15.68	15.71	14.81	13.62	13.92
10	13.68	12.60	11.33	11.98	---	14.31	15.70	15.53	14.91	14.79	13.75	13.97
11	13.80	11.75	11.14	11.79	---	14.43	15.86	15.86	15.49	14.81	13.78	13.97
12	13.81	12.62	11.15	11.88	---	14.49	15.90	15.96	15.54	14.77	13.70	13.90
13	13.79	12.37	11.24	11.94	---	14.61	15.97	16.01	15.47	14.78	13.79	13.78
14	13.87	12.49	11.30	12.02	---	14.68	15.98	16.09	15.34	14.75	13.91	13.73
15	13.90	12.54	11.41	12.04	---	14.64	16.14	16.11	15.42	14.58	13.91	13.84
16	13.66	12.57	11.49	12.06	---	14.56	16.06	16.12	15.44	14.44	13.73	14.05
17	13.48	12.58	11.59	12.09	---	14.74	16.14	16.15	15.29	14.52	13.25	14.09
18	13.77	11.25	11.56	12.11	---	14.84	15.98	16.17	15.17	14.38	13.68	14.16
19	13.81	12.67	11.58	12.13	---	14.95	16.41	16.18	15.12	14.42	13.48	14.18
20	13.92	12.56	11.62	12.15	---	15.00	16.25	16.19	15.23	14.68	12.43	14.17
21	13.99	12.58	11.73	12.27	---	15.02	16.29	16.21	15.20	14.51	13.45	14.09
22	14.00	12.65	11.79	12.18	13.56	15.08	16.35	16.22	15.08	14.52	13.54	14.22
23	13.68	12.64	11.73	12.23	13.69	15.19	15.41	16.24	15.01	14.32	13.10	13.95
24	13.66	12.66	11.64	12.04	13.81	15.06	16.23	16.25	15.11	14.37	13.44	14.17
25	13.68	12.50	11.64	12.20	13.33	15.14	16.34	16.26	15.21	14.24	13.55	14.20
26	13.72	12.75	11.62	12.26	13.82	15.32	16.31	16.30	15.31	14.20	13.44	14.25
27	13.65	12.77	11.61	12.26	13.88	15.39	16.34	16.15	15.29	14.24	13.74	13.65
28	13.24	12.92	11.70	12.32	13.94	15.51	16.34	16.01	15.35	14.36	13.84	13.60
29	12.90	12.94	11.49	12.35	---	15.66	16.44	15.84	15.40	14.06	14.01	13.86
30	12.76	12.78	11.47	---	---	15.66	16.46	15.84	15.41	14.06	13.94	13.47
31	12.62	---	11.47	---	---	15.79	---	15.92	---	13.92	13.89	---
MEAN	13.21	12.43	11.53	12.00	13.72	14.74	15.99	16.06	15.40	14.59	13.66	13.98

WTR YR 1999 MEAN 13.96 HIGHEST 10.70 OCT. 1, 1998 LOWEST 16.69 MAY 1, 1999

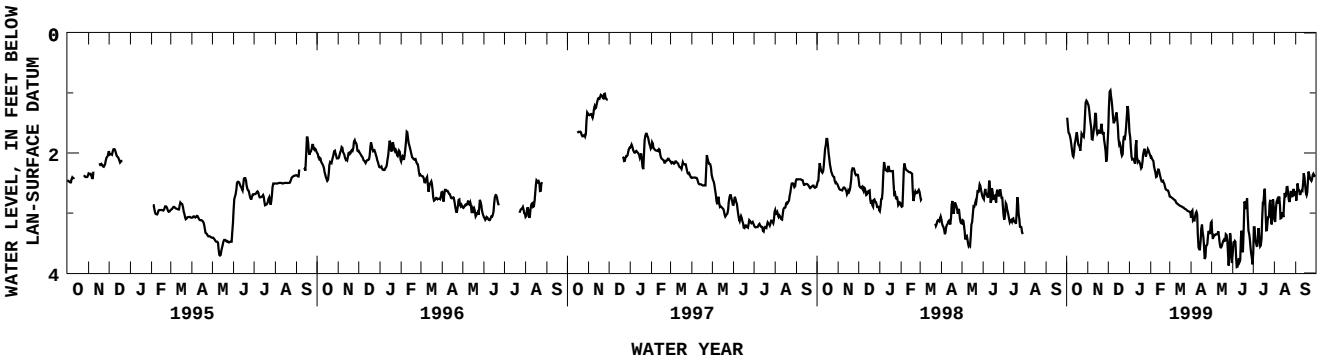


182655066142400. Local number, 217.
LOCATION.--Lat 18°26'55", long 66°14'24", Hydrologic Unit 21010005, 4.00 mi northeast of Toa Alta plaza, 3.40 mi northwest of Hwy 2 km 17.7, and 3.49 mi northwest of Sabana Seca US Naval Radio Station. Owner: US Geological Survey, WRD, Name: Monserrate TW-2.
AQUIFER.-Alluvial Deposits.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-80.0 ft (0-24.4 m), perforated 10-80 ft (3.05-24.4 m). Depth 80.0 ft (24.4 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 6, 1997. Water levels affected by nearby pumping.
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, 4.11 ft (1.25 m), below land-surface datum, June 30, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1.17	1.69	1.58	2.07	2.72	2.99	3.10	3.80	3.86	3.04	2.59
2	1.34	1.18	1.51	1.71	2.07	2.73	3.17	3.19	3.54	3.46	3.19	2.68
3	1.48	1.23	1.01	1.76	2.06	2.73	2.79	3.48	3.45	3.02	3.11	2.91
4	1.66	1.31	.95	2.01	2.14	2.74	3.13	3.39	3.54	3.46	2.84	2.35
5	1.66	1.49	.97	2.11	2.09	2.75	3.12	3.31	3.39	3.44	2.80	2.67
6	1.70	1.48	1.13	2.10	2.18	2.76	3.10	3.45	3.57	3.55	2.76	2.56
7	1.73	1.69	1.16	2.09	2.27	2.77	3.14	3.29	3.95	3.55	2.89	2.68
8	1.82	1.85	1.34	2.12	2.29	2.78	2.97	3.43	3.85	3.54	2.76	2.69
9	1.88	1.70	1.48	2.15	2.38	2.79	3.02	3.27	3.94	3.18	2.69	2.68
10	2.02	1.70	1.53	2.20	2.42	2.79	2.94	3.44	3.71	3.32	3.06	2.62
11	2.07	1.50	1.42	1.59	2.36	2.84	3.12	3.25	3.80	3.52	3.12	2.63
12	2.05	1.48	1.48	1.98	2.28	2.84	3.57	3.36	3.82	3.59	3.05	2.63
13	1.91	1.18	1.27	2.13	2.27	2.85	3.58	3.45	3.75	3.49	2.96	2.35
14	1.79	1.56	1.38	2.17	2.29	2.86	3.63	3.55	3.05	3.37	3.05	2.33
15	1.79	1.66	1.46	2.09	2.38	2.87	3.58	3.59	3.54	2.88	3.09	2.48
16	1.65	1.70	1.68	2.18	2.41	2.88	3.34	3.56	3.64	2.79	2.65	2.64
17	1.66	1.63	1.84	2.16	2.46	2.88	3.19	3.55	3.67	2.89	2.68	2.68
18	1.84	1.63	1.88	2.23	2.49	2.89	3.20	3.45	2.90	2.43	2.79	2.72
19	1.85	1.64	1.80	2.28	2.46	2.89	3.42	3.49	2.72	2.76	2.61	2.60
20	1.91	1.71	1.97	2.20	2.47	2.90	3.38	3.40	2.94	3.19	2.53	2.30
21	1.86	1.49	2.01	2.10	2.51	2.91	3.66	3.53	2.93	3.39	2.60	2.32
22	2.06	1.54	2.08	1.97	2.52	2.91	3.87	3.39	2.72	3.18	2.74	2.42
23	1.67	1.70	1.96	1.96	2.60	2.93	3.60	3.32	2.79	3.07	2.82	2.43
24	1.69	1.68	1.63	1.90	2.61	2.93	3.50	3.41	3.27	3.06	2.81	2.46
25	1.71	1.62	1.80	2.09	2.62	2.94	3.58	3.50	3.32	3.06	2.68	2.47
26	1.72	1.93	1.77	2.03	2.62	2.95	3.44	3.79	3.39	2.63	2.59	2.40
27	1.74	1.80	1.62	1.98	2.63	2.96	3.26	3.96	3.47	2.93	2.78	2.32
28	1.52	2.15	1.58	1.98	2.65	2.97	3.34	3.48	3.69	3.21	2.69	2.37
29	1.18	2.14	1.23	1.89	---	2.97	3.36	3.19	3.66	3.17	2.61	2.38
30	1.14	2.02	1.21	2.03	---	2.98	3.23	3.59	3.85	2.77	2.59	2.39
31	1.11	---	1.31	1.98	---	2.98	---	3.87	---	2.78	2.81	---
MEAN	1.71	1.62	1.52	2.02	2.38	2.86	3.31	3.45	3.46	3.18	2.82	2.53

WTR YR 1999 MEAN 2.57 HIGHEST 0.86 DEC. 4, 1998 LOWEST 4.11 JUNE 30, 1999



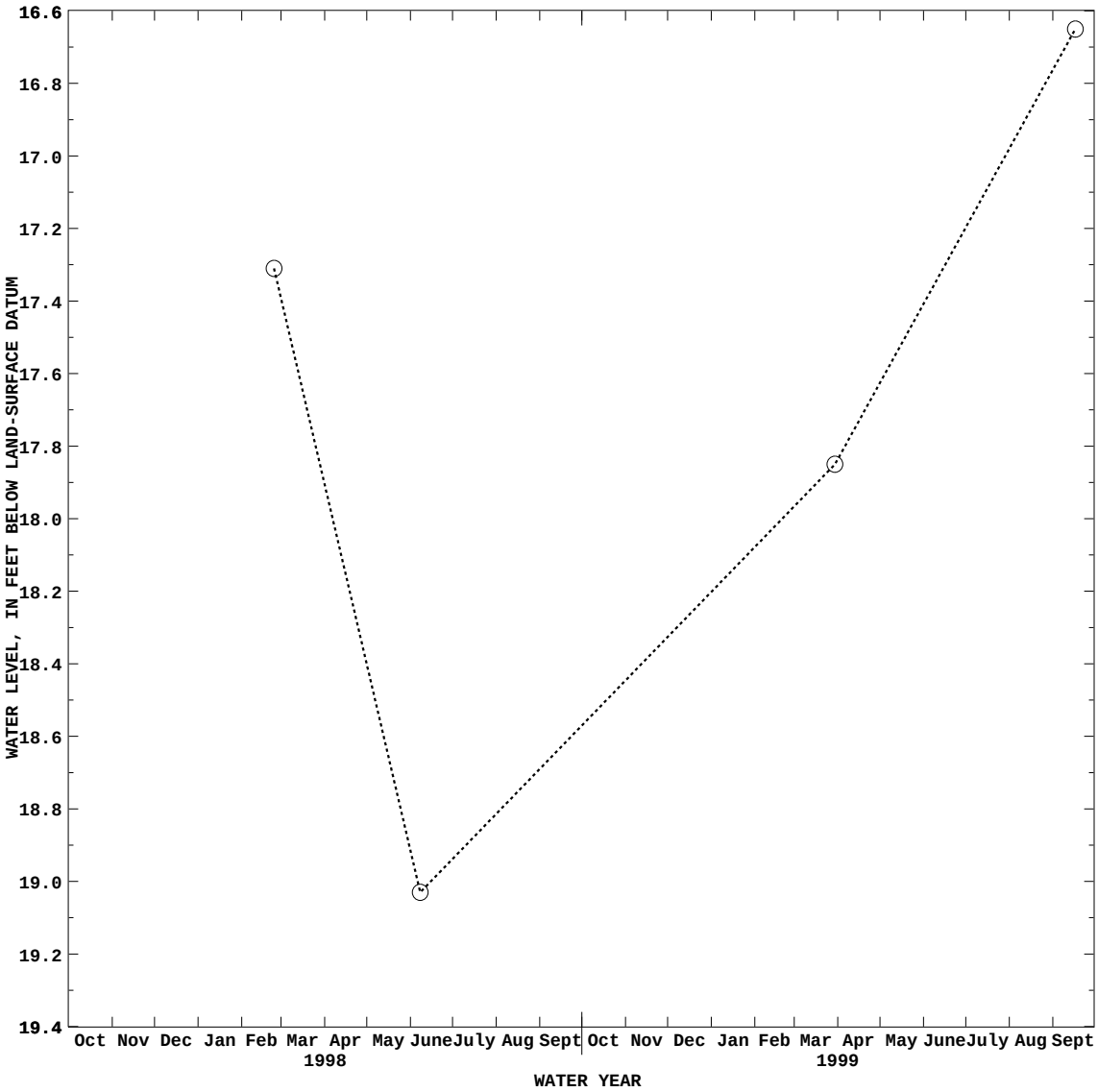
180649066095500. Local number, 1134.
LOCATION.--Lat 18°06'49", long 66°09'55", Hydrologic Unit 21010005, 0.10 mi southeast of Cayey plaza, 0.50 mi northwest of the intersection of Hwy 1 with Hwy 15, and 1.30 mi west of Cayey exit from Hwy 52. Owner: PR Aqueduct and Sewer Authority, Name: Minima.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Abandoned production well, diameter 13 in (0.34 m), screened 40.0-90.0 ft (12.2-27.4 m) Depth 125 ft (38.1 m).
DATUM.--Elevation of land-surface datum is about 1296 ft (395 m), above mean sea level, from topographic map. Measuring point: On highest part of motor support, 1.86 ft (0.57 m), above land-surface datum.
REMARKS.--Observation well.
PERIOD OF RECORD.--February 28, 1998 to September 17, 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.65 ft (5.04 m), below land-surface datum, Sept. 17, 1999; lowest water level measured, 19.03 ft (5.80 m), below land-surface datum, June 11, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level
Feb. 24	17.31	June 11	19.03

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level
Mar. 30	17.85	Sept. 17	16.65

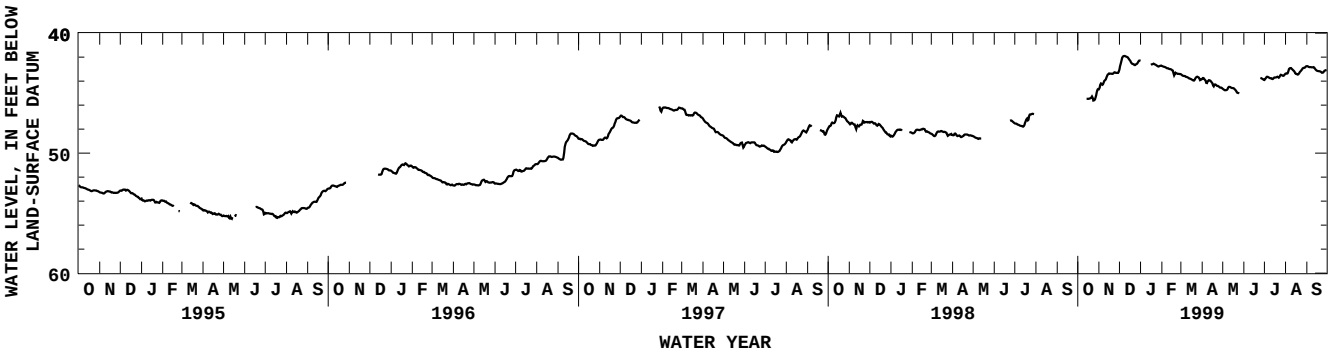


182441066082600. Local number, 219.
LOCATION.--Lat 18°24'41", long 66°08'26", Hydrologic Unit 21010005, 0.47 mi west of Fort Buchanan Military Res. main gate, 1.74 mi northeast of Bayamón plaza, and 1.88 mi southwest of PR National Cementery. Owner: US Department of Defense, Name: Buchanan Park No. 1.
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).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on January 28, 1998.
PERIOD OF RECORD.--December 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.9 ft (10.7 m), below land-surface datum, Nov. 12, 13, 14, 1989; lowest water level recorded, 55.67 ft (17.0 m), below land-surface datum, May 13, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	44.66	43.16	42.29	42.71	43.41	43.84	44.61	---	43.94	43.39	42.75
2	---	44.67	42.88	42.32	42.75	43.45	43.80	44.66	---	43.88	43.36	42.74
3	---	44.42	42.65	---	42.77	43.50	43.70	44.70	---	43.81	43.37	42.77
4	---	44.19	42.39	---	42.79	43.54	43.78	44.73	---	43.70	43.39	42.80
5	---	44.21	42.16	---	42.81	43.56	43.84	44.76	---	43.63	43.31	42.83
6	---	44.23	41.98	---	42.81	43.58	43.94	44.76	---	43.64	43.03	42.82
7	---	44.38	41.93	---	42.85	43.57	44.00	44.75	---	43.66	42.95	42.83
8	---	44.17	41.91	---	42.89	43.61	44.29	44.73	---	43.70	42.91	42.83
9	---	44.04	41.89	---	42.93	43.64	44.04	44.60	---	43.73	42.90	42.86
10	---	43.94	41.92	---	42.92	43.65	44.02	44.49	---	43.77	42.94	42.85
11	---	43.89	41.94	---	42.93	43.67	43.92	44.48	---	43.75	43.00	42.84
12	---	43.81	41.96	---	42.98	43.72	43.93	44.49	---	43.76	43.05	42.84
13	---	43.61	42.01	---	43.00	43.75	43.95	44.50	---	43.84	43.11	42.92
14	45.45	43.48	42.02	---	42.99	43.79	43.99	44.54	---	43.82	43.16	42.99
15	45.49	43.44	42.14	---	43.02	43.80	44.07	44.58	---	43.75	43.27	43.08
16	45.47	43.37	42.22	42.65	43.07	43.83	44.14	44.58	---	43.67	43.38	43.13
17	45.48	43.36	42.26	42.63	43.09	43.84	44.20	44.58	---	43.73	43.39	43.15
18	45.46	43.38	42.37	42.60	43.14	43.89	44.54	44.61	---	43.67	43.40	43.16
19	45.46	43.37	42.49	42.59	43.49	43.91	44.31	44.68	---	43.71	43.48	43.16
20	45.43	43.38	42.54	42.55	43.55	43.95	44.27	44.74	---	43.61	43.44	43.17
21	45.39	43.39	42.57	42.55	43.30	43.97	44.27	44.78	---	43.64	43.37	43.20
22	45.33	43.39	42.57	42.60	43.29	43.82	44.34	44.92	---	43.69	43.26	43.21
23	45.23	43.34	42.64	42.63	43.35	43.72	44.40	44.98	---	43.73	43.20	43.29
24	45.58	43.25	42.67	42.65	43.38	43.66	44.40	44.96	---	43.59	43.12	43.29
25	45.66	43.27	42.64	42.69	43.39	43.64	44.40	45.04	43.71	43.48	43.08	43.31
26	45.54	43.30	42.59	42.74	43.39	43.64	44.45	45.04	43.73	43.46	42.97	43.24
27	45.52	43.31	42.55	42.78	43.40	43.69	44.52	---	43.76	43.51	42.91	43.16
28	45.27	43.31	42.53	42.79	43.41	43.70	44.55	---	43.78	43.54	42.88	43.12
29	45.05	43.30	42.38	42.75	---	43.91	44.54	---	43.82	43.56	42.91	43.09
30	44.77	43.31	42.29	42.73	---	43.94	44.54	---	43.85	43.54	42.85	43.07
31	44.65	---	42.29	42.71	---	43.84	---	---	---	43.47	42.79	---
MEAN	45.35	43.71	42.34	42.62	43.09	43.72	44.17	44.70	43.77	43.68	43.15	43.02

WTR YR 1999 MEAN 43.55 HIGHEST 41.87 DEC. 8, 9, 1998 LOWEST 45.69 OCT. 24, 25, 1998

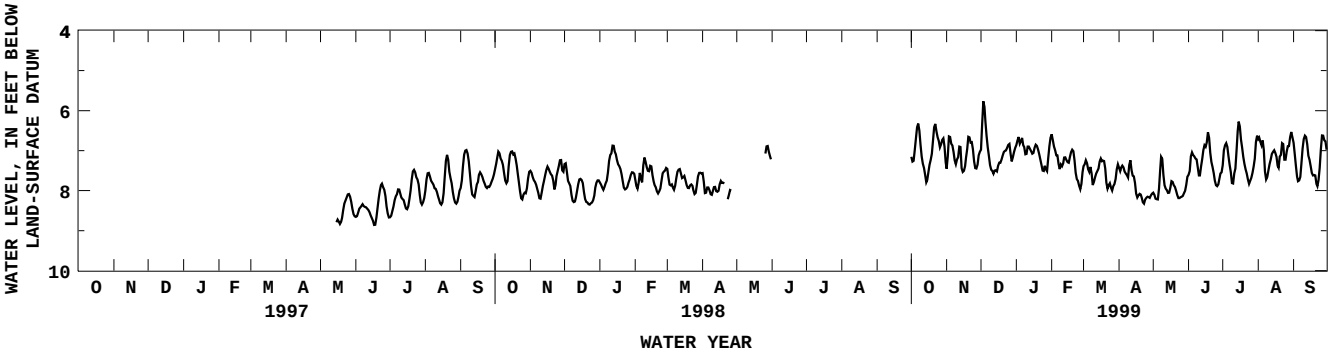


182531066075900. Local number, 652.
LOCATION.--Lat 18°25'31", long 66°06'59", Hydrologic Unit 21010005, 0.07 mi north of Hwy 22, 0.32 mi southwest of the intersection of Hwy 165 with Hwy 28, and 1.40 mi south of the Cataño ferry building. Owner: US Geological Survey, WRD, Name: USGS Building 652.
AQUIFER.--Aymamón Limestone.
WELL CHARACTERISTICS.--Drilled water-table well, diameter 4.0 in (0.10 m), cased 0-192 ft (0-58.5 m). Depth 192 ft (58.5 m).
INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 10.0 ft (3.05 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of the 4.0 in (0.10 m) casing, 3.27 ft (1.00 m), above land-surface datum.
REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on May 14, 1997. Water level affected by marine tides.
PERIOD OF RECORD.--May 14, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.42 ft (1.65 m), below land-surface datum, Dec. 5, 1998; lowest water level recorded, 9.16 ft (2.79 m), below land-surface datum, Oct. 1, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.16	7.39	7.09	6.89	6.54	7.39	7.35	8.06	7.61	7.57	6.76	6.70
2	7.15	7.51	6.86	6.83	6.64	7.39	7.50	8.04	7.60	7.16	6.66	6.91
3	7.40	6.77	5.82	6.66	6.83	7.29	7.53	8.17	7.42	6.82	6.69	7.25
4	7.11	6.52	5.71	6.66	6.96	7.19	7.30	8.23	6.87	6.91	6.87	7.50
5	6.86	6.80	6.10	6.99	7.02	7.43	7.45	8.20	7.22	6.72	6.86	7.80
6	6.53	6.85	6.45	6.54	7.21	7.50	7.39	8.24	7.00	7.09	6.63	7.73
7	6.30	6.89	6.81	6.83	7.03	7.57	7.66	7.66	7.29	7.20	7.34	7.76
8	6.35	7.18	7.02	6.90	7.63	7.25	7.48	7.33	7.10	7.51	7.71	7.56
9	6.65	7.31	7.23	6.92	7.29	7.89	7.75	6.98	7.34	7.56	7.73	7.06
10	7.05	7.37	7.49	7.26	7.40	7.83	7.59	7.43	7.50	8.06	7.59	6.83
11	7.25	7.07	7.46	6.90	7.38	7.73	7.13	7.78	7.74	7.58	7.39	6.59
12	7.40	7.26	7.56	6.90	7.25	7.60	7.35	7.95	7.50	7.56	7.28	6.66
13	7.46	6.54	7.59	6.90	7.10	7.54	7.62	7.95	7.30	7.33	7.16	6.66
14	7.75	7.28	7.41	7.01	7.24	7.48	7.63	8.03	7.12	6.65	7.00	7.01
15	7.83	7.59	7.57	7.02	7.23	7.41	7.66	8.08	6.86	6.36	7.06	7.24
16	7.64	7.48	7.47	7.13	7.35	7.14	7.95	8.02	6.87	6.19	6.92	7.22
17	7.44	7.53	7.29	6.99	7.25	7.25	8.20	7.84	6.94	6.60	7.20	7.56
18	7.26	7.25	7.31	6.87	7.07	7.28	8.14	7.69	6.65	6.84	7.11	7.55
19	7.20	7.10	7.29	6.83	7.01	7.22	8.10	7.87	6.43	7.01	7.65	7.69
20	6.95	6.82	7.15	6.93	6.94	7.30	8.06	7.86	6.93	7.30	7.20	7.53
21	6.55	6.49	7.09	7.01	7.09	7.59	8.14	7.95	7.18	7.36	7.10	7.71
22	6.28	6.85	6.98	7.16	7.39	8.01	8.21	8.05	7.39	7.57	7.11	7.95
23	6.39	6.75	7.03	7.28	7.71	7.89	8.37	8.17	7.44	7.57	6.52	7.83
24	6.65	6.83	6.96	7.43	7.71	7.85	8.28	8.20	7.68	7.86	7.15	7.64
25	6.68	7.11	6.90	7.57	7.81	7.78	8.17	8.17	7.83	7.80	7.30	7.22
26	6.83	7.42	6.81	7.45	7.95	8.07	8.19	8.16	7.90	7.71	7.15	6.73
27	7.01	7.45	6.85	7.31	7.98	7.93	8.11	8.14	7.88	7.64	6.91	6.51
28	6.67	7.44	7.30	7.62	7.68	7.85	8.21	8.13	7.81	7.47	6.87	6.74
29	6.79	7.26	7.24	7.41	---	7.82	8.15	8.00	7.63	7.33	6.90	6.74
30	6.60	6.97	7.09	6.97	---	7.60	8.09	8.01	7.51	7.07	6.43	6.80
31	7.20	---	6.98	6.82	---	7.33	---	7.70	---	6.49	6.64	---
MEAN	6.98	7.10	7.03	7.03	7.27	7.56	7.83	7.94	7.32	7.22	7.06	7.22

WTR YR 1999 MEAN 7.30 HIGHEST 5.42 DEC. 5, 1998 LOWEST 9.16 OCT. 1, 1998

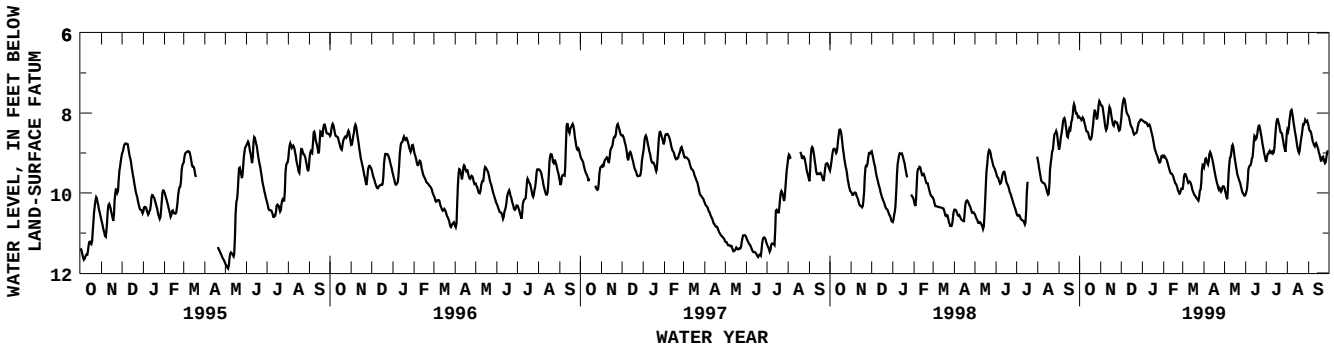


182511066045401. Local number, 1152.
LOCATION.--Lat 18°25'11, long 66°04'54", Hydrologic Unit 21010005, 1.58 mi northeast of Fort Buchannan Military Res. main gate, 2.95 mi southeast of Cataño plaza, and 2.45 mi southeast of US Naval Reservation in Miramar. Owner: US Geological Survey, WRD, Name: La Esperanza No. 2.
AQUIFER.--Alluvium.
WELL 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 40.0 ft (12.2 m).
INSTRUMENTATION.--Electronic water level logger--15-minute interval.
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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on April 8, 1998. Formerly published as local number PN-2.
PERIOD OF RECORD.--July 1989 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.63 ft (2.32 m), below land-surface datum, Dec. 6, 1998; 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 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.08	7.77	8.25	8.17	9.13	9.91	9.32	9.84	10.05	9.21	8.43	8.31
2	8.14	7.81	8.05	8.20	9.08	9.89	9.39	9.92	10.01	9.23	8.42	8.36
3	8.12	7.82	7.88	8.21	9.06	9.62	9.18	9.99	9.91	9.04	8.51	8.47
4	8.15	7.82	7.70	8.21	9.12	9.54	9.12	10.06	9.87	9.02	8.28	8.44
5	8.21	7.93	7.65	8.24	9.15	9.52	9.15	10.15	9.50	9.03	8.10	8.48
6	8.11	8.07	7.63	8.24	9.16	9.55	9.23	10.16	9.34	8.92	7.99	8.56
7	8.12	8.18	7.70	8.23	9.22	9.60	9.29	9.69	9.35	8.97	7.91	8.68
8	8.18	8.30	7.83	8.26	9.30	9.65	9.29	9.37	9.29	9.00	7.94	8.73
9	8.26	8.45	7.96	8.31	9.36	9.74	9.07	9.16	9.32	9.00	8.05	8.78
10	8.33	8.41	8.01	8.35	9.42	9.75	8.98	9.08	9.16	8.93	8.16	8.82
11	8.43	8.36	8.05	8.30	9.47	9.70	8.97	9.11	9.12	8.98	8.29	8.84
12	8.47	8.19	8.05	8.28	9.53	9.72	9.05	8.87	9.09	9.04	8.40	8.72
13	8.46	8.03	8.13	8.34	9.51	9.75	9.11	8.79	8.79	8.94	8.50	8.79
14	8.48	7.85	8.20	8.43	9.53	9.80	9.18	8.81	8.58	8.79	8.61	8.80
15	8.55	7.85	8.29	8.51	9.55	9.88	9.27	8.91	8.57	8.50	8.74	8.89
16	8.62	7.93	8.34	8.56	9.63	9.95	9.37	9.05	8.63	8.29	8.83	8.94
17	8.68	8.04	8.35	8.65	9.67	9.98	9.45	9.21	8.68	8.19	8.95	9.02
18	8.65	8.18	8.41	8.75	9.74	10.03	9.56	9.29	8.57	8.12	8.96	9.07
19	8.64	8.24	8.47	8.86	9.77	10.06	9.62	9.39	8.46	8.19	9.04	9.15
20	8.50	8.34	8.54	8.92	9.78	10.07	9.72	9.52	8.34	8.27	8.86	9.23
21	8.34	8.30	8.54	8.96	9.83	10.12	9.77	9.57	8.30	8.35	8.70	9.14
22	8.21	8.22	8.50	9.03	9.90	10.13	9.83	9.63	8.33	8.45	8.59	9.07
23	7.96	8.21	8.51	9.07	9.95	10.16	9.95	9.68	8.45	8.51	8.52	9.11
24	7.92	8.24	8.49	9.11	9.99	10.18	9.89	9.74	8.52	8.47	8.30	9.20
25	7.97	8.22	8.43	9.19	10.05	10.20	9.87	9.78	8.66	8.56	8.27	9.23
26	8.09	8.26	8.31	9.23	9.97	9.99	9.93	9.88	8.77	8.66	8.31	9.28
27	8.19	8.36	8.24	9.25	9.90	9.91	10.00	9.93	8.86	8.76	8.19	9.17
28	8.08	8.42	8.23	9.21	9.89	9.92	9.88	10.01	8.96	8.86	8.15	9.06
29	7.90	8.46	8.19	9.09	---	9.54	9.83	10.01	9.04	8.93	8.25	8.94
30	7.71	8.38	8.15	9.05	---	9.31	9.83	10.05	9.12	9.01	8.19	8.93
31	7.70	---	8.17	9.08	---	9.28	---	10.08	---	8.62	8.21	---
MEAN	8.23	8.15	8.17	8.65	9.56	9.82	9.47	9.57	8.99	8.74	8.41	8.87

WTR YR 1999 MEAN 8.88 HIGHEST 7.63 DEC. 6, 1998 LOWEST 10.20 MAR 25, 1999

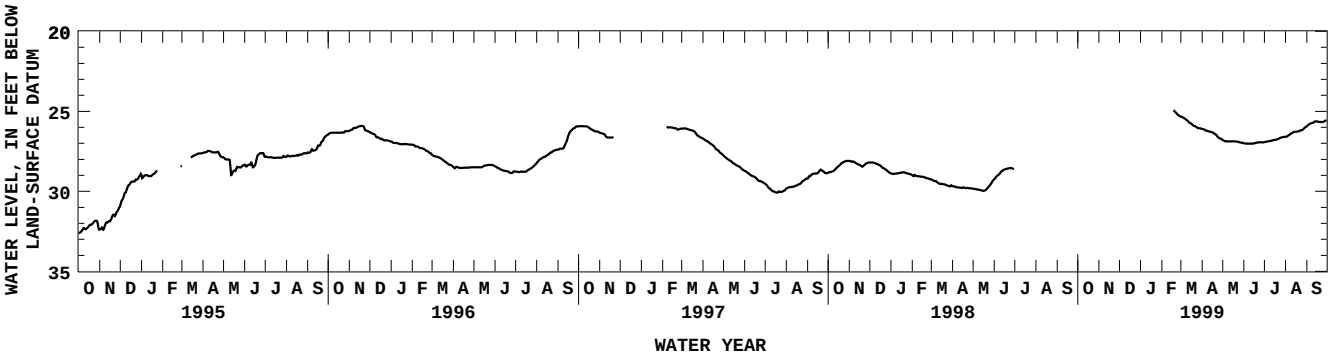


182435066052700. Local number, 1153.
LOCATION.--Lat 18°24'35", long 66°05'27", Hydrologic Unit 21010005, 2.94 mi southeast of Cataño plaza, 0.44 mi north of Escuela Superior Gabriela Mistral, and 1.19 mi northeast of WAPA TV radio anthena. Owner: US Geological Survey, WRD, Name: Salud Mental No. 1.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled water-table well, diameter 4.0 in (0.10 m), cased 4.0 in (0.10 m), 0-83.0 ft (0-25.3 m), perforated 73-83.0 ft (22.2-25.3 m). Depth 83.0 ft (25.3 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 85.0 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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on April 8, 1998. Formerly published as local number PN-5.
PERIOD OF RECORD.--April 1989 to July 1, 1998, and February 17, 1999 to current year. Temporarily discontinued from July 1, 1998 to February 17, 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 24.90 ft (7.59 m), below land-surface datum, Feb. 17, 18, 1999; lowest water level recorded, 32.82 ft (10.0 m), below land-surface datum, Sept. 25-28, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	25.33	26.11	26.78	26.98	26.93	26.59	25.95
2	---	---	---	---	---	25.34	26.11	26.80	27.00	26.92	26.59	25.93
3	---	---	---	---	---	25.34	26.11	26.83	27.01	26.91	26.59	25.87
4	---	---	---	---	---	25.37	26.13	26.85	27.00	26.91	26.56	25.83
5	---	---	---	---	---	25.40	26.13	26.86	27.01	26.90	26.52	25.80
6	---	---	---	---	---	25.42	26.18	26.88	27.02	26.88	26.50	25.79
7	---	---	---	---	---	25.45	26.20	26.87	27.02	26.87	26.47	25.76
8	---	---	---	---	---	25.48	26.21	26.87	27.02	26.87	26.44	25.74
9	---	---	---	---	---	25.53	26.22	26.87	27.03	26.86	26.40	25.74
10	---	---	---	---	---	25.53	26.24	26.88	27.02	26.85	26.37	25.72
11	---	---	---	---	---	25.58	26.25	26.88	27.02	26.84	26.37	25.70
12	---	---	---	---	---	25.63	26.26	26.88	27.03	26.83	26.32	25.69
13	---	---	---	---	---	25.68	26.27	26.88	27.02	26.82	26.31	25.63
14	---	---	---	---	---	25.71	26.28	26.88	27.02	26.81	26.29	25.63
15	---	---	---	---	---	25.74	26.29	26.88	27.02	26.80	26.28	25.63
16	---	---	---	---	---	25.75	26.32	26.88	27.00	26.79	26.27	25.63
17	---	---	---	---	---	25.78	26.33	26.88	27.00	26.79	26.27	25.63
18	---	---	---	---	24.92	25.83	26.35	26.88	26.98	26.78	26.27	25.64
19	---	---	---	---	24.95	25.86	26.38	26.88	26.97	26.77	26.26	25.66
20	---	---	---	---	24.99	25.90	26.40	26.88	26.96	26.75	26.24	25.67
21	---	---	---	---	25.04	25.92	26.44	26.88	26.95	26.74	26.24	25.67
22	---	---	---	---	25.07	25.93	26.46	26.90	26.95	26.73	26.24	25.67
23	---	---	---	---	25.11	25.96	26.50	26.90	26.94	26.69	26.18	25.67
24	---	---	---	---	25.18	25.97	26.61	26.91	26.94	26.67	26.18	25.67
25	---	---	---	---	25.21	26.01	26.62	26.92	26.94	26.66	26.20	25.67
26	---	---	---	---	25.27	26.03	26.66	26.93	26.93	26.64	26.17	25.67
27	---	---	---	---	25.26	26.05	26.69	26.95	26.93	26.63	26.12	25.61
28	---	---	---	---	25.30	26.06	26.70	26.95	26.93	26.62	26.09	25.60
29	---	---	---	---	---	26.06	26.71	26.96	26.93	26.61	26.05	25.58
30	---	---	---	---	---	26.06	26.74	26.97	26.93	26.62	26.00	25.57
31	---	---	---	---	---	26.08	---	26.97	---	26.59	25.98	---
MEAN	---	---	---	---	25.12	25.73	26.36	26.89	26.98	26.78	26.30	25.70

WTR YR 1999 MEAN 26.33 HIGHEST 24.90 FEB. 17, 18, 1999 LOWEST 27.03 JUNE 4, 9-12, 1999

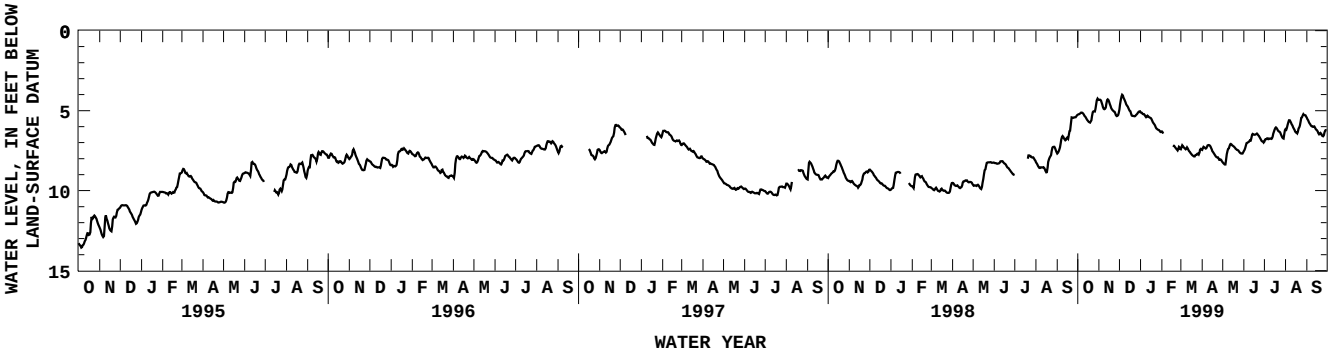


182445066043401. Local number, 1154.
LOCATION.--Lat 18°24'45", long 66°04'34", Hydrologic Unit 21010005, 0.28 mi northeast of Escuela Dr. Pedreira, 3.52 mi southeast of Cataño plaza, and 0.53 mi south of Hiram Bithorn Stadium main gate. Owner: US Geological Survey, WRD, Name: Alsacia No. 2.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-27.0 ft (0-8.23 m), perforated 21-27.0 ft (6.40-8.23 m). Depth 27 ft (8.23 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
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 well shaft, 3.03 ft (0.91 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR) replaced by an Electronic Data Logger (EDL), installed on January 26, 1998. Formerly published as local number PN-6.
PERIOD OF RECORD.--July 1989 to November 27, 1991, Temporary discontinued, September 9, 1993 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, 13.65 ft (4.16 m), below land-surface datum, Oct. 6, 7, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.27	4.32	5.06	5.06	6.32	7.45	7.44	8.21	7.55	7.02	6.16	5.41
2	5.24	4.34	4.78	5.17	6.27	7.37	7.47	8.26	7.49	6.85	6.16	5.48
3	5.22	4.31	4.46	5.08	6.41	7.14	7.25	8.31	7.40	6.78	6.22	5.58
4	5.22	4.32	4.20	5.19	6.45	7.19	7.27	8.35	7.26	6.79	5.96	5.64
5	5.17	4.41	4.02	5.23	---	7.27	7.29	8.37	7.06	6.76	5.79	5.75
6	5.14	4.56	4.00	5.20	---	7.31	7.34	8.35	7.01	6.71	5.63	5.83
7	5.12	4.71	4.12	5.24	---	7.35	7.40	7.85	7.00	6.76	5.59	5.89
8	5.13	4.84	4.26	5.32	---	7.40	7.32	7.61	6.96	6.79	5.61	5.97
9	5.15	4.92	4.31	5.39	---	7.43	7.20	7.42	6.96	6.75	5.71	5.98
10	5.22	4.89	4.43	5.44	---	7.30	7.16	7.36	6.85	6.74	5.81	5.98
11	5.30	4.88	4.55	5.33	---	7.30	7.14	7.35	6.85	6.76	5.89	6.05
12	5.35	4.72	4.65	5.29	---	7.44	7.16	7.13	6.88	6.78	5.96	5.95
13	5.39	4.40	4.72	5.39	---	7.51	7.19	7.08	6.56	6.70	6.09	6.02
14	5.49	4.27	4.76	5.42	---	7.56	7.29	7.09	6.46	6.55	6.16	6.07
15	5.56	4.32	4.89	5.44	---	7.62	7.36	7.14	6.46	6.34	6.26	6.22
16	5.60	4.37	4.98	5.45	---	7.68	7.49	7.18	6.50	6.25	6.34	6.20
17	5.69	4.52	5.02	5.49	7.17	7.73	7.58	7.22	6.52	6.14	6.39	6.26
18	5.70	4.67	5.07	5.58	7.20	7.78	7.62	7.25	6.50	6.04	6.34	6.36
19	5.76	4.77	5.26	5.70	7.19	7.81	7.70	7.30	6.49	6.06	6.49	6.46
20	5.74	4.91	5.34	5.76	7.22	7.83	7.76	7.35	6.44	6.13	6.18	6.51
21	5.63	4.94	5.32	5.82	7.31	7.90	7.81	7.40	6.43	6.22	6.07	6.41
22	5.58	4.99	5.33	5.87	7.34	7.82	7.90	7.44	6.50	6.29	5.99	6.38
23	5.13	5.04	5.36	5.97	7.39	7.76	7.92	7.46	6.57	6.32	5.87	6.50
24	5.07	5.07	5.35	6.09	7.47	7.76	7.91	7.47	6.59	6.31	5.47	6.57
25	5.04	5.09	5.32	6.13	7.51	7.76	7.94	7.52	6.72	6.40	5.42	6.61
26	5.04	5.24	5.27	6.15	7.30	7.63	8.03	7.59	6.76	6.52	5.40	6.60
27	5.07	5.34	5.22	6.21	7.23	7.74	8.13	7.64	6.87	6.62	5.22	6.46
28	4.73	5.35	5.19	6.21	7.35	7.74	8.03	7.67	6.92	6.68	5.23	6.27
29	4.47	5.30	5.08	6.22	---	7.49	8.08	7.68	6.92	6.76	5.30	6.21
30	4.23	5.26	5.08	6.34	---	7.38	8.13	7.69	6.96	6.73	5.26	6.22
31	4.27	---	5.03	6.34	---	7.41	---	7.68	---	6.27	5.32	---
MEAN	5.22	4.77	4.85	5.63	7.07	7.54	7.58	7.59	6.81	6.54	5.85	6.13

WTR YR 1999 MEAN 6.27 HIGHEST 3.86 OCT. 29, 1998 LOWEST 8.51 MAY 4, 1999

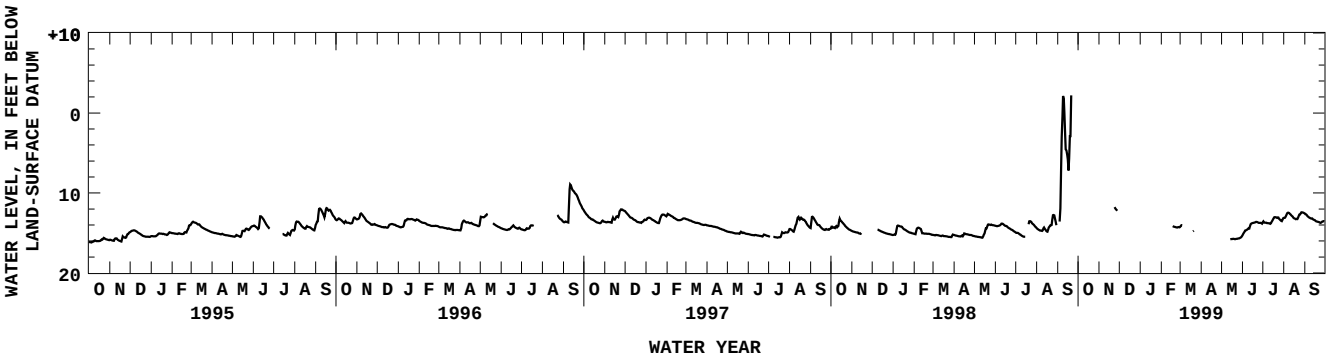


182443066041502. Local number, 1155.
LOCATION.--Lat 18°24'43", long 66°04'15", Hydrologic Unit 21010005, 2.29 mi east of Fort Buchannan Military Res. main gate, 3.83 mi southeast of Cataño plaza, and 0.16 mi southwest of Hospital del Maestro. Owner: US Geological Survey, WRD, Name: Parque Luis Muñoz Marin 1C.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10), 0-33.0 ft (0-10.1 m), perforated 33-40 ft (10.1-12.2 m). Depth 40.0 ft (12.2 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 13.0 ft (3.96 m), above mean sea level, from topographic map. Measuring point: Hole on well shaft, 3.00 ft (0.91 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on January 26, 1998. Formerly published as local number PN-8c.
PERIOD OF RECORD.--February 1989 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +7.28 ft (+2.22 m), above land-surface datum, Sept. 21, 1996; lowest water level recorded, 16.18 ft (4.93 m), below land-surface datum, Oct. 5, 6, 7, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	14.30	---	---	15.38	13.87	13.12	12.52
2	---	---	---	---	---	14.19	---	---	15.19	13.42	13.11	12.61
3	---	---	---	---	---	14.02	---	---	15.02	13.66	13.13	12.68
4	---	---	---	---	---	14.04	---	---	14.93	13.70	13.03	12.67
5	---	---	---	---	---	14.05	---	---	14.73	13.72	12.82	12.85
6	---	---	---	---	---	---	---	---	14.68	13.70	12.60	12.93
7	---	---	---	---	---	---	---	---	14.64	13.74	12.48	13.01
8	---	---	---	---	---	---	---	---	14.59	13.76	12.44	13.05
9	---	---	---	---	---	---	---	---	14.57	13.77	12.47	13.12
10	---	---	---	---	---	---	---	---	14.40	13.79	12.56	13.14
11	---	---	---	---	---	---	---	---	14.42	13.77	12.65	13.22
12	---	---	---	---	---	---	---	---	14.44	13.84	12.71	13.14
13	---	---	---	---	---	---	---	---	13.94	13.85	12.85	13.24
14	---	---	---	---	---	---	---	15.81	13.86	13.71	12.89	13.30
15	---	---	---	---	---	---	---	15.78	13.79	13.53	13.01	13.37
16	---	---	---	---	---	---	---	15.76	13.77	13.40	13.12	13.36
17	---	---	---	---	14.11	---	---	15.76	13.77	13.27	13.20	13.43
18	---	---	---	---	14.13	---	---	15.74	13.72	13.07	13.16	13.54
19	---	---	---	---	14.18	---	---	15.73	13.71	13.01	13.32	13.56
20	---	---	---	---	14.20	14.78	---	15.74	13.68	13.01	13.23	13.59
21	---	---	---	---	14.24	14.79	---	15.76	13.63	13.05	13.25	13.60
22	---	---	---	---	14.26	14.64	---	15.78	13.61	13.10	13.24	13.63
23	---	11.71	---	---	14.28	14.69	---	15.73	13.60	13.13	12.97	13.67
24	---	11.73	---	---	14.31	---	---	15.72	13.66	13.01	12.75	13.71
25	---	11.81	---	---	14.32	---	---	15.72	13.71	13.14	12.68	13.74
26	---	11.98	---	---	14.29	---	---	15.70	13.74	13.28	12.69	13.68
27	---	12.09	---	---	14.25	---	---	15.68	13.73	13.33	12.44	13.59
28	---	12.19	---	---	14.28	---	---	15.66	13.72	13.43	12.39	13.55
29	---	12.24	---	---	---	---	---	15.60	13.76	13.50	12.45	13.52
30	---	12.21	---	---	---	---	---	15.55	13.80	13.52	12.44	13.53
31	---	---	---	---	---	---	---	15.50	---	13.22	12.48	---
MEAN	---	11.99	---	---	14.24	14.39	---	15.71	14.14	13.46	12.83	13.29

WTR YR 1999 MEAN 13.71 HIGHEST 11.70 NOV. 23, 24, 1998 LOWEST 15.84 MAY 13, 1999



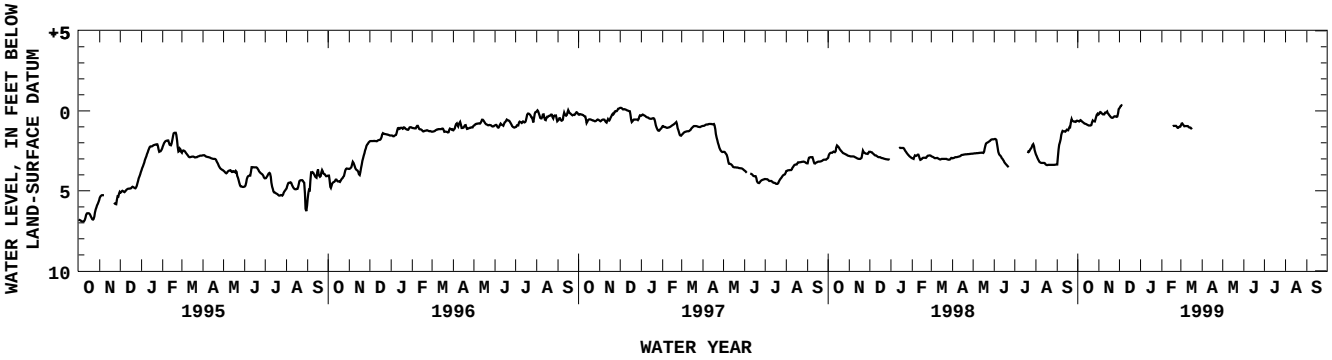
+ above land-surface datum

182417066042700. Local number, 1156.
LOCATION.--Lat 18°24'17", long 66°04'27", Hydrologic Unit 21010005, 3.96 mi southeast of Cataño plaza, 1.00 mi southwest of Escuela J.J. Osuna, and 2.26 mi east of WAPA TV radio anthena. Owner: US Geological Survey, WRD, Name: Las Américas No. 1.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled observation well, cased 4 in (0.10 m), 0-80.0 ft (0-24.4 m), 4 in (0.10 m), perforated pipe 80-90.0 ft (24.4-27.4 m). Depth 90.0 ft (27.4 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 16.0 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. Automated Digital Recorder (ADR) replaced by an Electronic Data Logger (EDL), installed on February 23, 1998. Well affected by pumping during June 1994. [+, above land-surface datum].
PERIOD OF RECORD.--October 1989 to March 19, 1999, temporarily discontinued. Formerly published as local number PN-10.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +2.30 ft (+0.70 m), above land-surface datum, Jan. 9-12, 1993; lowest water level recorded, 6.92 ft (2.11 m) below land-surface datum, Oct. 6-9, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.62	.27	+.18	---	---	.98	---	---	---	---	---	---
2	.64	.14	+.15	---	---	.86	---	---	---	---	---	---
3	.64	.08	+.29	---	---	.74	---	---	---	---	---	---
4	.68	.08	+.32	---	---	.83	---	---	---	---	---	---
5	.58	.13	+.36	---	---	.88	---	---	---	---	---	---
6	.59	.18	+.26	---	---	.96	---	---	---	---	---	---
7	.62	.20	---	---	---	.96	---	---	---	---	---	---
8	.68	.23	---	---	---	.95	---	---	---	---	---	---
9	.70	.22	---	---	---	.95	---	---	---	---	---	---
10	.74	.21	---	---	---	.95	---	---	---	---	---	---
11	.79	.02	---	---	---	.95	---	---	---	---	---	---
12	.81	.18	---	---	---	.96	---	---	---	---	---	---
13	.81	+.01	---	---	---	1.04	---	---	---	---	---	---
14	.83	.10	---	---	---	1.04	---	---	---	---	---	---
15	.86	.19	---	---	---	1.05	---	---	---	---	---	---
16	.88	.21	---	---	---	1.04	---	---	---	---	---	---
17	.91	.29	---	---	1.00	1.16	---	---	---	---	---	---
18	.91	.34	---	---	.93	1.16	---	---	---	---	---	---
19	.93	.40	---	---	.94	---	---	---	---	---	---	---
20	.91	.43	---	---	.94	---	---	---	---	---	---	---
21	.91	.44	---	---	.93	---	---	---	---	---	---	---
22	.86	.44	---	---	.94	---	---	---	---	---	---	---
23	.58	.38	---	---	.95	---	---	---	---	---	---	---
24	.63	.34	---	---	1.04	---	---	---	---	---	---	---
25	.65	.34	---	---	1.08	---	---	---	---	---	---	---
26	.66	.35	---	---	1.04	---	---	---	---	---	---	---
27	.66	.38	---	---	.98	---	---	---	---	---	---	---
28	.40	.38	---	---	.99	---	---	---	---	---	---	---
29	.32	.32	---	---	---	---	---	---	---	---	---	---
30	.16	+.02	---	---	---	---	---	---	---	---	---	---
31	.22	---	---	---	---	---	---	---	---	---	---	---
MEAN	.68	.24	+.26	---	.98	.97	---	---	---	---	---	---

WTR YR 1999 MEAN .58 HIGHEST +.44 DEC. 5, 1998 LOWEST 1.17 MAY 17, 18, 1999



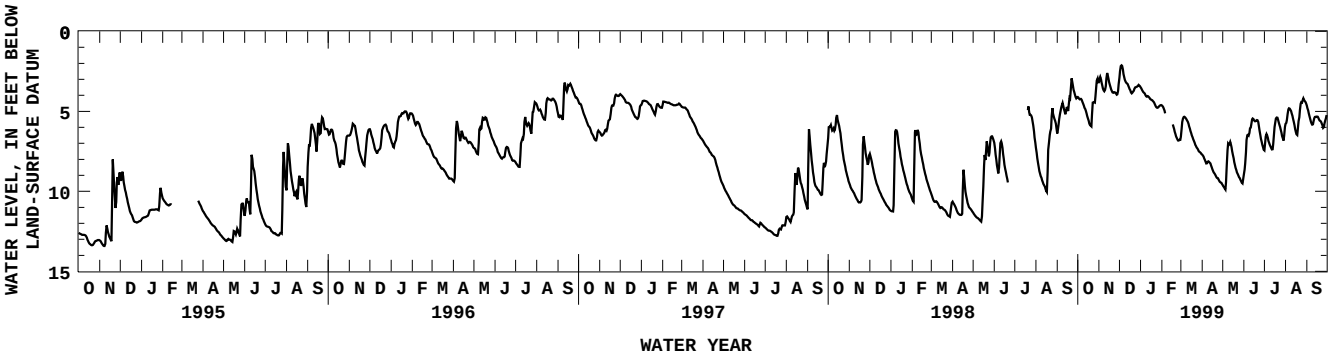
+ above land-surface datum

182406066034700. Local number, 1158.
LOCATION.--Lat 18°24'06", long 66°03'47", Hydrologic Unit 21010005, 4.65 mi southeast of Cataño plaza, 0.89 mi south of Escuela J.J. Osuna, and 0.78 mi southwest of University of Puerto Rico main gate. Owner: US Geological Survey, WRD, Name: Jardín Botánico No. 3.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m) cased 4.0 in (0.10 m), 0-48.0 ft (0-14.6 m), perforated 38-48 ft (11.6-14.6 m). Depth 48.0 ft.(14.6 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 32.0 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.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on May 22, 1998. Formerly published as local number PN-19.
PERIOD OF RECORD.--June 1991 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.05 ft (0.62 m), below land-surface datum, Dec. 4, 1998; lowest water level recorded, 13.43 ft (4.09 m), below land-surface datum, Nov. 8, 9, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.09	3.27	3.02	3.45	4.61	6.80	7.69	9.58	9.02	7.45	5.81	4.55
2	4.11	3.09	2.77	3.53	4.65	6.38	7.73	9.65	8.89	7.43	5.75	4.73
3	4.17	2.78	2.21	3.60	4.69	5.80	7.78	9.72	8.39	6.73	5.69	4.87
4	4.25	2.90	2.14	3.70	4.79	5.53	7.87	9.78	8.09	6.39	5.39	5.02
5	4.25	3.10	2.10	3.77	4.88	5.36	7.99	9.86	7.06	6.45	4.94	5.22
6	4.19	3.31	2.22	3.82	5.03	5.34	8.09	9.92	6.53	6.54	4.81	5.42
7	4.25	3.51	2.53	3.86	5.22	5.35	8.23	8.95	6.46	6.77	4.81	5.56
8	4.35	3.65	2.79	3.92	---	5.40	8.27	7.81	6.47	6.93	4.87	5.72
9	4.45	3.75	2.94	4.02	---	5.46	8.21	7.04	6.56	7.04	4.93	5.83
10	4.59	3.75	3.10	4.10	---	5.54	8.12	7.00	6.14	7.15	5.04	5.84
11	4.72	3.57	3.19	4.06	---	5.59	8.12	7.19	5.97	7.24	5.20	5.77
12	4.83	3.30	3.23	4.04	---	5.71	8.18	6.90	6.05	7.37	5.35	5.46
13	4.89	2.61	3.28	4.08	---	5.86	8.23	6.92	5.54	7.39	5.54	5.39
14	5.05	2.60	3.32	4.14	---	6.01	8.29	7.14	5.45	7.35	5.77	5.32
15	5.22	2.87	3.46	4.20	---	6.15	8.45	7.36	5.45	6.68	5.99	5.37
16	5.37	3.07	3.57	4.26	---	6.31	8.56	7.62	5.51	6.13	6.20	5.34
17	5.53	3.26	3.65	4.27	5.76	6.43	8.68	7.84	5.60	5.82	6.40	5.31
18	5.66	3.44	3.75	4.29	5.88	6.57	8.79	8.05	5.63	5.50	6.46	5.36
19	5.85	3.57	3.87	4.33	6.02	6.67	8.85	8.29	5.60	5.40	6.51	5.46
20	5.89	3.70	3.89	4.38	6.19	6.79	8.91	8.47	5.55	5.38	5.74	5.57
21	5.90	3.80	3.79	4.43	6.35	6.91	8.97	8.60	5.53	5.41	5.49	5.60
22	5.98	3.84	3.74	4.49	6.51	7.04	9.09	8.75	5.59	5.64	5.23	5.61
23	4.47	3.84	3.67	4.65	6.62	7.14	9.17	8.88	5.75	5.77	4.63	5.74
24	4.44	3.79	3.50	4.71	6.73	7.21	9.17	8.96	6.06	5.90	4.42	5.81
25	4.43	3.81	3.50	4.77	6.83	7.31	9.20	9.09	6.38	6.07	4.43	5.98
26	4.43	3.84	3.49	4.77	6.83	7.33	9.30	9.15	6.60	6.22	4.47	6.10
27	4.47	3.93	3.45	4.77	6.79	7.44	9.39	9.22	6.83	6.46	4.16	5.87
28	3.66	3.98	3.47	4.71	6.77	7.53	9.43	9.33	7.00	6.61	4.22	5.66
29	3.32	3.88	3.34	4.67	---	7.54	9.45	9.42	7.16	6.75	4.32	5.47
30	2.83	3.55	3.36	4.62	---	7.57	9.49	9.50	7.33	6.90	4.38	5.42
31	3.08	---	3.41	4.61	---	7.64	---	9.52	---	6.14	4.46	---
MEAN	4.60	3.45	3.22	4.23	5.85	6.44	8.59	8.56	6.47	6.48	5.21	5.48

WTR YR 1999 MEAN 5.71 HIGHEST 2.05 DEC. 4, 1998 LOWEST 9.93 MAY 6, 1999



182451066080200. Local number, 1159.
LOCATION.--Lat 18°24'50", long 66°08'05", Hydrologic Unit 21010005, 1.7 mi west of main gate of Fort Buchanan, 0.2 mi southeast of oil refinery, and 0.9 mi east of Goya products plant. Owner: US Geological Survey, Name: Ft. Buchanan No. 1 well.
AQUIFER.--Mucarabones Sand.
WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m), screened 209-249 ft (63.7-75.9 m). Depth 249 ft (75.89 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 46.0 ft (14.0 m), about mean sea level, from topographic map. Measuring point: 3.33 ft (1.01 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed Sept. 12, 1997, replaced by an Electronic Data Logger (EDL), installed on Sept. 10, 1998. Well is affected by nearby pumping.
PERIOD OF RECORD.--September 12, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 29.43 ft (8.97 m), below land-surface datum, Mar. 31, 1999; lowest water level recorded, 37.18 ft (11.33 m), below land-surface datum, Dec. 22, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	31.73
14	---	---	---	---	---	---	---	---	---	---	---	31.64
15	---	---	---	---	---	---	---	---	---	---	---	31.79
16	---	---	---	---	---	---	---	---	---	---	---	31.69
17	---	---	---	---	---	---	---	---	---	---	---	31.60
18	---	---	---	---	---	---	---	---	---	---	---	31.92
19	---	---	---	---	---	---	---	---	---	---	---	31.72
20	---	---	---	---	---	---	---	---	---	---	---	31.63
21	---	---	---	---	---	---	---	---	---	---	---	31.58
22	---	---	---	---	---	---	---	---	---	---	---	31.84
23	---	---	---	---	---	---	---	---	---	---	---	31.68
24	---	---	---	---	---	---	---	---	---	---	---	31.56
25	---	---	---	---	---	---	---	---	---	---	---	31.72
26	---	---	---	---	---	---	---	---	---	---	---	31.71
27	---	---	---	---	---	---	---	---	---	---	---	31.59
28	---	---	---	---	---	---	---	---	---	---	---	31.52
29	---	---	---	---	---	---	---	---	---	---	---	31.45
30	---	---	---	---	---	---	---	---	---	---	---	31.35
31	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	31.65

WTR YR 1997 MEAN 31.65 HIGHEST 31.33 SEPT. 30, 1997 LOWEST 32.02 SEPT. 18, 1997

RIO HONDO TO RIO PUERTO NUEVO BASINS--continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATION AT 1200

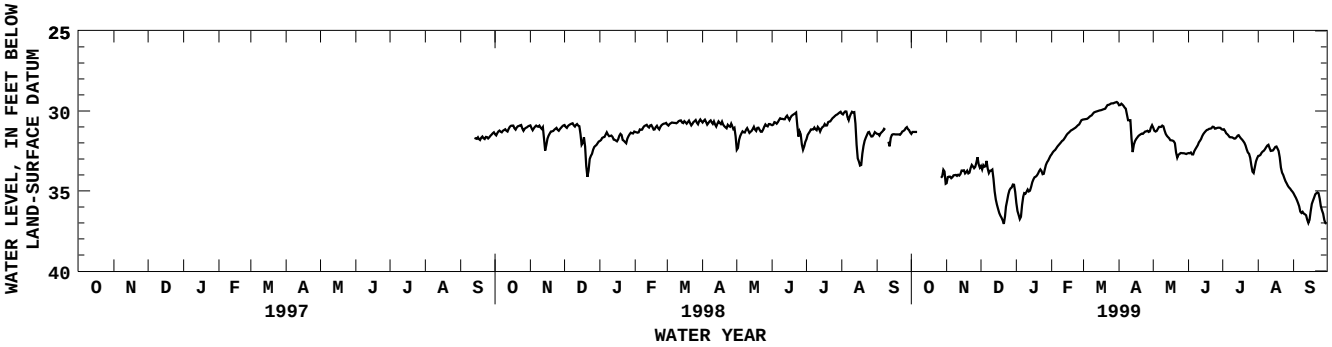
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31.31	30.92	30.88	31.85	31.25	30.73	30.78	32.20	30.84	31.93	30.03	31.52
2	31.61	30.89	30.87	31.90	31.38	30.98	30.66	32.66	30.94	31.60	30.31	31.34
3	31.44	31.26	31.12	31.73	31.28	30.84	30.58	31.99	30.76	31.42	30.14	31.54
4	31.33	31.14	30.99	31.63	31.44	30.79	30.50	31.65	30.64	31.35	30.05	31.54
5	31.25	31.03	30.90	31.67	31.22	30.76	30.88	31.48	30.81	31.21	30.00	31.26
6	31.21	30.94	30.85	31.58	31.10	30.70	30.82	31.33	30.79	31.10	30.08	31.39
7	31.40	30.89	30.81	31.38	31.25	30.77	30.69	31.23	30.62	31.21	30.72	31.11
8	31.28	31.04	30.78	31.29	31.08	30.72	30.61	31.45	30.51	31.11	30.45	31.12
9	31.21	30.93	30.76	31.68	30.97	30.78	30.57	31.25	30.41	30.95	30.27	31.24
10	31.18	30.91	31.05	31.48	30.91	30.77	30.89	31.12	30.58	31.34	30.10	---
11	31.10	31.16	30.91	31.65	30.89	30.67	30.72	31.02	30.42	31.08	30.01	31.28
12	31.39	31.08	30.84	31.44	30.85	30.62	30.59	31.41	30.61	30.91	30.18	32.56
13	31.19	30.95	30.79	31.81	31.10	30.60	31.09	31.33	30.44	31.28	29.98	31.86
14	31.04	32.51	31.04	31.78	30.97	30.58	30.87	31.26	30.32	31.30	31.62	31.52
15	30.94	32.44	30.87	31.82	30.83	30.86	30.73	31.24	30.27	30.93	32.62	31.46
16	30.92	31.85	32.01	31.88	30.94	30.67	30.58	31.03	30.60	31.10	33.31	31.46
17	30.92	31.61	32.23	31.92	31.08	30.60	30.92	30.94	30.53	30.82	33.01	31.46
18	30.91	31.48	31.76	31.63	31.26	30.83	30.72	31.39	30.35	30.81	33.82	31.47
19	31.25	31.33	31.54	31.48	31.06	30.77	30.61	31.12	30.28	31.02	32.94	31.47
20	31.08	31.24	32.90	31.38	30.97	30.64	31.09	30.99	30.22	30.78	32.39	31.47
21	30.99	31.30	33.99	31.62	30.89	30.57	30.81	31.10	30.19	30.62	31.98	31.47
22	30.95	31.20	34.26	32.02	31.26	30.94	31.24	31.26	30.13	30.71	31.75	31.51
23	30.92	31.13	33.21	31.70	31.06	30.87	30.94	31.33	30.08	30.60	31.59	31.31
24	30.89	31.08	32.79	32.20	30.93	30.74	30.80	31.27	31.71	30.48	31.42	31.27
25	30.86	31.05	32.83	31.83	30.86	30.67	31.10	31.07	31.49	30.42	31.25	31.24
26	31.34	31.30	32.52	31.64	30.81	30.60	30.87	30.90	31.05	30.36	31.38	31.14
27	31.15	31.19	32.32	31.52	30.79	30.53	30.73	30.79	31.87	30.26	31.57	31.01
28	31.08	31.08	32.18	31.40	30.77	30.94	31.15	31.06	32.34	30.24	31.62	31.01
29	31.04	31.02	32.19	31.32	---	30.72	31.12	30.87	32.51	30.19	31.56	31.25
30	31.00	30.92	32.07	31.48	---	30.57	30.99	30.77	31.93	30.13	31.39	31.13
31	30.94	---	31.98	31.33	---	30.49	---	30.88	---	30.08	31.25	---
MEAN	31.13	31.23	31.75	31.65	31.04	30.72	30.82	31.27	30.81	30.88	31.25	31.39

WTR YR 1998 MEAN 31.16 HIGHEST 29.91 AUG. 6, 1998 LOWEST 34.42 DEC. 22, 1997

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31.55	34.92	33.16	35.45	32.75	30.54	29.56	30.85	32.64	31.21	32.85	35.07
2	31.31	34.12	33.72	36.06	32.65	30.52	29.72	31.25	32.63	31.12	32.78	35.23
3	31.31	34.14	33.58	36.44	32.52	30.51	29.54	31.24	32.65	31.18	32.83	35.36
4	31.31	34.07	33.19	36.56	32.48	30.50	29.56	31.33	32.55	31.32	32.68	35.49
5	31.31	34.15	33.77	36.95	32.40	30.49	29.64	31.18	32.89	31.46	32.57	35.71
6	31.31	34.25	33.16	36.29	32.26	30.40	29.72	31.07	32.55	31.46	32.51	35.80
7	31.32	34.05	33.10	35.45	32.18	30.34	29.86	30.93	32.48	31.62	32.46	36.12
8	---	34.00	34.12	35.26	32.09	30.30	29.87	31.08	32.29	31.66	32.33	36.47
9	---	34.03	33.64	35.03	32.03	30.25	30.58	30.91	32.24	31.64	32.21	36.29
10	---	33.98	33.84	35.32	31.91	30.13	30.58	30.93	32.05	31.66	32.13	36.32
11	---	34.13	33.60	34.79	31.85	30.08	30.58	31.01	31.87	31.72	32.11	36.50
12	---	33.85	33.74	35.03	31.80	30.05	30.59	31.42	31.87	31.75	32.54	36.41
13	---	34.22	34.74	35.03	31.70	30.03	32.88	31.45	31.65	31.70	32.45	36.63
14	---	33.66	35.30	34.94	31.58	30.00	32.27	31.66	31.50	31.58	32.52	36.95
15	---	33.79	35.77	34.55	31.46	29.98	31.95	31.61	31.38	31.49	32.42	37.05
16	---	33.66	35.94	34.37	31.39	29.96	31.82	31.81	31.31	31.54	32.29	36.57
17	---	33.77	36.31	34.17	31.33	29.94	31.70	31.84	31.22	31.72	32.20	35.96
18	---	34.03	36.45	34.12	31.25	29.92	31.61	31.84	31.16	31.72	32.24	35.66
19	---	33.66	36.63	34.09	31.19	29.89	31.53	31.86	31.17	31.86	32.49	35.55
20	---	33.82	36.72	33.99	31.16	29.87	31.49	31.95	31.08	31.91	32.50	35.28
21	---	33.99	36.97	33.83	31.11	29.85	31.42	32.10	31.13	32.08	33.32	35.15
22	---	33.73	37.16	33.68	31.05	29.64	31.43	33.10	31.03	32.26	33.78	35.12
23	---	33.41	36.02	33.63	31.03	29.63	31.43	32.74	30.94	32.54	33.94	35.06
24	---	33.35	35.93	33.86	30.91	29.60	31.29	32.75	31.07	32.65	34.07	35.22
25	---	33.59	35.28	34.04	30.87	29.56	31.29	32.63	31.14	32.71	34.34	35.73
26	---	33.57	35.16	33.82	30.81	29.51	31.25	32.63	31.06	33.16	34.44	36.19
27	34.15	33.42	34.77	33.50	30.62	29.53	31.22	32.64	31.05	33.65	34.61	36.24
28	34.20	33.03	34.92	33.26	30.55	29.51	31.40	32.66	31.05	33.95	34.73	36.61
29	33.97	32.76	34.64	33.15	---	29.47	31.14	32.64	31.05	33.80	34.82	37.02
30	33.38	33.93	34.56	33.04	---	29.45	30.94	32.70	31.07	33.27	34.89	37.01
31	34.19	---	34.66	32.85	---	29.43	---	32.68	---	33.06	35.02	---
MEAN	32.44	33.84	34.86	34.60	31.60	29.96	30.93	31.82	31.66	32.08	33.13	35.99

WTR YR 1999 MEAN 32.77 HIGHEST 29.43 MAR. 31, 1999 LOWEST 37.18 DEC. 22, 1998

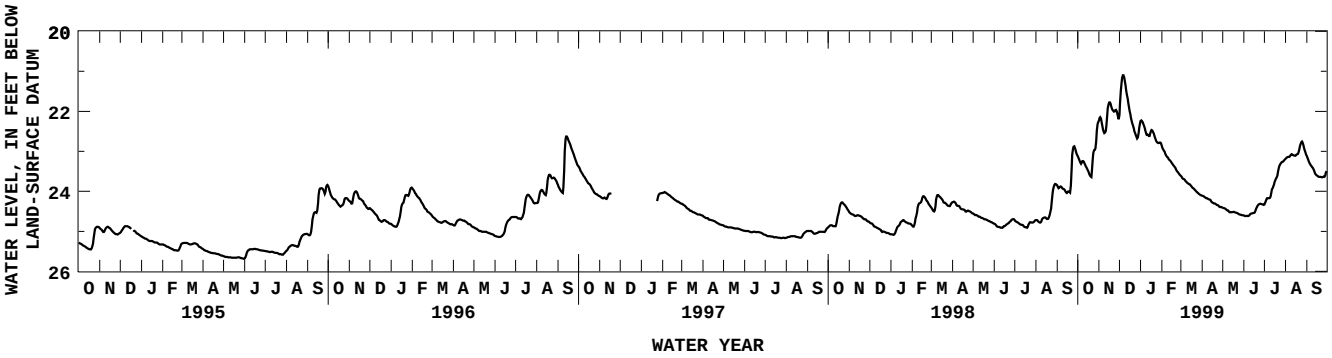


181352066025300. Local number, 1176.
LOCATION.--Lat 18°13'52", long 66°02'53", Hydrologic Unit 21010005, 0.96 mi southwest of Caguas plaza, 1.02 mi northwest of Escuela Antonio S. Pedreira, and 0.30 mi southeast of Hwy 156 km 59.1. Owner: US Geological Survey, WRD, Name: CJ-TW19A, Bonneville.
AQUIFER.--Unconsolidated deposits of Quaternary Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-67.0 ft (0-20.4 m), screened 50-65 ft (15.2-19.8 m). Depth 67.0 ft (20.4 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 262 ft (79.8 m), above mean sea level, from topographic map. Measuring point: Top of casing 3.00 ft (0.91 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 29, 1999. Formerly published as local number CJ-TW19A.
PERIOD OF RECORD.-- June 1992 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 21.06 ft (6.42 m), below land-surface datum, Dec. 7, 1998; lowest water level recorded, 25.70 ft (7.83 m), below land-surface datum, May 31, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.10	22.27	22.22	22.26	22.83	23.61	24.11	24.41	24.60	24.35	23.19	23.10
2	23.14	22.19	21.97	22.22	22.91	23.62	24.11	24.41	24.61	24.31	23.18	23.13
3	23.18	22.13	21.63	22.23	22.93	23.65	24.12	24.42	24.62	24.28	23.16	23.19
4	23.22	22.16	21.37	22.25	22.97	23.68	24.13	24.42	24.62	24.22	23.15	23.22
5	23.27	22.21	21.21	22.29	22.99	23.69	24.14	24.43	24.62	24.17	23.14	23.28
6	23.31	22.32	21.11	22.33	23.02	23.69	24.15	24.44	24.61	24.17	23.14	23.31
7	23.31	22.41	21.09	22.39	23.08	23.71	24.17	24.46	24.62	24.17	23.14	23.34
8	23.25	22.48	21.11	22.45	23.11	23.74	24.17	24.48	24.62	24.17	23.12	23.36
9	23.24	22.54	21.19	22.52	23.14	23.76	24.17	24.48	24.61	24.17	23.09	23.39
10	23.25	22.55	21.30	22.58	23.15	23.77	24.19	24.48	24.59	24.16	23.07	23.41
11	23.28	22.51	21.41	22.59	23.17	23.79	24.20	24.52	24.56	24.11	23.07	23.43
12	23.32	22.47	21.54	22.57	23.21	23.80	24.20	24.52	24.56	23.96	23.09	23.47
13	23.36	22.25	21.64	22.60	23.22	23.82	24.21	24.52	24.55	23.94	23.10	23.52
14	23.40	21.98	21.72	22.63	23.23	23.82	24.22	24.52	24.55	23.90	23.10	23.56
15	23.42	21.87	21.86	22.60	23.27	23.83	24.27	24.52	24.54	23.86	23.11	23.59
16	23.46	21.80	21.95	22.52	23.29	23.86	24.27	24.52	24.54	23.80	23.11	23.60
17	23.50	21.76	22.03	22.47	23.31	23.88	24.28	24.51	24.54	23.74	23.09	23.61
18	23.55	21.79	22.12	22.46	23.34	23.90	24.30	24.51	24.51	23.70	23.07	23.63
19	23.59	21.83	22.21	22.49	23.36	23.92	24.30	24.52	24.45	23.67	23.07	23.64
20	23.62	21.91	22.28	22.53	23.38	23.92	24.30	24.53	24.41	23.64	23.06	23.64
21	23.64	21.96	22.33	22.56	23.41	23.95	24.31	24.53	24.38	23.56	22.99	23.64
22	23.65	21.97	22.39	22.62	23.43	23.97	24.33	24.54	24.35	23.45	22.90	23.64
23	23.28	22.00	22.47	22.69	23.48	23.98	24.34	24.54	24.33	23.39	22.84	23.65
24	23.09	22.01	22.53	22.72	23.50	24.01	24.35	24.56	24.32	23.34	22.79	23.65
25	22.99	21.99	22.57	22.77	23.53	24.02	24.35	24.57	24.31	23.31	22.76	23.65
26	22.95	21.96	22.61	22.78	23.54	24.03	24.37	24.58	24.31	23.29	22.75	23.63
27	22.97	21.97	22.67	22.79	23.57	24.05	24.39	24.58	24.32	23.27	22.81	23.63
28	22.88	22.02	22.69	22.80	23.59	24.07	24.39	24.59	24.32	23.26	22.87	23.64
29	22.61	22.10	22.61	22.78	---	24.08	24.39	24.59	24.33	23.26	22.95	23.56
30	22.37	22.18	22.48	22.78	---	24.09	24.39	24.60	24.33	23.23	23.00	23.51
31	22.28	---	22.35	22.79	---	24.10	---	24.60	---	23.21	23.06	---
MEAN	23.21	22.12	21.96	22.55	23.25	23.86	24.25	24.51	24.49	23.78	23.03	23.49

WTR YR 1999 MEAN 23.37 HIGHEST 21.06 DEC. 7, 1998 LOWEST 24.62 JUNE 2-9, 1999

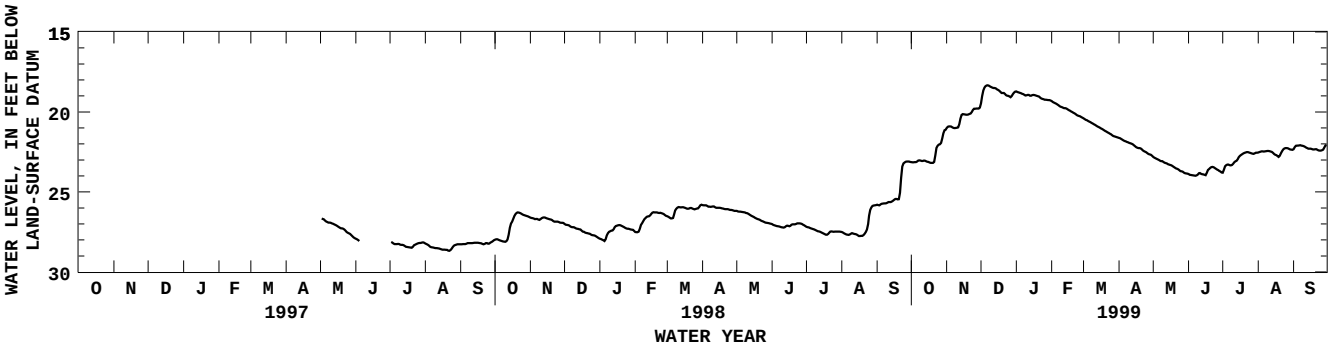


181311066022500. Local number, 1177.
LOCATION.--Lat 18°13'11", long 66°02'25", Hydrologic Unit 21010005, 1.13 mi south of the intersection of Hwy 156 with Hwy 52, 0.15 mi southeast of the inserction of Hwy 172 with Hwy 1, and 0.20 mi northeast of Escuela Antonio S. Pereira. Owner: US Geological Survey, WRD, Name: CJ-TW11.
AQUIFER.--Unconsolidated deposits of Quaternary Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), 0-110 ft (0-33.5 m), screened 66-96 ft (20.1-29.3 m). Depth 110 ft (33.5 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 279 ft (85.0 m), above mean sea level.
Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.04 ft (0.24 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 2, 1997. Automated Digital Recorder (ADR, replaced by an Electronic Data Logger (EDL), installed on September 17, 1999. Formerly published as local number CJ-TW11.
PERIOD OF RECORD.--May 2, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.34 ft (5.59 m), below land-surface datum, Dec. 6, 7, 8, 1998; lowest water level recorded, 28.73 ft (8.76 m), below land-surface datum, Aug. 22, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.14	21.09	19.67	18.72	19.29	20.37	21.61	22.78	23.86	23.81	22.55	22.39
2	23.14	20.94	19.26	18.73	19.35	20.42	21.63	22.84	23.91	23.78	22.52	22.27
3	23.15	20.91	18.76	18.78	19.40	20.48	21.67	22.88	23.94	23.45	22.50	22.13
4	23.15	20.90	18.55	18.79	19.44	20.51	21.72	22.92	23.94	23.35	22.47	22.11
5	23.13	20.90	18.42	18.81	19.47	20.54	21.75	22.95	23.96	23.30	22.46	22.11
6	23.15	20.94	18.36	18.85	19.51	20.60	21.80	22.98	23.98	23.28	22.48	22.10
7	23.06	20.99	18.34	18.88	19.57	20.62	21.83	23.02	23.98	23.31	22.48	22.08
8	23.03	21.01	18.34	18.89	19.61	20.66	21.86	23.08	23.99	23.34	22.46	22.09
9	23.03	21.01	18.38	18.95	19.67	20.71	21.88	23.08	23.95	23.34	22.44	22.11
10	23.06	20.99	18.43	18.99	19.70	20.75	21.91	23.08	23.87	23.29	22.43	22.12
11	23.06	20.99	18.46	18.94	19.71	20.79	21.95	23.16	23.80	23.20	22.44	22.16
12	23.06	20.93	18.51	18.92	19.76	20.82	21.97	23.18	23.84	23.09	22.47	22.19
13	23.03	20.60	18.51	18.96	19.76	20.88	22.00	23.21	23.89	23.08	22.49	22.25
14	23.07	20.23	18.49	19.00	19.76	20.93	22.04	23.24	23.90	23.02	22.52	22.28
15	23.11	20.14	18.57	18.96	19.81	20.96	22.11	23.29	23.91	22.90	22.60	22.31
16	23.11	20.13	18.61	18.94	19.87	21.00	22.17	23.30	23.95	22.77	22.67	22.29
17	23.14	20.16	18.65	18.94	19.90	21.05	22.22	23.32	23.95	22.73	22.69	22.31
18	23.17	20.17	18.70	18.96	19.95	21.08	22.25	23.36	23.66	22.66	22.72	22.33
19	23.19	20.17	18.80	18.98	19.99	21.12	22.26	23.41	23.60	22.62	22.80	22.35
20	23.19	20.17	18.82	19.02	20.02	21.18	22.27	23.46	23.54	22.58	22.82	22.33
21	23.17	20.14	18.82	19.02	20.08	21.21	22.30	23.51	23.46	22.54	22.65	22.33
22	23.09	20.11	18.82	19.08	20.10	21.25	22.37	23.55	23.44	22.52	22.51	22.34
23	22.34	20.09	18.92	19.15	20.18	21.29	22.44	23.57	23.44	22.51	22.39	22.39
24	22.16	19.93	18.98	19.17	20.22	21.34	22.47	23.62	23.47	22.52	22.29	22.41
25	22.07	19.81	18.99	19.20	20.24	21.37	22.50	23.68	23.54	22.54	22.27	22.42
26	22.01	19.80	19.00	19.23	20.26	21.42	22.55	23.71	23.58	22.57	22.25	22.41
27	22.02	19.79	19.07	19.24	20.31	21.49	22.62	23.71	23.63	22.60	22.26	22.38
28	21.84	19.79	19.08	19.24	20.35	21.52	22.65	23.77	23.66	22.62	22.28	22.33
29	21.48	19.79	18.94	19.25	---	21.53	22.66	23.81	23.71	22.62	22.34	22.12
30	21.18	19.78	18.83	19.26	---	21.57	22.69	23.85	23.75	22.55	22.35	22.07
31	21.12	---	18.75	19.27	---	21.58	---	23.84	---	22.54	22.35	---
MEAN	22.73	20.41	18.74	19.00	19.83	21.00	22.14	23.33	23.77	22.94	22.48	22.25

WTR YR 1999 MEAN 21.56 HIGHEST 18.34 DEC. 6, 7, 8, 1998 LOWEST 23.99 JUNE 6-9, 1999

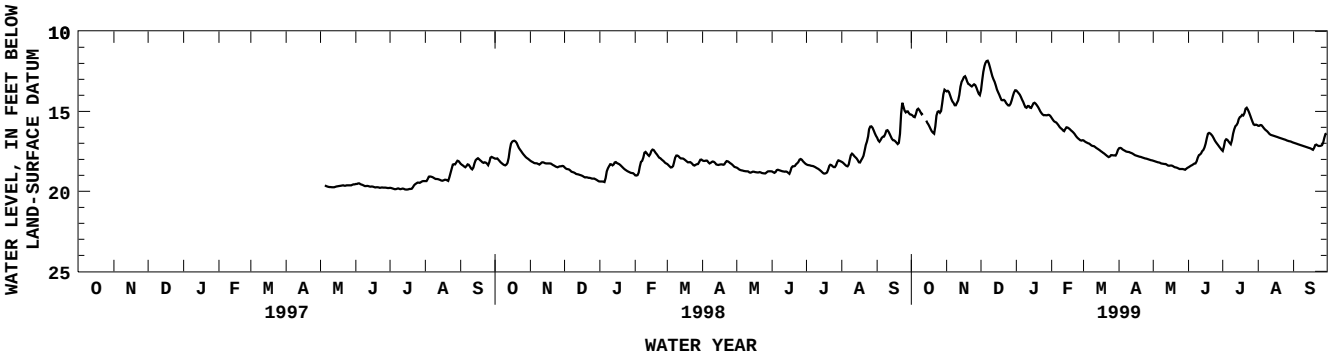


181446066013400. Local number, 1178.
LOCATION.--Lat 18°14'46", long 66°01'34", Hydrologic Unit 21010005, 0.63 mi east of Hwy 1, 1.59 mi west of the intersection of Hwy 189 with Hwy 931, and 0.70 mi northeast of the intersection of Hwy 189 with Hwy 1. Owner: US Geological Survey, WRD, Name: CJ-TW20.
AQUIFER.--Unconsolidated deposits of Quaternary Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), caser 4 in (0.10 m), 0-37.0 ft (0-11.3 m), screened 25-35 ft (7.62-11.3 m). Depth 35.0 ft (11.3 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 187.0 ft (57.0 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.63 ft (1.11 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 5, 1997. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 29, 1999. Formerly published as local number CJ-TW20.
PERIOD OF RECORD.--May 5, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.75 ft (3.58 m), below land-surface datum, Dec. 7, 1998; lowest water level recorded, 19.89 ft (6.06 m), below land-surface datum, July 15, 16, 17, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.21	13.79	13.98	13.66	15.36	16.79	17.34	18.08	18.52	17.47	15.87	16.94
2	15.21	13.73	13.40	13.73	15.47	16.84	17.28	18.10	18.47	17.49	15.93	16.97
3	15.29	13.71	12.77	13.84	15.57	16.90	17.28	18.13	18.42	16.93	15.87	16.99
4	15.40	13.88	12.30	13.89	15.66	16.94	17.34	18.15	18.39	16.76	15.83	17.02
5	15.32	14.10	12.04	14.02	15.67	16.98	17.40	18.17	18.34	16.73	15.90	17.04
6	15.00	14.33	11.93	14.18	15.73	17.01	17.42	18.19	18.28	16.82	16.00	17.07
7	14.80	14.42	11.80	14.36	15.83	17.04	17.48	18.21	18.26	16.93	16.09	17.09
8	14.86	14.54	11.87	14.48	15.94	17.11	17.52	18.24	18.26	17.02	16.18	17.12
9	14.98	14.70	12.13	14.66	16.03	17.17	17.53	18.26	18.00	17.10	16.21	17.14
10	15.12	14.53	12.41	14.83	16.08	17.17	17.53	18.28	17.80	16.51	16.29	17.16
11	15.25	14.40	12.69	14.71	16.16	17.19	17.57	18.29	17.69	16.28	16.38	17.19
12	15.01	14.24	12.92	14.63	16.26	17.25	17.60	18.30	17.72	15.97	16.45	17.21
13	---	13.71	13.09	14.70	16.21	17.31	17.62	18.29	17.54	15.88	16.48	17.24
14	15.49	13.20	13.23	14.82	16.01	17.36	17.66	18.38	17.43	15.82	16.50	17.26
15	15.66	13.12	13.53	14.75	15.98	17.41	17.73	18.40	17.39	15.63	16.53	17.29
16	15.76	12.93	13.75	14.55	16.04	17.45	17.75	18.40	17.14	15.35	16.55	17.31
17	15.89	12.77	13.86	14.46	16.09	17.52	17.78	18.38	16.91	15.38	16.58	17.34
18	16.04	12.84	14.05	14.47	16.16	17.56	17.80	18.40	16.45	15.25	16.60	17.39
19	16.19	13.02	14.24	14.58	16.23	17.61	17.82	18.43	16.33	15.20	16.63	17.42
20	16.31	13.27	14.34	14.67	16.28	17.66	17.84	18.49	16.36	15.30	16.65	17.15
21	16.37	13.30	14.28	14.79	16.37	17.73	17.86	18.50	16.41	14.92	16.67	17.07
22	16.41	13.34	14.28	14.94	16.45	17.78	17.89	18.51	16.50	14.74	16.70	17.08
23	15.46	13.46	14.41	15.08	16.58	17.85	17.91	18.55	16.61	14.81	16.72	17.17
24	15.08	13.43	14.53	15.15	16.65	17.88	17.93	18.58	16.76	14.97	16.75	17.17
25	14.97	13.31	14.59	15.24	16.72	17.76	17.95	18.62	16.90	15.16	16.77	17.16
26	15.01	13.31	14.67	15.24	16.77	17.73	17.97	18.60	16.98	15.36	16.80	17.15
27	15.17	13.42	14.60	15.23	16.84	17.76	18.00	18.60	17.09	15.56	16.82	17.08
28	14.79	13.62	14.44	15.26	16.82	17.75	18.02	18.61	17.16	15.75	16.85	16.85
29	14.19	13.81	14.17	15.22	---	17.76	18.04	18.65	17.27	15.88	16.87	16.46
30	13.67	13.99	13.92	15.22	---	17.77	18.06	18.65	17.34	15.83	16.89	16.37
31	13.62	---	13.72	15.25	---	17.49	---	18.54	---	15.84	16.92	---
MEAN	15.25	13.67	13.48	14.66	16.14	17.40	17.70	18.39	17.42	15.96	16.46	17.10

WTR YR 1999 MEAN 16.14 HIGHEST 11.75 DEC. 7, 1998 LOWEST 18.66 MAY 29, 30, 1999

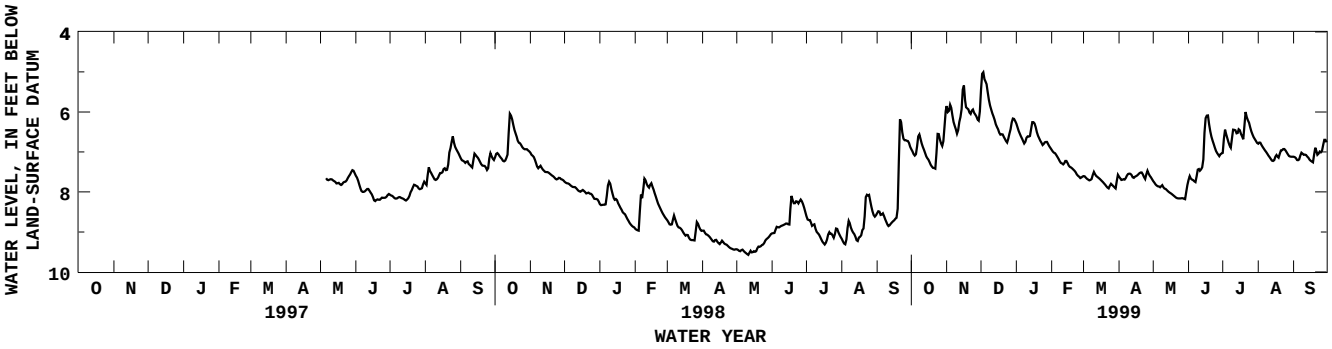


181539066014500. Local number, 1179.
LOCATION.--Lat 18°15'39", long 66°01'45", Hydrologic Unit 21010005, 0.55 mi southeast of the intersection of Hwy 1 with Hwy 30, 0.75 mi southeast of the inserction of Hwy 1 with Hwy 52, and 0.06 mi north of Hwy 796. Owner: US Geological Survey, WRD, Name: CJ-TW15.
AQUIFER.--Unconsolidated deposits of Quaternary Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), 0-70.0 ft (0-21.3 m), screened 25-70 ft (7.62-21.3 m). Depth 70.0 ft (21.3 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 167.3 ft (51.0 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.75 ft (1.14 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 5, 1997. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 2, 1999. Formerly published as local number CJ-TW15.
PERIOD OF RECORD.--May 5, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.92 ft (1.50 m), below land-surface datum, Dec. 3, 1998; lowest water level recorded, 9.58 ft (2.92 m), below land-surface datum, May 11, 12, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.93	5.81	5.75	6.25	6.93	7.62	7.60	7.71	7.83	7.08	6.80	7.11
2	6.94	5.90	5.16	6.33	6.96	7.59	7.64	7.75	7.57	6.97	6.79	7.13
3	7.03	6.10	4.93	6.43	7.02	7.63	7.68	7.79	7.64	6.38	6.74	7.13
4	7.08	5.85	5.09	6.51	7.02	7.66	7.72	7.83	7.69	6.51	6.80	7.18
5	7.10	5.79	5.27	6.58	7.05	7.68	7.67	7.85	7.69	6.61	6.85	7.22
6	7.02	6.00	5.20	6.64	7.10	7.70	7.69	7.87	7.72	6.71	6.90	7.19
7	6.70	6.17	5.41	6.70	7.15	7.72	7.69	7.86	7.75	6.81	6.94	7.18
8	6.52	6.33	5.60	6.77	7.20	7.68	7.62	7.91	7.76	6.87	6.98	7.00
9	6.61	6.36	5.79	6.81	7.26	7.67	7.56	7.81	7.46	6.92	7.02	7.04
10	6.74	6.51	5.89	6.68	7.29	7.48	7.54	7.85	7.42	6.41	7.07	7.05
11	6.84	6.58	5.99	6.61	7.29	7.52	7.54	7.92	7.43	6.48	7.11	7.09
12	6.91	6.34	6.08	6.61	7.33	7.59	7.55	7.91	7.51	6.42	7.15	7.04
13	6.98	6.16	6.14	6.62	7.25	7.61	7.60	7.94	7.36	6.50	7.20	7.11
14	7.08	6.09	6.26	6.58	7.20	7.64	7.67	7.97	7.41	6.57	7.23	7.12
15	7.14	5.77	6.36	6.27	7.25	7.66	7.63	8.00	6.96	6.48	7.22	7.17
16	7.17	5.11	6.39	6.24	7.31	7.68	7.61	8.02	6.08	6.39	7.19	7.21
17	7.21	5.57	6.48	6.27	7.37	7.72	7.60	8.03	6.23	6.53	7.05	7.23
18	7.30	5.85	6.56	6.31	7.38	7.74	7.57	8.06	5.96	6.57	7.10	7.25
19	7.34	5.91	6.58	6.45	7.40	7.77	7.54	8.08	6.22	6.65	7.14	7.27
20	7.39	5.91	6.54	6.56	7.43	7.80	7.52	8.11	6.40	6.72	7.15	6.86
21	7.41	5.96	6.59	6.63	7.45	7.84	7.51	8.13	6.56	5.96	6.95	6.93
22	7.40	6.07	6.66	6.69	7.49	7.88	7.52	8.15	6.67	6.04	6.97	7.03
23	7.44	6.03	6.70	6.75	7.53	7.91	7.60	8.16	6.76	6.21	6.94	7.11
24	6.62	5.91	6.75	6.79	7.59	7.91	7.66	8.16	6.85	6.21	6.92	6.98
25	6.48	5.97	6.78	6.86	7.60	7.78	7.69	8.16	6.94	6.33	6.94	7.00
26	6.63	6.07	6.56	6.74	7.64	7.81	7.43	8.16	7.01	6.44	6.98	7.02
27	6.76	6.06	6.53	6.78	7.67	7.84	7.51	8.15	7.05	6.53	7.04	6.92
28	6.82	6.16	6.34	6.72	7.61	7.87	7.57	8.16	7.09	6.60	7.08	6.73
29	6.88	6.22	6.18	6.78	---	7.90	7.62	8.18	7.12	6.66	7.12	6.67
30	6.58	6.22	6.15	6.84	---	7.92	7.65	8.18	7.00	6.70	7.11	6.73
31	6.15	---	6.20	6.88	---	7.54	---	7.82	---	6.75	7.13	---
MEAN	6.94	6.03	6.09	6.60	7.31	7.72	7.60	7.99	7.10	6.55	7.02	7.06

WTR YR 1999 MEAN 7.00 HIGHEST 4.92 DEC. 3, 1998 LOWEST 8.18 MAY 28, 29, 30, 1999

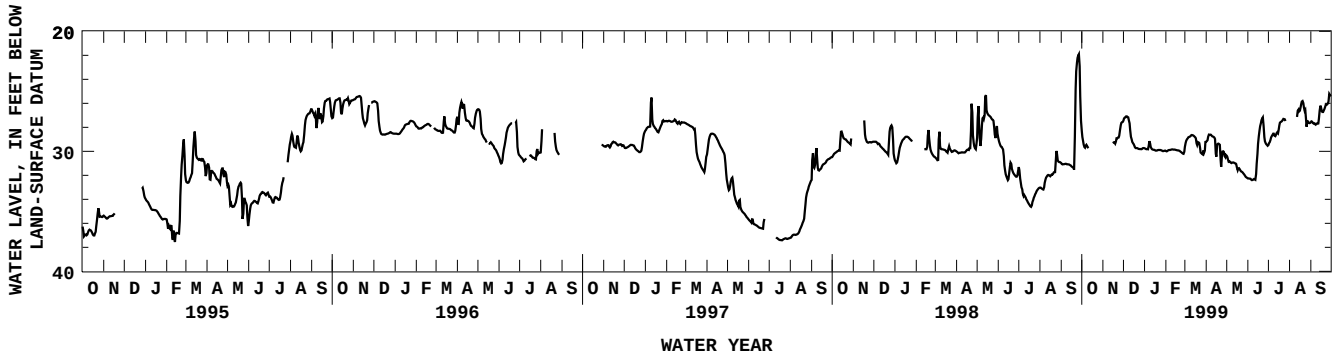


181550065593200. Local number, 50.
LOCATION.--Lat 18°15'50", long 65°59'32", Hydrologic Unit 21010005, 1.36 mi northwest of Gurabo plaza, 0.70 mi north of Estación Experimental Agrícola, and 2.42 mi southwest of Escuela José M. Gallardo. Owner: Gurabo Agricultural Experimental Station, Name: Gurabo.
AQUIFER.--Unconsolidated deposits of Quaternary Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 13 in (0.34 m), cased 4 in (0.10 m), 0-145 ft (0-44.2 m). Depth 145 ft (44.2 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 148 ft (45.1 m), above mean sea level, from topographic map. Measuring point: Top of 12 in (0.30 m) casing, 0.80 ft (0.24 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 30, 1999.
PERIOD OF RECORD.--December 1960 to March 1985, discontinued, and September 1991 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.6 ft (3.86 m), below land-surface datum, Sept. 9, 1975; lowest water level measured, 44.4 ft (13.5 m), below land-surface datum, June 18, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.98	---	27.51	29.73	29.94	29.86	29.20	30.33	32.25	29.59	---	27.62
2	28.61	---	27.36	29.76	30.00	29.40	29.19	30.41	32.25	29.36	---	27.52
3	28.98	---	27.18	29.79	29.99	29.19	29.11	30.53	32.27	29.31	---	27.48
4	29.34	---	27.19	29.81	29.97	29.05	29.02	30.91	32.28	29.16	---	27.60
5	29.55	---	27.14	29.83	29.91	28.95	28.58	30.83	32.27	28.93	---	27.68
6	29.75	---	27.03	29.79	29.89	28.88	28.64	30.84	32.32	28.76	---	27.67
7	29.64	---	27.13	29.85	29.88	28.80	28.61	30.90	32.40	28.67	---	27.65
8	29.40	---	27.13	29.15	29.88	28.79	28.59	30.99	32.41	28.61	---	27.80
9	29.51	---	27.21	29.16	29.86	28.79	28.66	30.96	32.36	28.43	---	27.75
10	29.63	---	27.58	29.54	29.84	28.69	28.73	30.92	32.30	28.63	---	27.63
11	29.72	---	27.75	29.73	29.83	28.64	28.77	30.93	32.30	28.79	---	27.72
12	29.73	---	28.67	29.80	29.84	28.65	28.78	30.94	32.37	28.68	27.38	27.67
13	---	---	28.90	29.86	29.86	28.66	28.81	30.97	32.37	28.61	26.89	27.68
14	---	---	29.12	29.86	29.86	28.70	28.92	31.00	31.40	28.36	26.32	26.92
15	---	---	29.30	29.89	29.86	28.74	29.04	31.03	30.68	28.48	26.71	26.29
16	---	29.08	29.35	29.84	29.88	28.80	31.38	31.07	29.76	28.50	26.65	26.11
17	---	29.28	29.45	29.96	29.90	28.86	29.53	31.62	29.00	28.00	26.57	26.57
18	---	29.27	29.61	29.90	29.92	28.95	29.40	31.51	28.49	27.67	26.20	26.71
19	---	29.30	29.71	29.97	29.93	29.74	29.35	31.37	28.00	27.55	25.90	26.74
20	---	29.43	29.74	29.91	29.91	29.22	29.37	31.44	27.81	27.54	25.82	26.69
21	---	28.90	29.72	29.90	29.95	29.25	29.41	31.52	27.50	27.50	25.81	26.52
22	---	28.94	29.74	29.87	29.97	29.29	29.51	31.64	27.31	27.46	26.16	26.40
23	---	28.89	29.78	29.89	30.02	29.34	31.88	31.68	27.20	27.28	26.52	26.14
24	---	28.85	29.79	29.90	30.07	30.05	30.71	31.70	27.12	27.32	26.72	26.09
25	---	28.84	29.83	29.87	30.11	30.15	30.05	31.78	28.58	27.29	26.37	26.15
26	---	28.56	29.79	29.94	30.17	30.18	29.99	31.84	29.05	27.35	28.31	26.03
27	---	27.92	29.82	29.92	30.20	30.24	30.02	31.92	29.28	27.59	27.58	25.96
28	---	27.73	29.84	29.98	30.21	30.27	30.07	32.00	29.36	---	27.39	25.76
29	---	27.55	29.78	29.98	---	29.58	30.72	32.09	29.45	---	27.63	24.68
30	---	27.58	29.72	29.97	---	30.66	30.27	32.17	29.48	---	27.65	25.92
31	---	---	29.74	29.93	---	29.22	---	32.17	---	---	27.64	---
MEAN	29.32	28.67	28.76	29.82	29.95	29.28	29.48	31.29	30.32	28.27	26.81	26.84

WTR YR 1999 MEAN 29.15 HIGHEST 24.58 SEPT. 29, 1999 LOWEST 32.82 APR. 23, 1999

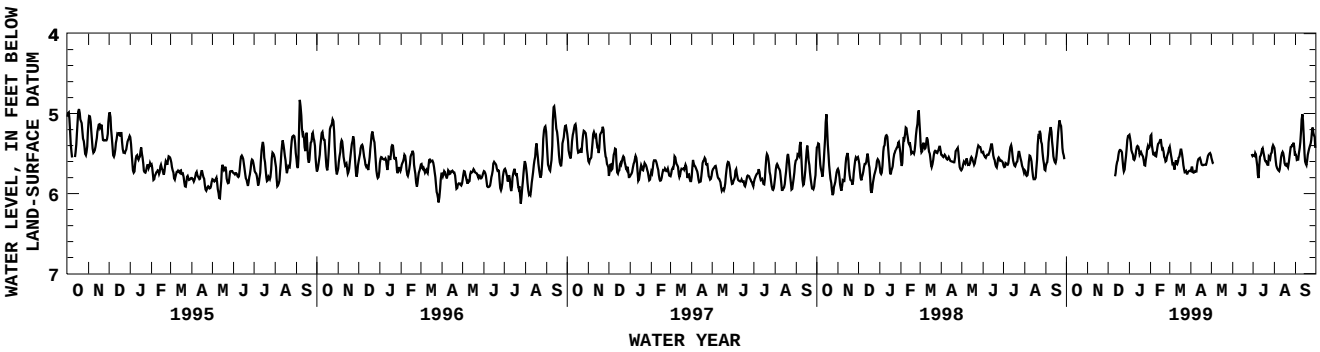


182515065594100. Local number, 222.
LOCATION.--Lat 18°25'15", long 65°59'41", Hydrologic Unit 21010005, 3.56 mi northwest of Carolina plaza, 1.21 mi northwest of Escuela Extensión El Comandante, and 0.74 mi southwest of Escuela Vistamar. Owner: US Geological Survey, WRD, Name: Campo Rico TW-1.
AQUIFER.--Surficial Deposits.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m). Depth 100 ft (30.5 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on June 28, 1999.
PERIOD OF RECORD.--February 1986 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.33 ft (1.32 m), below land-surface datum, Sept. 6, 1995; lowest water level recorded, 7.42 ft (2.26 m), below land-surface datum, Feb. 9, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	5.25	5.37	5.42	5.72	5.54	---	5.55	5.43	5.55
2	---	---	---	5.28	5.19	5.41	5.72	5.57	---	5.49	5.43	5.46
3	---	---	---	5.33	5.34	5.51	5.63	5.61	---	5.55	5.55	5.60
4	---	---	---	5.40	5.45	5.54	5.72	5.63	---	5.51	5.63	5.56
5	---	---	---	5.51	5.47	5.62	5.75	5.62	---	5.48	5.67	5.59
6	---	---	---	5.47	5.55	5.64	5.73	---	---	5.55	5.69	5.56
7	---	---	---	5.55	5.48	5.61	5.74	---	---	5.61	5.71	5.43
8	---	---	---	5.59	5.52	5.70	5.70	---	---	5.71	5.71	5.43
9	---	---	---	5.57	5.54	5.70	5.75	---	---	5.83	5.73	5.29
10	---	---	---	5.56	5.53	5.56	5.70	---	---	5.78	5.66	5.14
11	---	---	5.80	5.47	5.45	5.61	5.61	---	---	5.54	5.57	5.01
12	---	---	5.77	5.45	5.39	5.63	5.58	---	---	5.54	5.52	5.01
13	---	---	5.72	5.38	5.37	5.63	5.56	---	---	5.51	5.48	5.17
14	---	---	5.59	5.43	5.37	5.57	5.56	---	---	5.48	5.48	5.40
15	---	---	5.62	5.40	5.35	5.54	5.55	---	---	5.41	5.51	5.60
16	---	---	5.55	5.51	5.31	5.54	5.60	---	---	5.46	5.59	5.60
17	---	---	5.48	5.51	5.35	5.46	5.64	---	---	5.51	5.65	5.66
18	---	---	5.47	5.47	5.44	5.44	5.64	---	---	5.53	5.64	5.63
19	---	---	5.44	5.49	5.45	5.46	5.65	---	---	5.62	5.66	5.53
20	---	---	5.47	5.52	5.43	5.55	5.64	---	---	5.57	5.61	5.50
21	---	---	5.46	5.52	5.53	5.60	5.64	---	---	5.62	5.70	5.44
22	---	---	5.51	5.56	5.55	5.69	5.64	---	---	5.63	5.65	5.44
23	---	---	5.64	5.63	5.57	5.71	5.64	---	---	5.65	5.58	5.37
24	---	---	5.72	5.66	5.63	5.76	5.64	---	---	5.63	5.53	5.38
25	---	---	5.73	5.64	5.55	5.70	5.59	---	---	5.45	5.42	5.28
26	---	---	5.67	5.53	5.52	5.74	5.54	---	---	5.66	5.42	5.16
27	---	---	5.57	5.51	5.50	5.76	5.52	---	---	5.47	5.41	5.19
28	---	---	5.51	5.39	5.46	5.74	5.50	---	---	5.53	5.38	5.30
29	---	---	5.40	5.43	---	5.72	5.50	---	5.50	5.45	5.41	5.24
30	---	---	5.26	5.44	---	5.72	5.49	---	5.51	5.40	5.32	5.35
31	---	---	5.30	5.41	---	5.71	---	---	---	5.39	5.50	---
MEAN	---	---	5.56	5.48	5.45	5.61	5.63	5.59	5.51	5.55	5.56	5.40

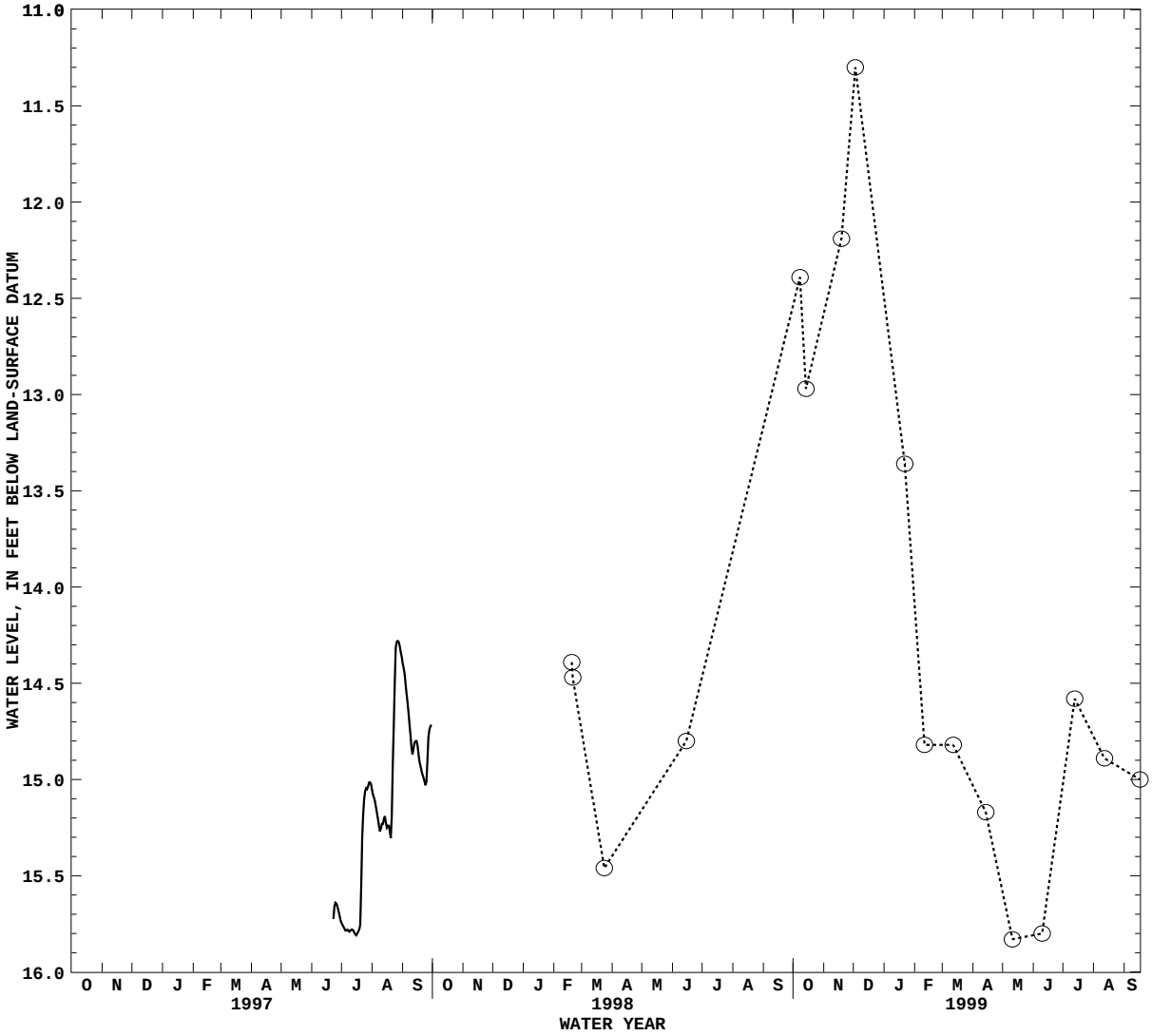
WTR YR 1999 MEAN 5.53 HIGHEST 4.99 SEPT. 12, 1999 LOWEST 6.02 MAR. 28, 1999



181540065580300. Local number, 1180.
LOCATION.--Lat 18°15'40", long 65°58'03", Hydrologic Unit 21010005, 0.75 mi northeast of the intersection of Hwy 181 with Hwy 30, 0.88 mi south of the intersection of Hwy 943 with Hwy 181, and 0.01 mi west of Hwy 181. Owner: US Geological Survey, WRD, Name: CJ-TW18.
AQUIFER.--Unconsolidated deposits of Quaternary Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), 0-65.0 ft (0-19.8 m), screened 25-65 ft (7.62-19.8 m). Depth 65.0 ft (19.8 m).
DATUM.--Elevation of land-surface datum is about 164.0 ft (50.0 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.65 ft (1.11 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on June 23, 1997. Shelter with instrumentation found destroyed due to construction in the area, September 30, 1997. Since then, tapedown measurements only. Formerly published as local number CJ-TW18.
PERIOD OF RECORD.--June 23, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 12.08 ft (3.68 m), below land-surface datum, Oct. 16, 1997; lowest water level recorded, 15.83 ft (4.82 m) below land-surface datum, May 11, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 8	12.39	Jan, 22	13.36	May 11	15.83	Aug. 12	14.89
Oct. 14	12.97	Feb. 22	14.82	June 10	15.80	Sept. 17	15.00
Nov. 19	12.19	Mar. 12	14.82	July 13	14.58		
Dec. 3	11.30	Apr. 14	15.17				

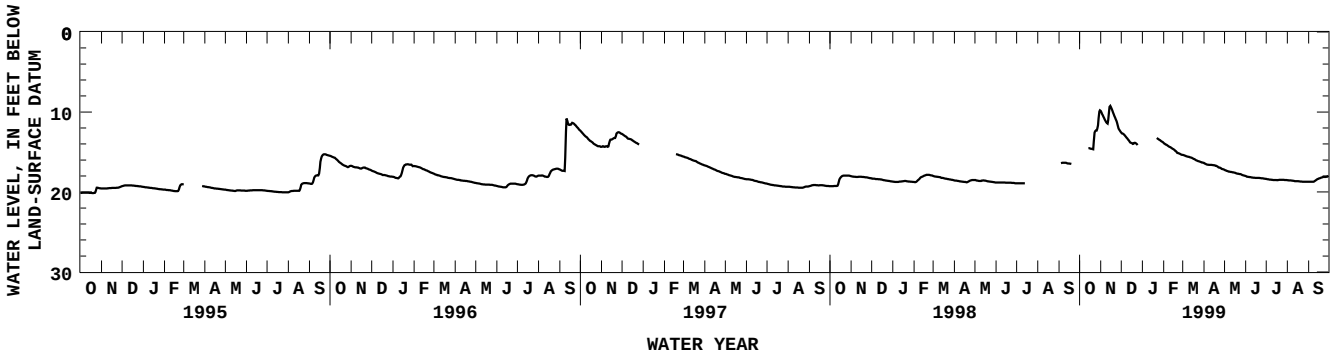


181513065554601. Local number, 1181.
LOCATION.--Lat 18°15'13", long 65°55'46", Hydrologic Unit 21010005, 2.86 mi east of Gurabo plaza, 3.57 mi southwest of Hwy 186 km 4.7, and 1.39 mi southwest of Hwy 185 km 15.7. Owner: US Geological Survey, WRD, Name: CJ-TW3B.
AQUIFER.--Unconsolidated deposits of Quaternary Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-38 ft (0-11.6 m) screened 25-35 ft (7.62 m). Depth 38.0 ft (11.6 m).
INSTRUMENTATION.--Digital water level recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is about 187 ft (57.0 m), above mean sea level, from topographic map. Measuring point: Top of casing 2.95 ft (0.90 m), above land-surface datum.
REMARKS.--Recording observation well. Formerly published as local number CJ-TW3B.
PERIOD OF RECORD.--September 1991 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.18 ft (2.80 m), below land-surface datum, Nov. 15, 16, 1998; lowest water level recorded, 20.31 ft (6.19 m), below land-surface datum, Sept. 19, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	9.79	12.53	---	13.82	15.36	16.35	17.22	17.98	18.36	18.52	18.73
2	---	9.96	12.62	---	13.90	15.38	16.39	17.26	18.02	18.38	18.53	18.73
3	---	10.15	12.70	---	13.97	15.41	16.47	17.28	18.08	18.39	18.54	18.73
4	---	10.33	12.71	---	14.03	15.43	16.48	17.33	18.10	18.41	18.55	18.73
5	---	10.49	12.79	---	14.08	15.47	16.54	17.36	18.11	18.42	18.56	18.72
6	---	10.68	12.85	---	14.10	15.50	16.56	17.38	18.11	18.43	18.56	18.71
7	---	10.87	12.95	---	14.18	15.54	16.59	17.44	18.13	18.46	18.56	18.71
8	---	11.03	13.08	---	14.25	15.56	16.60	17.45	18.15	18.46	18.57	18.71
9	---	11.18	13.18	---	14.31	15.58	16.61	17.47	18.15	18.47	18.59	18.71
10	---	11.31	13.26	---	14.36	15.60	16.61	17.48	18.19	18.49	18.59	18.67
11	---	11.44	13.40	---	14.37	15.62	16.61	17.50	18.19	18.49	18.60	18.60
12	---	11.47	13.50	---	14.45	15.66	16.61	17.51	18.19	18.50	18.65	18.53
13	---	10.57	13.59	---	14.51	15.68	16.61	17.53	18.22	18.51	18.65	18.48
14	14.53	9.51	13.75	---	14.55	15.71	16.63	17.55	18.22	18.51	18.65	18.41
15	14.52	9.20	13.84	---	14.61	15.74	16.65	17.56	18.23	18.51	18.65	18.37
16	14.50	9.28	13.84	---	14.66	15.78	16.65	17.56	18.23	18.51	18.65	18.34
17	14.58	9.48	13.88	---	14.72	15.85	16.66	17.60	18.24	18.52	18.65	18.29
18	14.58	9.74	13.96	---	14.81	15.88	16.72	17.63	18.25	18.52	18.66	18.27
19	14.60	9.95	14.03	---	14.88	15.90	16.72	17.68	18.25	18.51	18.67	18.24
20	14.61	10.18	13.89	---	14.92	15.98	16.75	17.71	18.25	18.49	18.69	18.20
21	14.67	10.39	13.85	---	15.10	16.02	16.78	17.71	18.25	18.48	18.69	18.18
22	14.67	10.60	13.85	13.22	15.12	16.07	16.89	17.73	18.25	18.48	18.69	18.14
23	12.68	10.80	13.92	13.29	15.14	16.11	16.93	17.76	18.27	18.49	18.70	18.11
24	12.47	11.01	13.99	13.33	15.18	16.14	16.94	17.76	18.28	18.49	18.73	18.11
25	12.35	11.23	14.08	13.39	15.21	16.16	16.97	17.78	18.28	18.49	18.73	18.11
26	12.29	11.41	14.20	13.47	15.26	16.18	17.02	17.81	18.29	18.49	18.73	18.11
27	12.33	11.99	---	13.50	15.31	16.24	17.07	17.87	18.31	18.49	18.73	18.11
28	11.87	12.13	---	13.57	15.34	16.26	17.14	17.88	18.32	18.49	18.73	18.10
29	11.46	12.27	---	13.66	---	16.30	17.14	17.92	18.34	18.50	18.73	18.07
30	10.07	12.38	---	13.69	---	16.33	17.17	17.94	18.35	18.50	18.73	18.02
31	9.78	---	---	13.75	---	16.33	---	17.96	---	18.51	18.73	---
MEAN	13.14	10.69	13.47	13.49	14.61	15.83	16.73	17.60	18.21	18.48	18.65	18.40

WTR YR 1999 MEAN 16.07 HIGHEST 9.18 NOV. 15, 16, 1998 LOWEST 18.73 AUG. 24-SEPT. 5, 1999



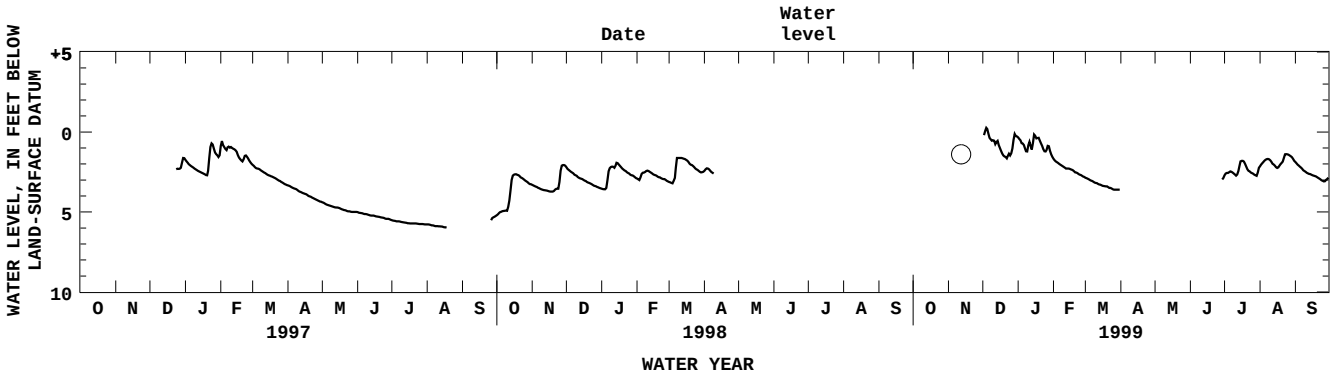
182344065490801. Local number, 1201.
LOCATION.--Lat 18°23'44", long 65°49'08", Hydrologic Unit 2101005, 0.35 mi west of Hwy 187, 1.30 mi southwest of the intersection of Hwy 187 with Hwy 3, and 1.83 mi south of Punta San Agustín. Owner: US Geological Survey, WRD, Name: Río Espíritu Santo-2A.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 0-22.0 ft (0-6.70 m), screened 3.00-22.0 ft (0.90-6.70 m). Depth 22.0 ft (6.7 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is 5.78 ft (41.8 m), above mean sea level, from survey.
Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 5.60 ft (1.71 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on December 24, 1996 replaced by an Eletronic Data Logger (EDL), installed on January 14, 1997. Formerly published as local number RE-2A.
PERIOD OF RECORD.--December 24, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.36 ft (+0.11 m), above land-surface datum, Dec. 4, 5, 1998; lowest water level recorded, 6.02 ft (1.83 m), below land-surface datum, Aug. 19, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	.22	1.63	2.83	3.61	---	---	2.77	2.18	1.85
2	---	---	.32	.47	1.72	2.88	---	---	---	2.63	2.09	1.91
3	---	---	.07	.40	1.81	2.89	---	---	---	2.57	2.00	2.00
4	---	---	+.18	.65	1.87	2.94	---	---	---	2.54	1.92	2.09
5	---	---	+.33	.74	1.90	2.97	---	---	---	2.57	1.83	2.13
6	---	---	+.04	.71	1.96	3.03	---	---	---	2.46	1.75	2.20
7	---	---	.25	.93	2.02	3.04	---	---	---	2.48	1.71	2.24
8	---	---	.47	1.13	2.08	3.10	---	---	---	2.50	1.69	2.36
9	---	---	.46	1.28	2.11	3.13	---	---	---	2.56	1.67	2.43
10	---	---	.64	1.16	2.17	3.18	---	---	---	2.63	1.75	2.45
11	---	---	.40	.50	2.20	3.18	---	---	---	2.69	1.78	2.53
12	---	---	.68	.73	2.28	3.21	---	---	---	2.76	1.95	2.56
13	---	---	.85	1.01	2.28	3.27	---	---	---	2.56	2.01	2.60
14	---	---	.40	1.18	2.28	3.28	---	---	---	2.31	2.06	2.63
15	---	---	.71	.20	2.28	3.31	---	---	---	1.89	2.16	2.64
16	---	---	.92	.11	2.32	3.35	---	---	---	1.80	2.23	2.70
17	---	---	1.09	.37	2.35	3.37	---	---	---	1.80	2.27	2.70
18	---	---	1.28	.43	2.37	3.39	---	---	---	1.80	2.16	2.75
19	---	---	1.42	.32	2.41	3.39	---	---	---	1.90	2.06	2.76
20	---	---	1.52	.41	2.50	3.40	---	---	---	2.08	1.98	2.79
21	---	---	1.54	.67	2.54	3.40	---	---	---	2.24	1.88	2.86
22	---	---	1.60	.76	2.54	3.50	---	---	---	2.42	1.82	2.89
23	---	---	1.70	.97	2.61	3.50	---	---	---	2.43	1.42	2.92
24	---	---	1.31	1.18	2.65	3.50	---	---	---	2.50	1.38	3.00
25	---	---	1.42	1.22	2.68	3.57	---	---	---	2.57	1.38	3.03
26	---	---	1.52	1.22	2.70	3.60	---	---	---	2.58	1.40	3.07
27	---	---	1.16	1.01	2.77	3.60	---	---	---	2.64	1.45	3.10
28	---	---	.92	.73	2.80	3.60	---	---	---	2.70	1.49	3.06
29	---	---	.08	1.05	---	3.61	---	---	2.96	2.71	1.55	2.93
30	---	---	.17	1.30	---	3.61	---	---	2.97	2.78	1.60	2.93
31	---	---	.35	1.48	---	3.61	---	---	---	2.29	1.76	---
MEAN	---	---	.76	.79	2.28	3.30	3.61	---	2.97	2.42	1.82	2.60

WTR YR 1999 MEAN 2.01 HIGHEST +0.36 DEC. 4, 5, 1998 LOWEST 3.67 APR. 2, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS



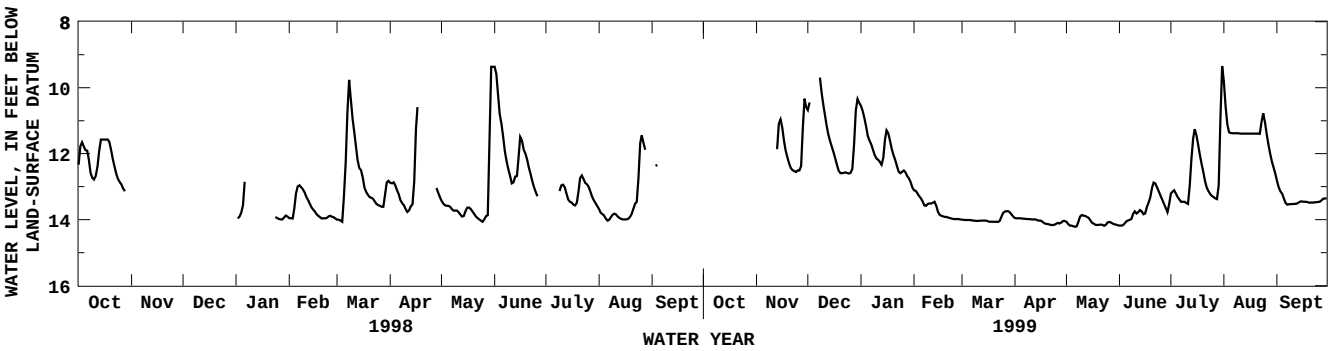
+ above land-surface datum

182223065455900. Local number, 1202.
LOCATION.--Lat 18°22′23", long 65°45'59", Hydrologic Unit 21010005, 0.06 mi south of Hwy 2 and 0.27 mi east of Hwy 191.
Owner: US Geological Survey, WRD, Name: Pozo Río Mameyes # 2.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled piezometer well, constructed in 1993 as part of a study of northeast of Puerto Rico, diameter 2 in (0.05 m), screened 13.0-24.0 ft (3.96-7.32 m). Depth 24.0 ft (7.32 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land surface datum is about 20.0 ft (6.10 m), above mean sea level, from topographic map.
Measuring point: On shelter floor, 6.65 ft (2.03 m), above land-surface datum.
REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on Sept. 25, 1997. Formerly published as local number RM-02.
PERIOD OF RECORD.--September 25, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.30 ft (2.83 m), below land-surface datum, July 30, 31, 1999; lowest water level recorded, 14.22 ft (4.33 m), below land-surface datum, May 6, 7, 8, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	10.76	10.52	13.11	14.00	13.95	14.04	14.18	13.23	9.38	12.71
2	---	---	10.59	10.59	13.11	14.00	13.95	14.09	14.18	13.19	10.25	12.91
3	---	---	10.31	10.83	13.14	14.01	13.96	14.18	14.18	13.11	10.89	13.11
4	---	---	---	11.04	13.26	14.01	13.96	14.18	14.16	13.11	11.33	13.16
5	---	---	---	11.34	13.32	14.01	13.96	14.18	14.07	13.31	11.37	13.26
6	---	---	---	11.57	13.38	14.01	13.97	14.21	14.03	13.31	11.38	13.44
7	---	---	---	11.63	13.51	14.01	13.97	14.22	14.01	13.46	11.38	13.55
8	---	---	9.44	11.79	13.63	14.03	13.98	14.19	14.00	13.46	11.38	13.54
9	---	---	9.95	11.96	13.53	14.03	13.98	13.95	13.94	13.46	11.38	13.53
10	---	---	10.35	12.11	13.51	14.04	13.98	13.86	13.71	13.46	11.38	13.53
11	---	---	10.71	12.17	13.51	14.04	13.99	13.86	13.79	13.53	11.39	13.52
12	---	---	11.00	12.20	13.51	14.03	13.99	13.89	13.83	13.51	11.39	13.52
13	---	12.49	11.30	12.29	13.46	14.03	13.99	13.89	13.71	12.44	11.39	13.52
14	---	11.24	11.54	12.38	13.46	14.03	14.00	13.94	13.71	11.85	11.39	13.49
15	---	10.94	11.70	11.87	13.70	14.03	14.03	13.95	13.79	11.22	11.39	13.45
16	---	10.98	11.87	11.28	13.83	14.03	14.03	14.09	13.88	11.30	11.39	13.44
17	---	11.44	12.06	11.31	13.88	14.06	14.03	14.09	13.74	11.58	11.39	13.46
18	---	11.79	12.24	11.45	13.88	14.06	14.09	14.15	13.49	11.88	11.39	13.46
19	---	12.00	12.45	11.76	13.92	14.06	14.12	14.16	13.47	12.20	11.39	13.45
20	---	12.20	12.59	11.94	13.92	14.06	14.13	14.16	13.15	12.42	11.39	13.49
21	---	12.37	12.59	12.14	13.92	14.06	14.13	14.15	12.90	12.70	11.39	13.48
22	---	12.48	12.59	12.24	13.95	14.07	14.16	14.15	12.85	12.97	11.39	13.48
23	---	12.51	12.57	12.50	13.95	14.07	14.16	14.16	12.96	13.10	11.40	13.48
24	---	12.54	12.57	12.59	13.98	14.01	14.16	14.21	13.08	13.17	10.67	13.47
25	---	12.57	12.60	12.59	13.98	13.82	14.15	14.10	13.21	13.28	10.88	13.47
26	---	12.45	12.60	12.51	13.98	13.77	14.10	14.07	13.33	13.29	11.22	13.46
27	---	12.57	12.56	12.51	13.98	13.74	14.10	14.07	13.46	13.35	11.60	13.46
28	---	12.18	12.35	12.63	13.98	13.74	14.13	14.10	13.58	13.35	11.85	13.37
29	---	10.26	11.07	12.71	---	13.74	14.04	14.13	13.71	13.40	12.14	13.36
30	---	10.41	10.29	12.77	---	13.82	14.04	14.15	13.83	12.52	12.33	13.36
31	---	---	10.40	12.93	---	13.86	---	14.15	---	9.31	12.51	---
MEAN	---	11.86	11.52	11.94	13.65	13.98	14.04	14.09	13.66	12.76	11.34	13.40

WTR YR 1999 MEAN 12.98 HIGHEST 9.30 JULY 30, 31, 1999 LOWEST 14.22 MAY 6, 7, 8, 1999

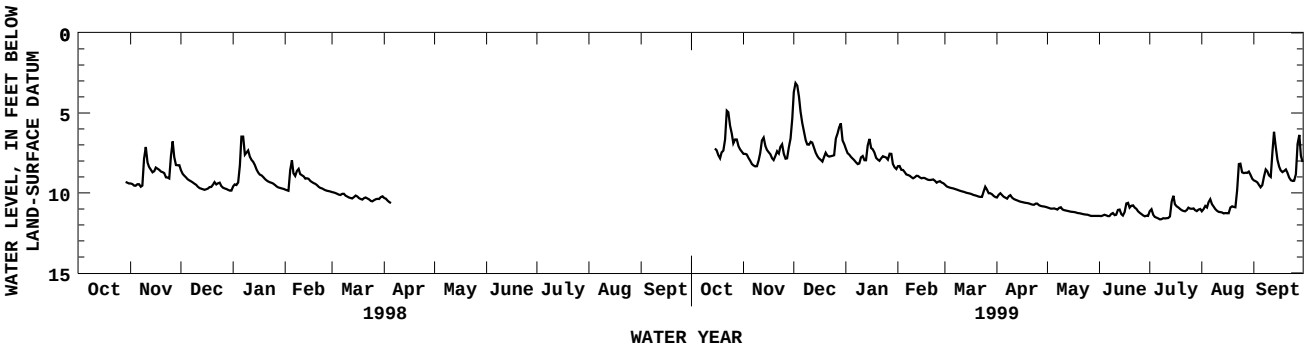


181217065453000. Local number, 1203.
LOCATION.--Lat 18°12'17", long 65°45'30", Hydrologic Unit 21010005, 0.01 mi south of Hwy 927 at Km 8.0 and 0.62 mi south of Hwy 31. Owner: Carlos Arroyo, Name: Arroyo TW-1.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), screened 29.0-32.0 ft (8.84-9.75 m). Depth 32.0 ft (9.75 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 16.0 ft (4.87 m), above mean sea level, from topographic map. Measuring point: On shelter floor, 4.80 ft (1.46 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on Oct. 26, 1997. Well is affected by stage in nearby Río Blanco. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 27, 1999. Formerly published as local number ARR-1.
PERIOD OF RECORD.--October 26, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.01 ft (0.61 m), below land-surface datum, Oct. 22, 1998; lowest water level recorded, 11.68 ft (3.56 m), below land-surface datum, July 8, 9, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	7.43	4.10	6.99	8.55	9.41	10.28	10.89	11.44	11.51	11.11	9.18
2	---	7.70	3.29	7.49	8.11	9.56	10.29	10.93	11.44	10.77	11.19	9.26
3	---	7.43	2.98	7.54	8.53	9.62	9.95	10.96	11.45	11.27	10.84	9.27
4	---	7.77	3.60	7.67	8.58	9.66	10.08	10.99	11.38	11.45	10.79	9.41
5	---	7.85	4.38	7.84	8.56	9.68	10.20	10.96	11.34	11.54	11.02	9.59
6	---	8.13	5.43	7.86	8.81	9.72	10.27	10.98	11.45	11.56	10.16	9.70
7	---	8.27	5.83	8.04	8.87	9.73	10.33	11.02	11.45	11.63	10.63	9.34
8	---	8.30	6.51	8.13	8.89	9.78	10.38	11.06	11.45	11.67	10.77	8.62
9	---	8.39	6.90	8.27	8.96	9.81	10.03	10.80	11.17	11.62	10.94	8.44
10	---	8.27	7.05	8.05	9.06	9.85	10.25	11.00	11.34	11.53	11.07	8.85
11	---	7.64	6.91	7.49	9.10	9.88	10.35	11.06	11.43	11.65	11.16	8.96
12	---	7.38	6.70	7.90	8.94	9.91	10.41	11.09	11.30	11.51	11.21	9.03
13	---	6.06	7.00	8.00	8.92	9.94	10.45	11.10	10.83	11.62	11.19	5.82
14	---	7.02	7.33	7.91	8.96	9.99	10.49	11.14	11.26	11.33	11.26	6.53
15	7.36	7.12	7.64	6.16	9.08	10.00	10.53	11.16	11.40	9.76	11.30	7.68
16	7.09	7.50	7.78	7.09	9.08	10.04	10.56	11.18	11.42	10.59	11.22	8.18
17	7.58	7.40	7.88	7.30	9.05	10.06	10.58	11.19	10.97	10.83	11.32	8.54
18	7.71	7.77	7.99	7.24	9.09	10.11	10.61	11.21	10.35	10.84	11.22	8.65
19	7.95	7.91	8.09	7.72	9.17	10.14	10.62	11.24	10.88	10.97	10.60	8.76
20	6.98	7.97	7.40	7.90	9.18	10.17	10.65	11.26	10.97	11.05	11.07	8.50
21	7.74	7.41	7.58	7.95	9.21	10.21	10.67	11.28	10.62	11.11	10.67	8.57
22	5.57	7.38	7.76	8.04	9.14	10.24	10.71	11.31	10.94	11.13	11.13	8.91
23	4.15	7.70	7.70	7.64	9.17	10.25	10.75	11.33	10.89	11.16	8.56	9.17
24	5.76	6.55	7.70	7.76	9.32	10.24	10.72	11.35	11.09	10.98	7.84	9.24
25	5.84	7.36	7.67	7.75	9.39	9.63	10.61	11.35	11.21	10.87	8.51	9.26
26	6.77	7.77	7.63	7.82	9.21	9.60	10.73	11.37	11.27	11.10	8.91	9.21
27	7.03	7.96	5.57	8.01	9.32	9.98	10.80	11.44	11.37	10.89	8.61	8.46
28	6.30	7.72	6.98	7.09	9.38	10.05	10.82	11.44	11.44	11.05	8.86	5.38
29	7.02	6.60	4.82	8.04	---	10.00	10.84	11.44	11.48	11.11	8.63	7.37
30	7.15	6.60	6.49	8.33	---	10.15	10.85	11.44	11.37	11.17	8.70	8.00
31	7.39	---	6.94	8.47	---	10.23	---	11.44	---	10.91	9.07	---
MEAN	6.79	7.55	6.50	7.73	8.99	9.92	10.49	11.17	11.21	11.17	10.31	8.53

WTR YR 1999 MEAN 9.29 HIGHEST 2.01 OCT. 22, 1998 LOWEST 11.68 JULY 8, 9, 1999

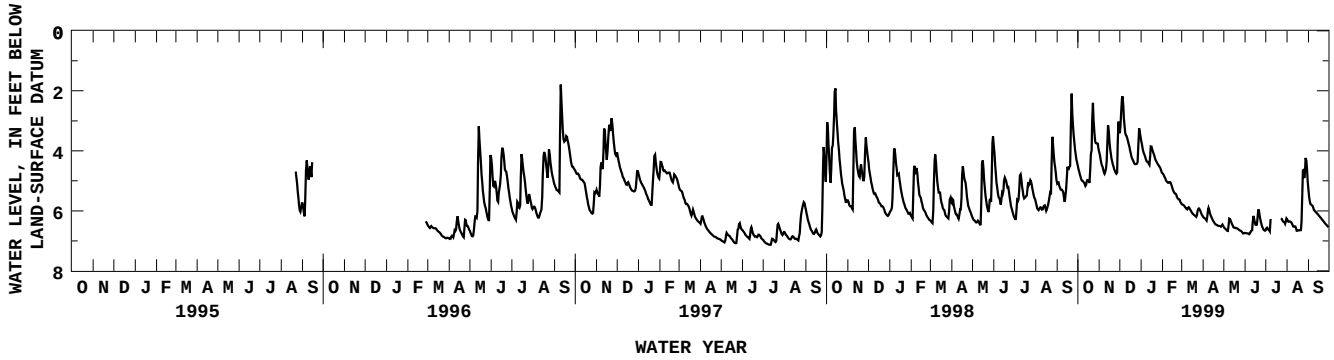


182138065431800. Local number, 1204.
LOCATION.--Lat 18°21'38", long 65°43'18", Hydrologic Unit 21010005, 0.87 mi southwest of Hwy 3, 0.39 mi south of the intersection of Hwy 992 with Hwy 991, 0.39 mi north of Hwy 983, and 0.07 mi east of Hwy 991. Owner: US Geological Survey, WRD, Name: Río Sabana # 02.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-56.0 ft (0-17.1 m), screened 2.56-56.0 ft (0.78-17.1 m). Depth 56.0 ft (17.1 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 33.9 ft (10.3 m), above mean sea level, from topographic survey. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.34 ft (1.02 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on July 23, 1999. Formerly published as local number RS-02.
PERIOD OF RECORD.--August 22, 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.91 ft (0.28 m), below land-surface datum, Oct. 14, 1997; lowest water level recorded, 7.13 ft (2.17 m), below land-surface datum, July 9-13, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.45	3.96	3.46	3.58	4.75	5.75	6.17	6.52	6.74	6.67	6.26	5.19
2	4.57	4.10	3.36	3.72	4.75	5.79	6.23	6.56	6.74	6.61	6.30	5.43
3	4.65	4.18	3.04	3.82	4.79	5.79	6.23	6.58	6.74	6.55	6.36	5.61
4	4.75	4.34	2.38	3.96	4.85	5.81	6.25	6.60	6.75	6.57	6.36	5.77
5	4.83	4.46	2.12	4.06	4.89	5.83	6.27	6.62	6.75	6.63	6.35	5.78
6	4.91	4.50	2.24	4.10	4.93	5.87	6.30	6.66	6.75	6.63	6.36	5.81
7	4.99	4.58	2.76	4.18	5.01	5.89	6.34	6.66	6.77	6.67	6.37	5.82
8	4.99	4.68	3.08	4.26	5.03	5.93	6.08	6.68	6.79	6.69	6.40	5.84
9	5.01	4.76	3.32	4.32	5.05	5.95	5.88	6.26	6.71	5.86	6.44	5.96
10	5.05	4.76	3.50	4.38	5.07	5.95	5.92	6.26	6.67	---	6.52	5.98
11	5.07	4.64	3.48	4.36	5.05	5.87	6.04	6.28	6.67	---	6.52	6.01
12	5.13	4.50	3.54	4.38	5.03	5.89	6.12	6.36	6.69	---	6.52	6.04
13	5.21	4.20	3.66	4.46	5.05	5.93	6.18	6.42	6.15	---	6.52	6.06
14	5.07	3.10	3.74	4.48	5.09	5.97	6.24	6.46	6.19	---	6.52	6.09
15	4.97	3.18	3.82	3.88	5.19	6.01	6.28	6.52	6.31	---	6.66	6.11
16	4.97	3.52	3.94	3.82	5.25	6.05	6.34	6.56	6.43	---	6.66	6.14
17	4.99	3.84	4.04	3.90	5.33	6.09	6.36	6.56	6.49	---	6.66	6.17
18	5.05	4.04	4.14	3.99	5.37	6.11	6.40	6.56	6.45	---	6.65	6.20
19	5.09	4.20	4.24	4.05	5.41	6.13	6.44	6.58	6.47	---	6.65	6.22
20	4.13	4.32	4.28	4.11	5.43	6.15	6.46	6.58	6.07	---	6.65	6.25
21	4.13	4.42	4.32	4.19	5.43	6.17	6.46	6.58	5.89	---	6.64	6.28
22	3.85	4.50	4.40	4.26	5.49	6.19	6.48	6.60	6.07	---	6.64	6.31
23	2.07	4.58	4.44	4.35	5.57	6.21	6.50	6.62	6.21	6.25	6.08	6.34
24	2.73	4.66	4.44	4.35	5.59	6.09	6.50	6.64	6.31	6.26	4.78	6.37
25	3.19	4.68	4.44	4.43	5.63	5.93	6.50	6.66	6.45	6.27	4.52	6.40
26	3.51	4.76	4.44	4.45	5.59	5.93	6.50	6.66	6.51	6.34	4.75	6.43
27	3.81	4.76	4.40	4.49	5.67	5.91	6.52	6.68	6.57	6.36	5.07	6.45
28	3.67	4.68	4.34	4.53	5.73	5.99	6.54	6.70	6.61	6.37	4.30	6.48
29	3.83	2.86	3.22	4.53	---	6.03	6.46	6.74	6.65	6.38	4.17	6.50
30	3.67	3.20	3.28	4.63	---	6.11	6.46	6.76	6.65	6.48	4.48	6.53
31	3.86	---	3.46	4.69	---	6.15	---	6.74	---	6.25	4.87	---
MEAN	4.39	4.23	3.66	4.22	5.22	5.98	6.32	6.57	6.51	6.44	6.00	6.09

WTR YR 1999 MEAN 5.43 HIGHEST 1.84 DEC. 5, 1998 LOWEST 6.79 JUNE 7, 8, 1999

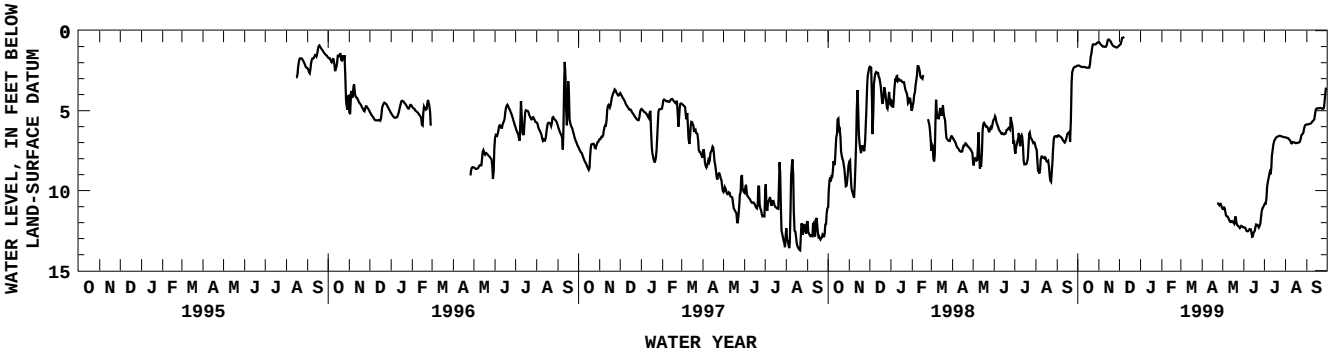


182131065241100. Local number, 1205.
LOCATION.--Lat. 18°21'31", long. 65°24'11", Hydrologic Unit 21010005, 1.39 mi southeast of the intersection of Hwy 992 with Hwy 3, 0.40 mi southeast of the intersection of Hwy 983 with Hwy 3, 0.12 mi northwest of the intersection with Hwy 940 with Hwy 983, and 0.03 mi southwest of Hwy 983. Owner: US Geological Survey, WRD, Name: Río Pitahaya No. 04.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-39.0 ft (0-11.9 m), screened 4.00-39.0 ft (1.20-11.9 m). Depth 39.0 ft (11.9 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 82.1 ft (25.0 m), above mean sea level, from topographic survey. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 4.18 ft (1.27 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on July 23, 1999. Water levels affected by nearby pumping well. Formerly published as local number RP-04.
PERIOD OF RECORD.--August 15, 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.32 ft (0.10 m), below land-surface datum, Dec. 10, 1998; lowest water level recorded, 14.05 ft (4.28 m), below land-surface datum, Aug. 21, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.18	.71	.93	---	---	---	---	11.15	12.30	10.93	6.67	5.87
2	2.18	.73	.89	---	---	---	---	11.15	12.30	10.78	6.68	5.86
3	2.18	.80	.85	---	---	---	---	11.15	12.29	10.81	6.69	5.85
4	2.20	.86	.80	---	---	---	---	10.96	12.34	10.82	6.71	5.85
5	2.22	.90	.46	---	---	---	---	11.21	12.53	10.03	6.72	5.84
6	2.24	.93	.44	---	---	---	---	11.51	12.51	9.53	6.75	5.82
7	2.26	.99	.44	---	---	---	---	11.59	12.56	9.36	6.82	5.80
8	2.27	1.00	.40	---	---	---	---	11.62	12.51	9.17	6.87	5.78
9	2.27	1.00	.36	---	---	---	---	11.61	12.45	8.87	6.90	5.72
10	2.28	1.01	---	---	---	---	---	11.74	12.40	8.84	7.13	5.65
11	2.26	1.01	---	---	---	---	---	11.82	12.50	9.11	6.97	5.62
12	2.27	1.01	---	---	---	---	---	11.93	12.37	8.02	6.96	5.60
13	2.29	.92	---	---	---	---	---	11.98	12.76	7.61	6.98	5.49
14	2.31	.65	---	---	---	---	---	11.95	13.02	7.32	6.98	5.06
15	2.31	.55	---	---	---	---	---	11.87	12.72	7.00	6.99	4.87
16	2.31	.55	---	---	---	---	---	11.94	12.60	6.87	7.04	4.87
17	2.32	.58	---	---	---	---	---	11.99	12.57	6.81	7.02	4.86
18	2.32	.65	---	---	---	---	---	12.06	12.44	6.72	7.02	4.85
19	2.31	.70	---	---	---	---	---	12.08	12.05	6.67	7.01	4.85
20	1.82	.81	---	---	---	---	---	11.37	12.20	6.63	7.00	4.84
21	1.50	.87	---	---	---	---	---	11.87	12.11	6.62	6.99	4.84
22	1.39	.93	---	---	---	---	---	12.05	12.17	6.60	6.98	4.84
23	.90	.98	---	---	---	---	10.84	12.16	12.27	6.58	6.90	4.85
24	.86	.99	---	---	---	---	10.79	12.23	12.33	6.57	6.64	4.89
25	.85	1.00	---	---	---	---	10.80	12.22	12.09	6.58	6.50	4.88
26	.85	1.03	---	---	---	---	10.88	12.30	12.04	6.60	6.46	4.88
27	.88	1.06	---	---	---	---	10.94	12.36	11.35	6.61	6.44	4.76
28	.84	1.06	---	---	---	---	10.73	12.18	11.22	6.63	6.31	4.23
29	.82	1.02	---	---	---	---	10.91	12.24	11.07	6.64	6.02	3.65
30	.74	.98	---	---	---	---	11.00	12.22	11.02	6.65	5.92	3.59
31	.75	---	---	---	---	---	---	12.27	---	6.66	5.87	---
MEAN	1.78	.88	.62	---	---	---	10.86	11.83	12.24	7.89	6.74	5.15

WTR YR 1999 MEAN 6.56 HIGHEST 0.32 DEC. 10, 1998 LOWEST 13.03 JUNE 14, 1999

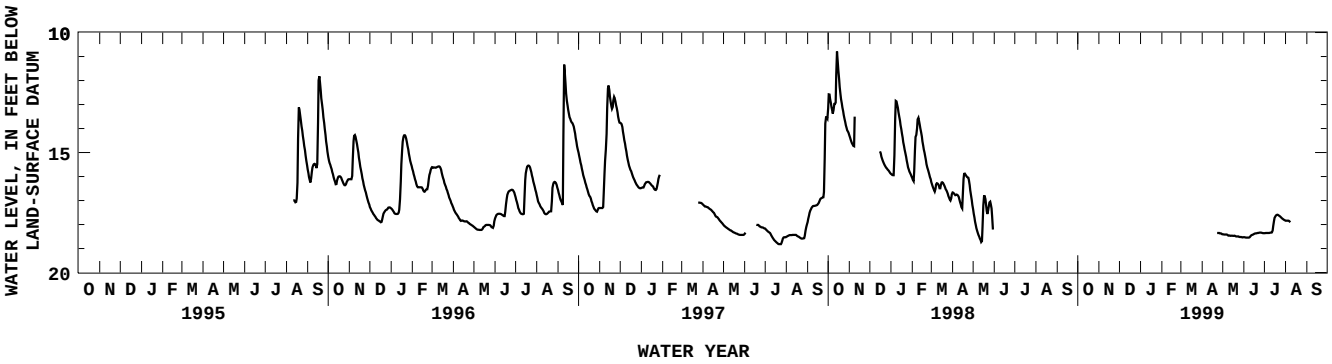


181823065401900. Local number, 1206.
LOCATION.--Lat 18°18'23", long 65°40'19", Hydrologic Unit 2101005, 1.72 mi southwest of the intersection of Hwy 3 with Hwy 976, 1.44 mi west of Hwy 3, 1.33 mi northwest of Hwy 982, and 0.49 mi south of Hwy 976. Owner: US Geological Survey, WRD, Name: Río Fajardo No. 04.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m) 0-40.0 ft (0-12.2 m), screened 20-40 ft (6.1-12.2 m). Depth 40.0 ft (12.2 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is 86.3 ft (26.3 m), above mean sea level, from topographic survey. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.50 ft (1.07 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on May 22, 1998. Formerly published as local number RF-04.
PERIOD OF RECORD.--August 31, 1993 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.70 ft (3.26 m), below land-surface datum, Oct. 14, 15, 1997; lowest water level recorded, 18.82 ft (5.74 m), below land-surface datum, July 21-25, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	18.41	18.53	18.36	17.84	---
2	---	---	---	---	---	---	---	18.41	18.53	18.36	17.84	---
3	---	---	---	---	---	---	---	18.41	18.53	18.36	17.84	---
4	---	---	---	---	---	---	---	18.42	18.54	18.35	17.84	---
5	---	---	---	---	---	---	---	18.42	18.54	18.35	17.84	---
6	---	---	---	---	---	---	---	18.42	18.54	18.35	17.84	---
7	---	---	---	---	---	---	---	18.42	18.54	18.36	17.86	---
8	---	---	---	---	---	---	---	18.42	18.54	18.35	17.90	---
9	---	---	---	---	---	---	---	18.45	18.54	18.35	17.91	---
10	---	---	---	---	---	---	---	18.47	18.53	18.34	---	---
11	---	---	---	---	---	---	---	18.46	18.49	18.34	---	---
12	---	---	---	---	---	---	---	18.46	18.45	18.34	---	---
13	---	---	---	---	---	---	---	18.47	18.44	18.32	---	---
14	---	---	---	---	---	---	---	18.47	18.43	18.17	---	---
15	---	---	---	---	---	---	---	18.46	18.42	17.94	---	---
16	---	---	---	---	---	---	---	18.47	18.40	17.76	---	---
17	---	---	---	---	---	---	---	18.47	18.39	17.68	---	---
18	---	---	---	---	---	---	---	18.47	18.37	17.64	---	---
19	---	---	---	---	---	---	---	18.46	18.37	17.61	---	---
20	---	---	---	---	---	---	---	18.48	18.36	17.59	---	---
21	---	---	---	---	---	---	---	18.50	18.36	17.59	---	---
22	---	---	---	---	---	---	---	18.50	18.35	17.61	---	---
23	---	---	---	---	---	---	18.34	18.50	18.35	17.63	---	---
24	---	---	---	---	---	---	18.36	18.50	18.34	17.65	---	---
25	---	---	---	---	---	---	18.35	18.50	18.34	17.67	---	---
26	---	---	---	---	---	---	18.35	18.52	18.34	17.71	---	---
27	---	---	---	---	---	---	18.36	18.52	18.34	17.73	---	---
28	---	---	---	---	---	---	18.37	18.52	18.35	17.76	---	---
29	---	---	---	---	---	---	18.37	18.52	18.36	17.78	---	---
30	---	---	---	---	---	---	18.39	18.54	18.36	17.81	---	---
31	---	---	---	---	---	---	---	18.53	---	17.81	---	---
MEAN	---	---	---	---	---	---	18.36	18.47	18.43	17.99	17.86	---

WTR YR 1999 MEAN 18.26 HIGHEST 17.58 JULY 20, 21, 1999 LOWEST 18.54 MAY 29, 30, JUNE 3-9, 1999

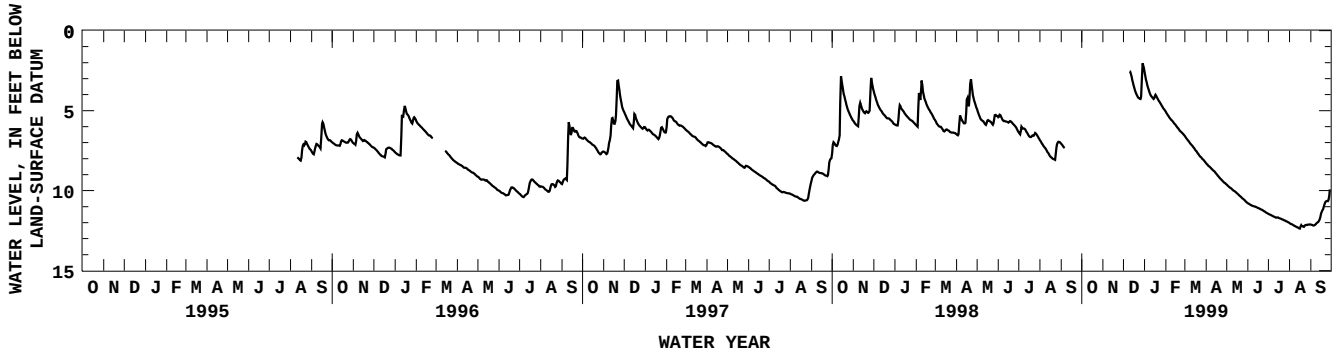


181917065382701. Local number, 1207.
LOCATION.--Lat 18°19'17", long 65°38'27", Hydrologic Unit 2101005, 1.20 mi northwest of Punta Barrancas, 0.81 mi east of Hwy 3, 0.82 mi south of Hwy 195, and 0.61 mi east of Hwy 194. Owner: US Geological Survey, WRD, Name: Río Fajardo No. 12.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-34.0 ft (0-10.4 m), screened 3.75-34.0 ft (1.14-10.4 m). Depth 34.0 ft (10.4 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is 13.7 ft (4.18 m), above mean sea level, from topographic survey.
Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 4.16 ft (1.27 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on May 14, 1999. Formerly published as local number RF-12.
PERIOD OF RECORD.--August 11, 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.90 ft (0.58 m), below land-surface datum, Dec. 30, 1998; lowest water level recorded, 12.4 ft (3.78 m), below land-surface datum, Aug. 17, 18, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	2.43	5.04	6.56	8.26	9.61	10.77	11.44	12.01	12.11
2	---	---	---	2.73	5.11	6.62	8.32	9.65	10.80	11.46	12.05	12.12
3	---	---	---	2.95	5.19	6.69	8.36	9.68	10.82	11.48	12.07	12.14
4	---	---	---	3.15	5.25	6.74	8.40	9.73	10.85	11.50	12.09	12.16
5	---	---	---	3.31	5.30	6.82	8.46	9.76	10.88	11.52	12.11	12.17
6	---	---	---	3.49	5.38	6.87	8.49	9.80	10.90	11.55	12.13	12.18
7	---	---	---	3.63	5.45	6.91	8.53	9.83	10.92	11.57	12.15	12.16
8	---	---	---	3.78	5.49	6.97	8.57	9.85	10.94	11.59	12.19	12.13
9	---	---	---	3.91	5.57	7.05	8.62	9.90	10.96	11.61	12.21	12.09
10	---	---	2.59	4.00	5.60	7.09	8.66	9.94	10.97	11.63	12.23	12.03
11	---	---	2.49	4.10	5.64	7.13	8.70	9.97	10.99	11.65	12.25	12.00
12	---	---	2.62	4.13	5.68	7.19	8.75	10.01	11.00	11.68	12.28	11.98
13	---	---	2.80	4.18	5.76	7.23	8.78	10.03	11.02	11.69	12.29	11.93
14	---	---	2.99	4.25	5.81	7.31	8.82	10.06	11.03	11.69	12.32	11.86
15	---	---	3.20	4.30	5.86	7.34	8.87	10.09	11.06	11.67	12.35	11.72
16	---	---	3.35	4.18	5.91	7.42	8.93	10.14	11.08	11.69	12.36	11.53
17	---	---	3.51	3.99	5.97	7.48	8.97	10.18	11.10	11.72	12.39	11.37
18	---	---	3.66	4.02	6.04	7.52	9.03	10.21	11.11	11.73	12.12	11.26
19	---	---	3.81	4.13	6.08	7.58	9.09	10.26	11.13	11.74	12.19	11.21
20	---	---	3.92	4.21	6.12	7.64	9.13	10.31	11.16	11.76	12.22	11.11
21	---	---	4.00	4.28	6.20	7.71	9.19	10.34	11.18	11.78	12.24	10.95
22	---	---	4.11	4.37	6.26	7.77	9.24	10.38	11.20	11.80	12.27	10.77
23	---	---	4.20	4.44	6.30	7.83	9.28	10.41	11.22	11.81	12.26	10.68
24	---	---	4.21	4.50	6.33	7.89	9.32	10.47	11.25	11.84	12.16	10.67
25	---	---	4.24	4.57	6.38	7.91	9.37	10.50	11.28	11.86	12.15	10.64
26	---	---	4.28	4.64	6.42	7.96	9.41	10.53	11.30	11.87	12.15	10.66
27	---	---	4.27	4.71	6.47	8.02	9.46	10.57	11.34	11.90	12.15	10.65
28	---	---	4.02	4.79	6.51	8.06	9.50	10.61	11.37	11.92	12.13	10.53
29	---	---	2.01	4.86	---	8.10	9.53	10.65	11.39	11.94	12.12	10.12
30	---	---	2.06	4.92	---	8.15	9.56	10.70	11.41	11.97	12.12	9.72
31	---	---	2.28	4.97	---	8.21	---	10.73	---	11.98	12.11	---
MEAN	---	---	3.39	4.06	5.83	7.41	8.92	10.16	11.08	11.71	12.19	11.42

WTR YR 1999 MEAN 8.79 HIGHEST 1.90 DEC. 30, 1998 LOWEST 12.40 AUG. 17, 18, 1999



182234065440000. Local number, 1208.
LOCATION.--Lat 18°22′34", long 65°44'00", Hydrologic Unit 2101005, 0.7 mi south of Balneario de Luquillo, 1.1 mi west of Luquillo, and 1.0 mi northwest of intersectin of Hwy 991 with Hwy 992. Owner: US Geological Survey, Name: Pozo QMP-1.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--PVC cased ran levels, diameter 4 in (0.10 m) screened 5.00-25.0 ft (1.52-7.62 m). Depth 25.0 ft (7.62 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface is about 2.39 ft (0.73 m), about mean sea level, from topographic map. Measuring point: Floor of shelter, 5.60 ft (1.71 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on Sept. 17, 1997. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on August 24, 1999.
PERIOD OF RECORD.--September 17, 1997 to September 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +1.60 ft (+0.49 m), above land-surface datum, Sept. 21, 22, 1998; lowest water level measured, 5.34 ft (1.63 m), below land-surface datum, July 30, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.00	1.52	+.15	1.68	1.61	1.63	.43	1.50	.30	1.30	1.62	.55
2	1.36	1.52	.04	1.68	1.65	1.70	.30	1.58	.38	1.38	1.67	+.01
3	1.58	1.54	.22	1.64	1.67	1.76	.30	1.63	.52	1.46	1.72	+.02
4	1.67	1.55	.36	1.64	1.71	1.83	.42	1.66	.64	1.19	1.82	.22
5	1.70	1.62	.45	1.62	.16	1.90	.55	1.74	.82	.90	1.87	.40
6	1.77	1.63	.49	.53	.09	1.55	.69	1.79	.85	.99	1.95	.52
7	1.81	1.67	.61	+.10	.41	.29	.85	1.79	.94	.94	2.07	.55
8	1.81	1.75	.73	+.06	.67	+.03	.97	1.83	1.02	.72	2.11	.65
9	.25	1.83	.79	+.07	.01	.17	1.03	1.90	1.09	.30	2.16	.83
10	.32	.12	.89	.01	.27	.41	1.08	2.00	1.18	.52	2.23	.58
11	.08	+.02	.91	.06	.60	.62	1.22	2.08	1.26	.68	2.27	.85
12	+.22	.13	.96	.21	.77	.76	1.26	2.16	1.01	.82	2.32	1.04
13	+.27	+.05	.95	.25	.84	.89	.61	2.25	.45	.95	2.36	.58
14	+1.08	.15	.77	+.14	.88	.94	.42	2.06	.54	1.11	2.42	.25
15	+.28	.01	.79	.04	.46	.69	.62	.77	.74	1.24	2.46	+.13
16	+.22	+.14	.90	.22	.71	.88	.11	.39	.26	1.29	2.52	.09
17	+.14	+.04	.95	.36	.80	.98	.00	.73	.44	1.30	2.51	.30
18	+.01	.17	1.00	.47	.94	1.00	.25	.89	.07	1.29	2.51	.14
19	.22	.00	1.07	.56	1.04	1.05	.49	1.06	+.02	.95	2.52	.08
20	.39	+.20	1.12	.68	.99	1.13	.17	.81	.18	.30	2.48	.16
21	.53	+.19	1.10	.76	1.02	1.14	.14	.98	.23	.25	2.39	+.32
22	.66	+.13	1.13	.85	1.14	1.20	.26	1.12	.10	.50	2.30	+1.15
23	.80	.05	1.20	.96	1.20	1.25	.51	1.23	.31	.65	2.27	+.44
24	.90	+.12	1.24	1.02	1.29	1.28	.65	1.34	.48	.66	.45	+.13
25	1.01	+.07	1.33	1.08	1.37	1.39	.79	1.44	.65	.78	.12	.07
26	1.12	+.24	1.40	1.14	1.46	1.44	.89	1.38	.69	.94	.32	+.02
27	1.23	+.25	1.43	1.22	1.52	1.48	.97	1.13	.83	1.03	.14	.12
28	1.36	+.19	1.53	1.28	1.57	1.50	1.11	1.27	.93	1.19	.14	.31
29	1.46	+.07	1.58	1.38	---	1.12	1.28	1.20	1.05	1.30	.02	.42
30	1.54	+.20	1.63	1.45	---	.52	1.34	.14	1.18	1.44	.32	.56
31	1.51	---	1.66	1.54	---	.33	---	.28	---	1.50	.18	---
MEAN	.87	.44	.94	.77	.96	1.06	.66	1.36	.64	.96	1.69	.23

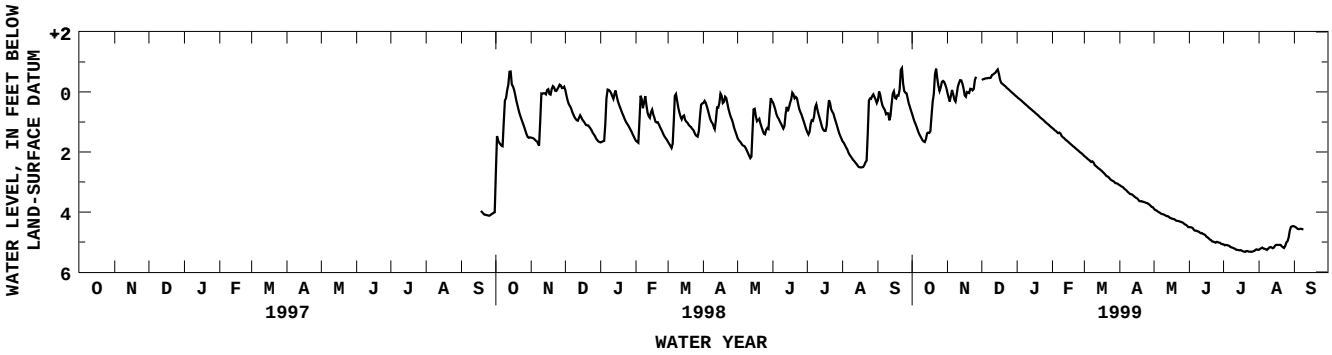
WTR YR 1998 MEAN .88 HIGHEST +1.60 SEPT. 21, 22, 1998 LOWEST 4.03 OCT. 1, 1997

RIO HERRERA TO RIO ANTÓN RUIZ BASINS--continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.68	+.04	+.38	.15	1.19	2.12	3.09	3.85	4.50	5.05	5.28	4.47
2	.78	.10	+.42	.19	1.22	2.15	3.12	3.94	4.50	5.11	5.24	4.50
3	.94	.26	+.43	.22	1.26	2.18	3.16	3.92	4.52	5.11	5.23	4.51
4	1.02	.37	+.44	.25	1.29	2.22	3.16	3.97	4.51	5.09	5.18	4.56
5	1.13	+.12	+.46	.28	1.32	2.25	3.19	3.99	4.57	5.12	5.20	4.57
6	1.22	+.01	+.46	.32	1.36	2.28	3.25	4.01	4.63	5.11	5.24	4.57
7	1.36	.17	+.46	.35	1.39	2.32	3.26	4.04	4.62	5.15	5.21	4.55
8	1.43	.33	+.48	.38	1.32	2.35	3.31	4.07	4.63	5.18	5.28	4.57
9	1.49	.30	+.45	.42	1.45	2.28	3.35	4.06	4.66	5.18	5.25	4.57
10	1.57	+.12	+.51	.45	1.49	2.42	3.38	4.09	4.64	5.21	5.20	4.57
11	1.65	+.22	+.62	.48	1.52	2.45	3.42	4.10	4.72	5.21	5.17	---
12	1.64	+.37	+.55	.52	1.55	2.48	3.40	4.13	4.69	5.24	5.17	---
13	1.69	+.42	+.68	.55	1.59	2.52	3.44	4.14	4.71	5.28	5.19	---
14	1.44	+.35	+.61	.58	1.62	2.55	3.48	4.14	4.75	5.25	5.22	---
15	1.32	+.21	+.81	.62	1.65	2.58	3.50	4.19	4.74	5.29	5.16	---
16	1.39	+.01	+.70	.65	1.69	2.61	3.54	4.20	4.80	5.27	5.09	---
17	1.34	.24	+.51	.68	1.72	2.65	3.55	4.22	4.85	5.27	5.11	---
18	1.28	.07	+.32	.72	1.75	2.68	3.61	4.24	4.84	5.31	5.08	---
19	.31	+.06	+.29	.75	1.79	2.71	3.65	4.23	4.92	5.31	5.11	---
20	.35	.11	+.26	.78	1.82	2.76	3.64	4.26	4.92	5.33	5.08	---
21	+.23	+.04	+.22	.82	1.85	2.81	3.64	4.30	4.96	5.32	5.11	---
22	+.96	+.17	+.19	.86	1.89	2.81	3.67	4.29	5.00	5.29	5.18	---
23	+.60	+.03	+.16	.89	1.92	2.86	3.66	4.30	4.98	5.32	5.17	---
24	+.30	+.08	+.12	.92	1.95	2.90	3.70	4.32	5.03	5.32	5.23	---
25	+.09	+.12	+.09	.96	1.99	2.94	3.69	4.32	5.01	5.32	5.04	---
26	.02	+.68	+.06	.99	2.02	2.96	3.71	4.35	4.98	5.33	4.99	---
27	+.32	+.34	+.01	1.02	2.05	2.97	3.75	4.35	5.03	5.31	4.96	---
28	+.35	---	.02	1.06	2.08	3.01	3.76	4.40	5.01	5.31	4.75	---
29	+.39	---	.05	1.09	---	3.06	3.82	4.43	5.04	5.28	4.50	---
30	+.28	---	.09	1.12	---	3.03	3.84	4.42	5.09	5.24	4.49	---
31	+.20	---	.12	1.16	---	3.08	---	4.50	---	5.25	4.47	---
MEAN	.66	-.05	-.34	.65	1.63	2.61	3.49	4.19	4.80	5.24	5.08	4.54

WTR YR 1999 MEAN 2.63 HIGHEST +1.08 OCT. 22, 1998 LOWEST 5.34 JULY 20, 1999



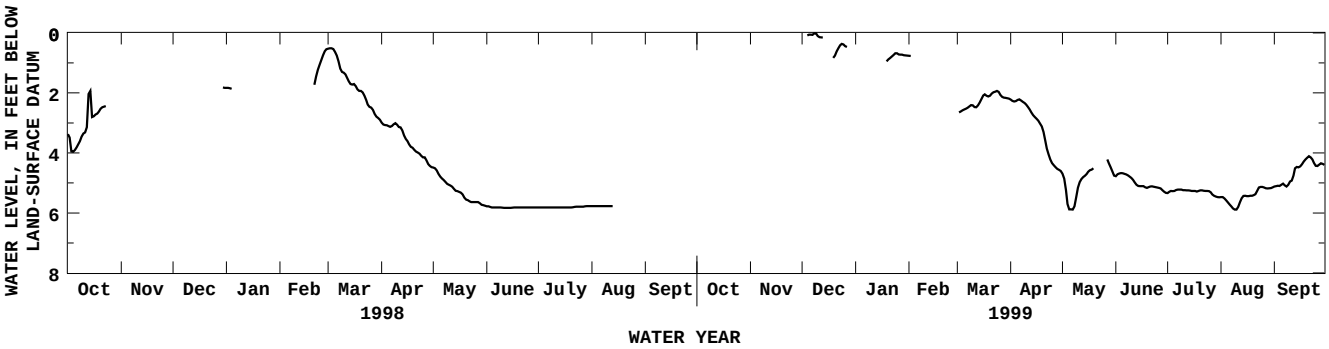
+ above land-surface datum

180358065503700. Local number, 1226.
LOCATION.--Lat 18°03'58", long 65°50'37", Hydrologic Unit 21010004, 2.01 mi east of Central Roig, 1.37 mi north of Yabucoa Sun Oil Refinery, and 0.19 mi east of Hwy 53. Owner: US Geological Survey, WRD, Name: Yabucoa Deep Observation.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled piezometer well, constructed in 1993 as part of study of Valle de Yabucoa, diameter 2 in (0.05 m), screened in brackish water, 320-340 ft (97.5-104 m). Depth 350 ft (107 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 2.00 ft (0.61 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 7.30 ft (2.22 m), above land-surface datum.
REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on September 16, 1997. Formerly published as local number YDO-1.
PERIOD OF RECORD.--September 16, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.05 ft (+0.02 m), above land-surface datum, Dec. 9, 1998; lowest water level recorded, 5.90 ft (1.80 m), below land-surface datum, Aug. 9, 10, 11, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	.76	---	2.19	4.62	4.82	5.35	5.48	5.12
2	---	---	---	---	.76	2.67	2.25	4.76	4.73	5.32	5.47	5.12
3	---	---	---	---	.77	2.63	2.28	4.95	4.69	5.27	5.48	5.09
4	---	---	.10	---	---	2.60	2.29	5.52	4.68	5.27	5.55	5.10
5	---	---	.07	---	---	2.56	2.26	5.88	4.67	5.28	5.61	5.10
6	---	---	.05	---	---	2.55	2.21	5.88	4.69	5.25	5.69	5.02
7	---	---	.07	---	---	2.51	2.22	5.88	4.70	5.22	5.75	5.03
8	---	---	.06	---	---	2.48	2.28	5.89	4.73	5.23	5.82	5.13
9	---	---	+.04	---	---	2.42	2.32	5.67	4.77	5.21	5.88	5.11
10	---	---	.07	---	---	2.39	2.35	5.29	4.80	5.24	5.90	5.01
11	---	---	.14	---	---	2.44	2.43	5.03	4.86	5.24	5.88	4.90
12	---	---	.14	---	---	2.50	2.50	4.91	4.93	5.24	5.72	4.94
13	---	---	.15	---	---	2.46	2.59	4.83	5.04	5.25	5.57	4.57
14	---	---	.16	---	---	2.37	2.71	4.78	5.09	5.25	5.45	4.46
15	---	---	---	---	---	2.26	2.77	4.74	5.11	5.26	5.42	4.48
16	---	---	---	---	---	2.14	2.84	4.67	5.10	5.27	5.43	4.48
17	---	---	---	---	---	2.03	2.88	4.59	5.11	5.27	5.45	4.42
18	---	---	---	---	---	2.07	2.97	4.56	5.11	5.27	5.43	4.34
19	---	---	.82	.98	---	2.11	3.07	4.55	5.18	5.30	5.43	4.24
20	---	---	.84	.91	---	2.13	3.16	4.47	5.15	5.24	5.43	4.20
21	---	---	.67	.86	---	2.06	3.44	---	5.13	5.25	5.39	4.12
22	---	---	.56	.82	---	1.99	3.74	---	5.11	5.25	5.36	4.10
23	---	---	.45	.76	---	1.97	3.96	---	5.12	5.27	5.17	4.20
24	---	---	.37	.71	---	1.95	4.13	---	5.13	5.27	5.13	4.24
25	---	---	.36	.65	---	1.92	4.30	---	5.15	5.27	5.13	4.43
26	---	---	.41	.71	---	2.01	4.38	---	5.16	5.28	5.13	4.43
27	---	---	.47	.72	---	2.12	4.44	4.15	5.17	5.34	5.18	4.44
28	---	---	.47	.72	---	2.14	4.51	4.28	5.20	5.43	5.18	4.34
29	---	---	---	.73	---	2.17	4.55	4.41	5.28	5.43	5.19	4.35
30	---	---	---	.75	---	2.16	4.58	4.54	5.31	5.47	5.17	4.38
31	---	---	---	.75	---	2.19	---	4.69	---	5.48	5.17	---
MEAN	---	---	.30	.77	.76	2.27	3.09	4.94	4.99	5.29	5.45	4.63

WTR YR 1999 MEAN 3.79 HIGHEST +0.05 DEC. 9, 1998 LOWEST 5.90 AUG. 9, 10, 11, 1999

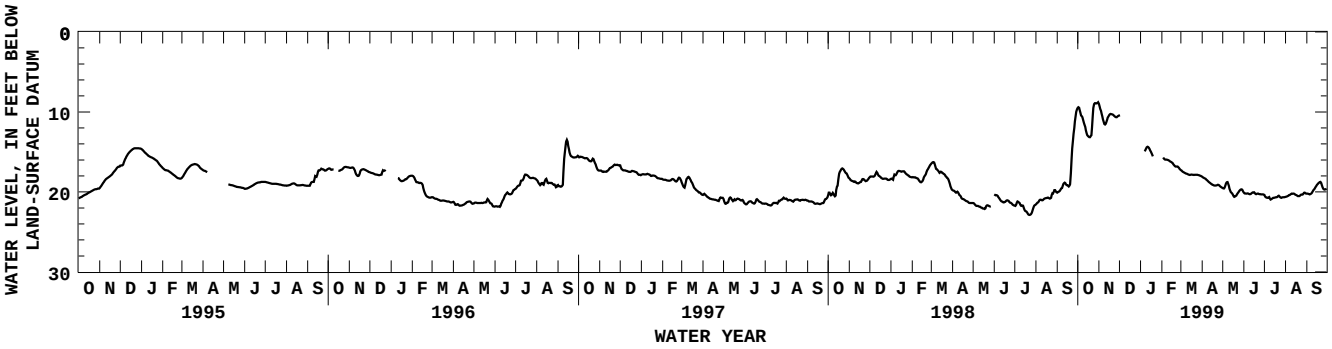


180415065513900. Local number, 96.
LOCATION.--Lat 18°04'15", long 65°51'39", Hydrologic Unit 21010005, 2.44 mi northwest of Escuela Eugenio María de Hostos 4.67 mi southwest of Escuela Segunda Unidad Luciano, and 3.93 mi southwest of Escuela Asunción López. Owner: PR Aqueduct and Sewer Authority, Name: 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 (0-55.8 m), perforated 56-81 ft (17.1-24.7 m), 102-123 ft, (31.1-37.5 m), 144-181 ft (43.9-55.2 m). Depth 181 ft (55.2 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
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 datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on August 3, 1999.
PERIOD OF RECORD.--April 25, 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.75 ft (2.67 m), below land-surface datum, Oct. 31, 1998; lowest water level recorded, 28.29 ft (8.62 m) below land-surface datum, Sept. 20, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.57	8.82	10.44	---	---	17.25	18.07	19.48	20.03	20.33	20.63	20.22
2	9.41	9.12	10.42	---	---	17.29	18.13	19.53	20.16	20.41	20.60	20.22
3	9.40	9.53	10.39	---	15.65	17.39	18.19	19.57	20.19	20.67	20.60	20.22
4	9.56	9.73	---	---	15.76	17.45	18.24	19.56	20.20	20.68	20.53	20.24
5	9.96	10.00	---	---	15.87	17.52	18.30	19.31	20.21	20.71	20.52	20.29
6	10.32	10.42	---	---	15.95	17.58	18.32	19.03	20.20	20.75	20.41	20.30
7	10.54	10.74	---	15.01	15.97	17.62	18.41	18.83	20.19	20.71	20.37	20.26
8	10.51	11.08	---	14.85	15.96	17.67	18.49	18.75	20.19	20.65	20.38	20.22
9	10.80	11.40	---	14.65	15.97	17.70	18.56	18.80	20.26	20.65	20.28	20.12
10	11.25	11.58	---	14.49	15.98	17.72	18.65	19.11	20.28	20.95	20.21	19.94
11	11.48	11.56	---	14.38	16.03	17.76	18.74	19.39	20.28	20.96	20.23	19.79
12	11.69	11.38	---	14.33	16.09	17.81	18.81	19.77	20.21	20.87	20.23	19.71
13	12.07	11.14	---	14.41	16.14	17.85	18.88	19.94	20.15	20.84	20.20	19.62
14	12.52	10.80	---	14.55	16.20	17.88	18.95	20.10	20.08	20.73	20.21	19.44
15	12.79	10.62	---	14.73	16.25	17.87	19.00	20.14	20.06	20.73	20.28	19.30
16	12.97	10.48	---	14.89	16.30	17.85	19.07	20.21	20.07	20.72	20.38	19.16
17	13.06	10.35	---	15.05	16.37	17.83	19.12	20.48	20.03	20.72	20.39	19.05
18	13.14	10.26	---	15.26	16.48	17.84	19.16	20.61	20.23	20.66	20.42	18.97
19	13.18	10.24	---	15.48	16.62	17.85	19.19	20.60	20.30	20.69	20.51	18.87
20	13.14	10.30	---	15.64	16.71	17.87	19.20	20.53	20.24	20.66	20.52	18.81
21	12.94	10.31	---	---	16.80	17.87	19.21	20.52	20.21	20.58	20.53	18.74
22	12.88	10.34	---	---	16.83	17.86	19.19	20.37	20.19	20.47	20.53	18.77
23	11.11	10.42	---	---	16.81	17.86	19.18	20.23	20.21	20.48	20.41	18.99
24	9.88	10.51	---	---	16.82	17.86	19.12	20.10	20.28	20.63	20.33	19.29
25	9.14	10.57	---	---	16.85	17.86	19.10	19.98	20.29	20.69	20.32	19.52
26	8.89	10.63	---	---	16.95	17.87	19.14	19.85	20.29	20.74	20.32	19.65
27	8.90	10.68	---	---	17.05	17.90	19.23	19.75	20.30	20.72	20.32	19.70
28	8.93	10.64	---	---	17.16	17.92	19.32	19.69	20.29	20.67	20.15	19.71
29	8.93	10.54	---	---	---	17.96	19.38	19.65	20.30	20.66	20.07	19.67
30	8.93	10.47	---	---	---	17.99	19.44	19.70	20.32	20.67	20.13	19.63
31	8.76	---	---	---	---	18.03	---	19.86	---	20.67	20.21	---
MEAN	10.86	10.49	10.42	14.84	16.37	17.76	18.86	19.79	20.21	20.68	20.36	19.61

WTR YR 1999 MEAN 17.34 HIGHEST 8.75 OCT. 31, 1998 LOWEST 20.97 JULY 11, 1999

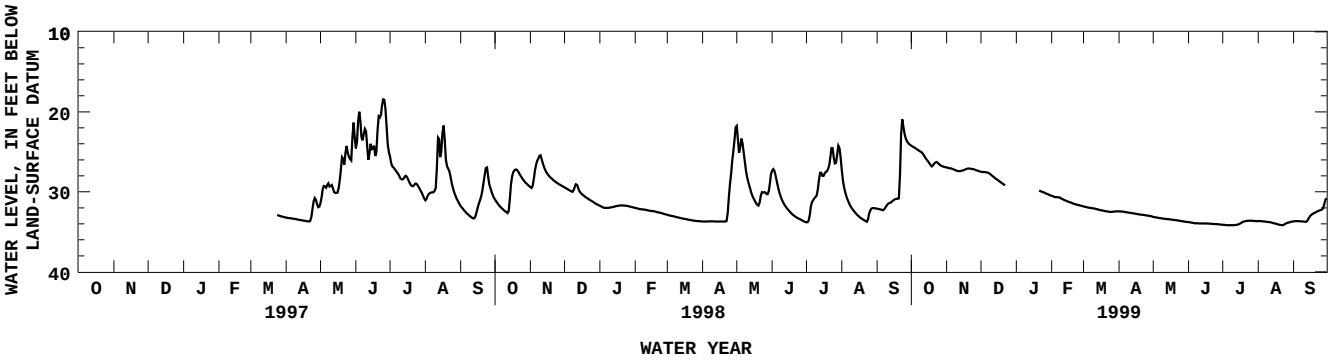


175855066050500. Local number, 1228.
LOCATION.--Lat 17°58'55", long 66°05'05", Hydrologic Unit 21010004, 1.97 mi east-southeast of the intersection of Hwy 16 with Hwy 3, 1.00 mi west of the intersection of Hwy 3 with Hwy 178, and 0.04 mi south of Hwy 3. Owner: PR Land Authority, Name: Algarrobos.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well. Depth 57.0 ft (17.4 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 89.0 ft (27.1 m), above mean sea level.
Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 2.95 ft (0.90 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 24, 1997. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 30, 1999. Formerly published as local number ALG-1.
PERIOD OF RECORD.--May 24, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.19 ft (5.54 m), below land-surface datum, June 26, 1997; lowest water level recorded, 34.17 ft (10.42 m), below land-surface datum, July 6-11, Aug. 22, 23, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.19	26.93	27.48	---	30.47	31.80	32.44	33.11	33.78	34.11	33.66	33.69
2	24.29	26.97	27.51	---	30.52	31.84	32.45	33.14	33.79	34.12	33.65	33.68
3	24.38	27.02	27.54	---	30.58	31.88	32.45	33.16	33.82	34.14	33.65	33.67
4	24.44	27.04	27.51	---	30.66	31.91	32.46	33.19	33.85	34.15	33.66	33.66
5	24.56	27.06	27.53	---	30.68	31.94	32.47	33.22	33.87	34.16	33.68	33.66
6	24.62	27.11	27.55	---	30.67	31.97	32.51	33.26	33.91	34.16	33.69	33.67
7	24.74	27.16	27.58	---	30.67	31.99	32.53	33.28	33.93	34.17	33.71	33.67
8	24.83	27.21	27.62	---	30.69	32.02	32.56	33.30	33.94	34.17	33.73	33.69
9	24.94	27.28	27.71	---	30.75	32.05	32.57	33.32	33.94	34.17	33.75	33.70
10	25.03	27.35	27.81	---	30.85	32.07	32.59	33.34	33.94	34.17	33.77	33.71
11	25.13	27.39	27.94	---	30.93	32.10	32.62	33.36	33.95	34.17	33.79	33.72
12	25.33	27.42	28.06	---	30.99	32.13	32.64	33.38	33.95	34.16	33.80	33.73
13	25.58	27.43	28.19	---	31.05	32.16	32.66	33.39	33.95	34.14	33.83	33.73
14	25.83	27.36	28.30	---	31.10	32.20	32.68	33.40	33.95	34.11	33.88	33.53
15	25.97	27.35	28.41	---	31.17	32.25	32.70	33.43	33.96	34.07	33.91	33.24
16	26.14	27.32	28.50	---	31.23	32.29	32.74	33.44	33.96	34.02	33.96	33.01
17	26.36	27.26	28.60	---	31.29	32.32	32.76	33.45	33.96	33.95	33.99	32.86
18	26.57	27.18	28.72	---	31.34	32.34	32.79	33.48	33.96	33.86	34.02	32.77
19	26.77	27.12	28.82	---	31.35	32.36	32.81	33.49	33.97	33.77	34.07	32.70
20	26.90	27.09	28.94	---	31.45	32.39	32.83	33.51	33.97	33.72	34.10	32.62
21	26.51	27.09	29.03	29.79	31.50	32.42	32.85	33.53	33.98	33.67	34.13	32.55
22	26.42	27.10	29.15	29.88	31.54	32.44	32.87	33.55	34.00	33.65	34.15	32.48
23	26.26	27.11	29.24	29.94	31.57	32.46	32.89	33.58	34.01	33.63	34.17	32.40
24	26.28	27.15	---	29.98	31.62	32.52	32.91	33.60	34.02	33.62	34.11	32.35
25	26.40	27.17	---	30.05	31.66	32.52	32.94	33.63	34.03	33.61	34.02	32.30
26	26.58	27.21	---	30.10	31.69	32.50	32.96	33.65	34.04	33.61	33.93	32.24
27	26.70	27.28	---	30.17	31.73	32.49	32.97	33.67	34.05	33.61	33.86	32.17
28	26.77	27.32	---	30.24	31.77	32.48	33.00	33.69	34.07	33.63	33.83	31.94
29	26.84	27.38	---	30.27	---	32.44	33.02	33.71	34.08	33.64	33.81	31.07
30	26.87	27.43	---	30.36	---	32.44	33.08	33.74	34.09	33.66	33.77	30.86
31	26.90	---	---	30.42	---	32.44	---	33.76	---	33.67	33.72	---
MEAN	25.78	27.21	28.16	30.11	31.13	32.23	32.72	33.44	33.96	33.92	33.86	32.97

WTR YR 1999 MEAN 31.43 HIGHEST 24.14 OCT. 1, 1998 LOWEST 34.17 JULY 6-11, Aug. 22, 23, 1999

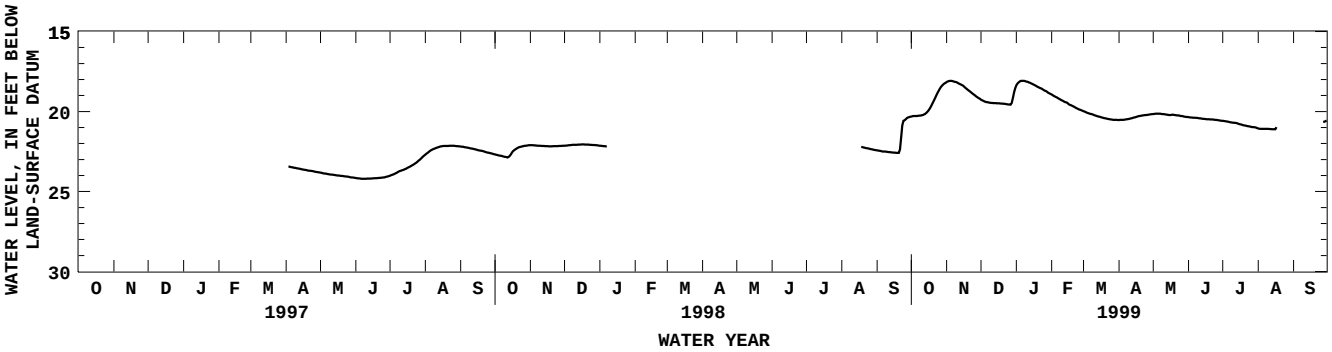


1757280660722000. Local number, 1229.
LOCATION.--Lat 17°57'28", long 66°07'22", Hydrologic Unit 21010004, 0.65 mi west of Central Machete. 0.75 mi northwest of Playita Machete, 2.00 mi south of the intersection of Hwy 15 with Hwy 3, and 1.13 mi southeast of intersection of Hwy 710 with Hwy 3. Owner: PR Land Authority, Name: Barranca.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Hand-dug unused water-table well. Depth 38.0 ft (11.7 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 59.1 ft (18.0 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 4.60 ft (1.40 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on April 3, 1997. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 27, 1999. Formerly published as local number BAR-1.
PERIOD OF RECORD.--April 3, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.07 ft (5.51 m), below land-surface datum, Nov. 5, 6, 1998; lowest water level recorded, 24.21 ft (7.38 m), below land-surface datum, June 7, 8, 9, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.32	18.18	19.23	18.44	18.92	19.96	20.53	20.16	20.35	20.58	21.06	---
2	20.30	18.13	19.28	18.29	18.95	19.99	20.53	20.15	20.36	20.59	21.07	---
3	20.29	18.10	19.32	18.21	19.01	20.03	20.52	20.14	20.37	20.60	21.08	---
4	20.28	18.09	19.35	18.14	19.05	20.06	20.52	20.14	20.38	20.61	21.08	---
5	20.29	18.08	19.38	18.10	19.09	20.09	20.52	20.14	20.38	20.62	21.08	---
6	20.28	18.08	19.40	18.08	19.12	20.11	20.51	20.14	20.39	20.64	21.08	---
7	20.27	18.11	19.42	18.08	19.16	20.13	20.50	20.14	20.39	20.65	21.08	---
8	20.26	18.13	19.42	18.08	19.21	20.16	20.49	20.14	20.39	20.67	21.09	---
9	20.26	18.15	19.45	18.10	19.25	20.17	20.48	20.15	20.40	20.68	21.09	---
10	20.24	18.16	19.46	18.12	19.29	20.21	20.46	20.16	20.41	20.69	21.09	---
11	20.23	18.20	19.47	18.14	19.32	20.23	20.45	20.17	20.43	20.70	21.09	---
12	20.20	18.25	19.47	18.16	19.36	20.26	20.43	20.18	20.43	20.71	21.10	---
13	20.17	18.28	19.48	18.19	19.40	20.28	20.42	20.19	20.44	20.72	21.10	---
14	20.12	18.32	19.48	18.23	19.43	20.30	20.39	20.20	20.46	20.74	21.11	---
15	20.06	18.35	19.48	18.26	19.43	20.32	20.37	20.21	20.46	20.76	21.11	---
16	19.99	18.40	19.49	18.30	19.53	20.34	20.35	20.22	20.47	20.78	21.11	---
17	19.89	18.47	19.49	18.33	19.56	20.36	20.32	20.23	20.48	20.80	21.10	---
18	19.79	18.53	19.49	18.36	19.60	20.38	20.30	20.19	20.48	20.82	20.85	---
19	19.65	18.58	19.50	18.41	19.62	20.40	20.28	20.20	20.48	20.85	---	---
20	19.50	18.64	19.51	18.45	19.68	20.42	20.27	20.21	20.49	20.86	---	---
21	19.36	18.70	19.51	18.48	19.69	20.43	20.26	20.22	20.50	20.88	---	---
22	19.20	18.75	19.52	18.52	19.75	20.45	20.25	20.24	20.50	20.89	---	---
23	19.05	18.81	19.53	18.55	19.78	20.47	20.24	20.24	20.50	20.91	---	---
24	18.89	18.87	19.54	18.59	19.82	20.48	20.22	20.25	20.51	20.92	---	---
25	18.77	18.92	19.55	18.63	19.86	20.49	20.23	20.27	20.52	20.94	---	---
26	18.63	18.97	19.56	18.68	19.89	20.50	20.21	20.28	20.53	20.95	---	---
27	18.51	19.04	19.57	18.71	19.91	20.51	20.20	20.29	20.54	20.97	---	20.64
28	18.41	19.09	19.58	18.74	19.94	20.52	20.19	20.30	20.55	20.98	---	20.64
29	18.33	19.14	19.36	18.80	---	20.53	20.18	20.32	20.57	20.98	---	20.63
30	18.26	19.18	18.98	18.85	---	20.52	20.17	20.33	20.57	20.99	---	20.59
31	18.22	---	18.66	18.88	---	20.53	---	20.34	---	21.00	---	---
MEAN	19.61	18.49	19.42	18.38	19.45	20.31	20.36	20.21	20.46	20.79	21.08	20.62

WTR YR 1999 MEAN 19.83 HIGHEST 18.07 NOV. 5, 6, 1998 LOWEST 21.11 AUG. 14-17, 1999

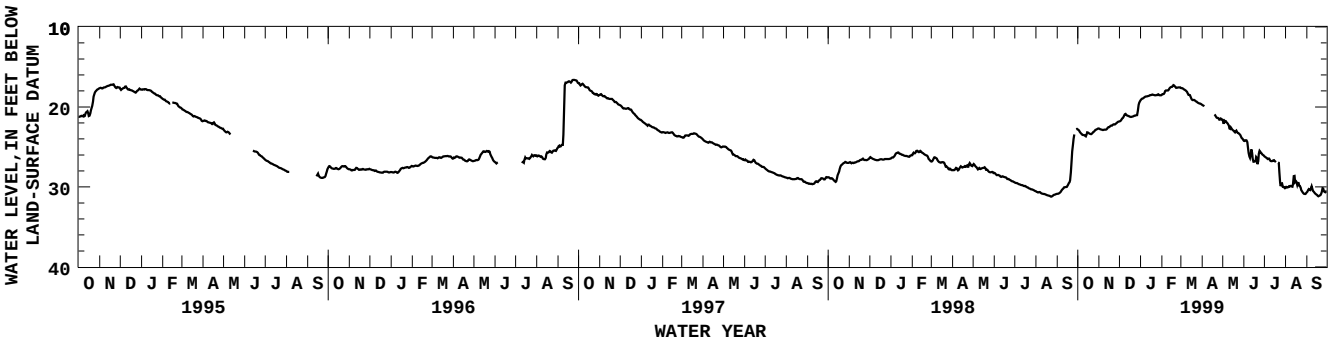


175719066085500. Local number, 1230.
LOCATION.--Lat 17°57'19", long 66°08'55", Hydrologic Unit 2101004, 1.0 mi east of the intersection of Hwy 3 with Hwy 707, 0.28 mi south of Hwy 3, and 0.25 mi northwest of the Phillps Petroleum oil refinery. Owner: Phillips Petroleum, Name: Phillips Petroleum No. 13.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well.
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 33.0 ft (10.1 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.21 ft (0.98 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on April 15, 1998. Sampling performed on June 7, 1996 by private company. Formerly published as local number P-13.
PERIOD OF RECORD.--September 25, 1991 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 14.47 ft (4.41 m), below land-surface datum, Mar. 22, 24, 1993; lowest water level recorded, 31.22 ft (9.52 m), below land-surface datum, Aug. 24, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.76	22.67	21.84	19.22	18.53	17.58	19.72	21.66	24.13	26.11	30.32	30.70
2	22.85	22.71	21.79	19.10	18.42	17.66	19.76	21.59	24.34	26.22	29.96	30.65
3	22.88	22.78	21.80	19.01	18.38	17.65	19.80	22.39	24.18	26.24	30.02	30.54
4	23.03	22.82	21.63	18.96	18.40	17.64	19.89	21.60	24.17	26.37	30.00	30.21
5	23.16	22.83	21.51	18.93	18.36	17.79	19.97	21.85	24.17	26.36	30.12	30.37
6	23.30	22.86	21.37	18.86	18.09	17.79	---	21.79	24.22	26.51	29.92	30.39
7	23.36	22.88	21.38	18.81	17.96	17.86	---	21.83	24.56	26.51	29.94	30.40
8	23.44	22.88	21.14	18.73	17.91	17.91	---	22.07	25.42	26.40	29.94	30.03
9	23.52	22.86	20.98	18.70	17.96	17.99	---	22.03	26.10	26.51	29.81	29.80
10	23.52	22.83	20.86	18.68	17.94	18.07	---	22.29	26.30	26.69	29.94	30.50
11	23.52	22.84	20.90	18.70	17.93	18.15	---	22.38	26.43	26.81	29.94	30.49
12	23.57	22.84	21.03	18.64	17.79	18.49	---	23.03	25.40	26.74	29.98	30.63
13	23.69	22.77	21.09	18.64	17.64	18.49	---	22.48	25.23	26.81	29.35	30.76
14	23.65	22.65	21.10	18.61	17.58	18.52	---	22.64	26.25	26.71	27.95	30.81
15	23.25	22.53	21.15	18.53	17.49	18.52	---	22.73	26.70	26.67	29.29	30.94
16	23.11	22.54	21.18	18.52	17.51	18.87	---	22.88	27.00	26.66	29.50	30.96
17	23.27	22.50	21.22	18.51	17.48	19.01	---	22.96	26.68	26.85	29.06	31.06
18	23.29	22.39	21.25	18.46	17.31	19.11	---	23.01	26.93	26.82	29.70	31.16
19	23.35	22.35	21.24	18.46	17.25	19.18	20.95	23.15	26.67	26.97	29.81	31.16
20	23.39	22.33	21.23	18.49	17.39	19.11	20.93	23.18	25.81	---	29.22	31.07
21	23.40	22.32	21.21	18.51	17.45	19.14	21.09	22.93	26.92	27.02	29.82	31.05
22	23.39	22.20	21.14	18.52	17.57	19.19	21.28	23.01	27.38	26.90	29.90	30.98
23	23.26	22.17	21.12	18.55	17.65	19.27	21.38	23.19	26.18	27.09	29.87	30.68
24	23.17	22.18	21.08	18.52	17.58	19.35	21.35	23.29	25.48	29.24	30.32	30.54
25	23.10	22.19	21.08	18.53	17.58	19.34	21.41	23.26	25.49	29.76	30.47	29.77
26	23.05	22.14	21.04	18.52	17.56	19.51	21.42	23.41	25.73	30.01	30.62	30.58
27	22.89	22.02	21.01	18.38	17.55	19.47	21.74	23.48	25.79	29.14	30.70	30.47
28	22.85	21.96	21.02	18.48	17.56	19.57	21.42	23.59	25.86	29.99	30.85	30.78
29	22.81	21.89	19.91	18.57	---	19.56	21.46	23.91	25.99	29.99	30.85	30.57
30	22.78	21.82	19.58	18.54	---	19.61	21.53	23.89	26.02	30.03	30.93	30.58
31	22.73	---	19.38	18.54	---	19.64	---	24.06	---	30.02	30.85	---
MEAN	23.20	22.49	21.07	18.65	17.78	18.68	20.89	22.76	25.72	27.47	29.97	30.62

WTR YR 1999 MEAN 23.38 HIGHEST 17.25 FEB. 19, 1999 LOWEST 31.18 SEPT. 19, 21, 1999

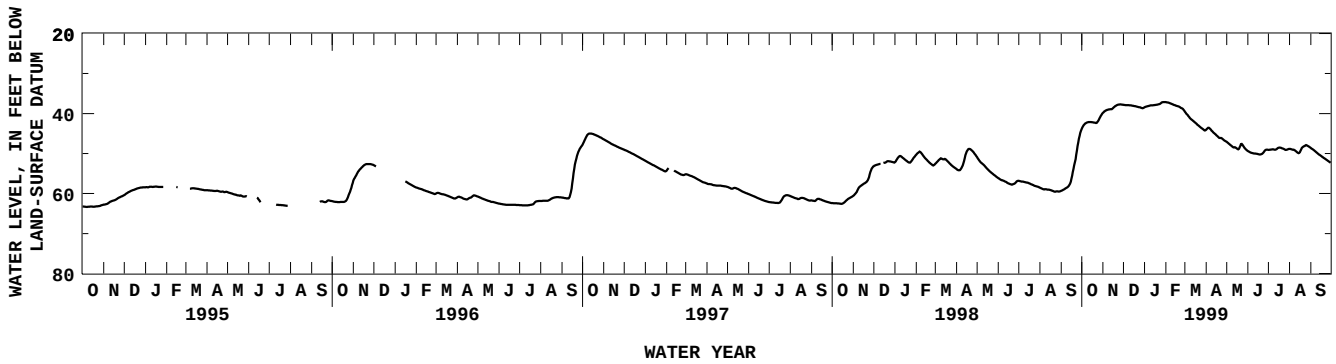


175858066100200. Local number, 6.
LOCATION.--Lat 17°58'58", long 66°10'02", Hydrologic Unit 21010004, 4.23 mi northeast of Central Aguirre Church, 4.08 mi northeast of Colegio del Perpetuo Socorro Church, and 1.77 mi northwest of Hwy 3 km 144.2. Owner: Doctor Bruno, Name: Juana 5.
AQUIFER.--Alluvium 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.
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
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. Automated Digital recorde (ADR), replaced by an Electronic Data Logger (EDL), installed on April 15, 1998.
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 (20.1 m), below land-surface datum, June 2, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44.04	39.94	37.81	38.47	37.14	39.42	44.17	47.03	49.29	49.06	48.85	48.55
2	43.62	39.75	37.83	38.39	37.17	39.66	43.94	47.15	49.42	49.08	48.84	48.68
3	43.30	39.57	37.86	38.30	37.19	39.88	43.74	47.31	49.52	49.06	48.87	48.79
4	43.01	39.45	37.89	38.26	37.23	40.12	43.64	47.44	49.64	49.06	48.93	48.88
5	42.78	39.32	37.90	38.22	37.27	40.31	43.54	47.60	49.72	49.03	49.00	49.01
6	42.59	39.22	37.90	38.17	37.32	40.51	43.63	47.74	49.79	49.00	49.05	49.14
7	42.46	39.15	37.90	38.12	37.38	40.73	43.75	47.89	49.84	48.98	49.02	49.30
8	42.37	39.07	37.90	38.07	37.45	40.96	43.96	48.01	49.90	48.95	49.07	49.45
9	42.25	39.02	37.91	38.01	37.51	41.20	44.18	48.15	49.95	48.97	49.18	49.60
10	42.19	38.98	37.92	37.98	37.58	41.32	44.37	48.29	49.98	49.00	49.31	49.73
11	42.15	38.96	37.94	37.95	37.66	41.47	44.54	48.41	50.00	49.04	49.46	49.88
12	42.13	38.93	37.96	37.93	37.74	41.61	44.71	48.49	50.00	49.05	49.61	50.02
13	42.12	38.91	37.98	37.94	37.80	41.76	44.88	48.41	50.02	48.96	49.75	50.16
14	42.13	38.93	38.01	37.93	37.87	41.92	45.04	48.46	50.04	48.81	49.88	50.30
15	42.14	38.85	38.04	37.91	37.93	42.06	45.19	48.55	50.07	48.67	49.92	50.42
16	42.15	38.70	38.07	37.87	38.01	42.20	45.35	48.66	50.12	48.57	49.81	50.54
17	42.17	38.53	38.10	37.86	38.09	42.36	45.50	48.82	50.18	48.52	49.54	50.66
18	42.21	38.35	38.14	37.84	38.13	42.51	45.65	48.97	50.22	48.51	49.12	50.79
19	42.23	38.19	38.18	37.80	38.14	42.65	45.79	48.96	50.25	48.52	48.74	50.91
20	42.27	38.07	38.21	37.79	38.21	42.81	46.03	48.67	50.23	48.57	48.48	51.03
21	42.29	37.98	38.25	37.75	38.30	42.95	46.07	48.29	50.18	48.65	48.32	51.14
22	42.33	37.91	38.30	37.70	38.40	43.10	46.12	47.83	50.09	48.72	48.24	51.26
23	42.36	37.85	38.37	37.65	38.51	43.25	46.15	47.50	49.98	48.78	48.16	51.38
24	42.25	37.79	38.41	37.56	38.61	43.38	46.11	47.68	49.80	48.85	48.06	51.50
25	42.03	37.76	38.41	37.44	38.71	43.53	46.26	47.92	49.58	48.96	47.91	51.63
26	41.73	37.74	38.46	37.30	38.73	43.67	46.42	48.18	49.30	49.06	47.91	51.75
27	41.41	37.73	38.53	37.20	38.96	43.79	46.56	48.43	49.13	49.12	47.96	51.87
28	41.05	37.74	38.61	37.14	39.19	43.92	46.71	48.65	49.05	49.09	48.06	52.00
29	40.72	37.76	38.68	37.13	---	44.07	46.82	48.86	49.02	49.01	48.17	52.11
30	40.42	37.79	38.67	37.13	---	44.19	46.91	49.03	49.02	48.93	48.28	52.23
31	40.17	---	38.58	37.12	---	44.26	---	49.17	---	48.89	48.42	---
MEAN	42.16	38.60	38.15	37.80	37.94	42.12	45.19	48.21	49.78	48.89	48.84	50.42

WTR YR 1999 MEAN 44.04 HIGHEST 37.11 JAN. 29, 30, 31, 1999 LOWEST 52.29 SEPT. 30, 1999

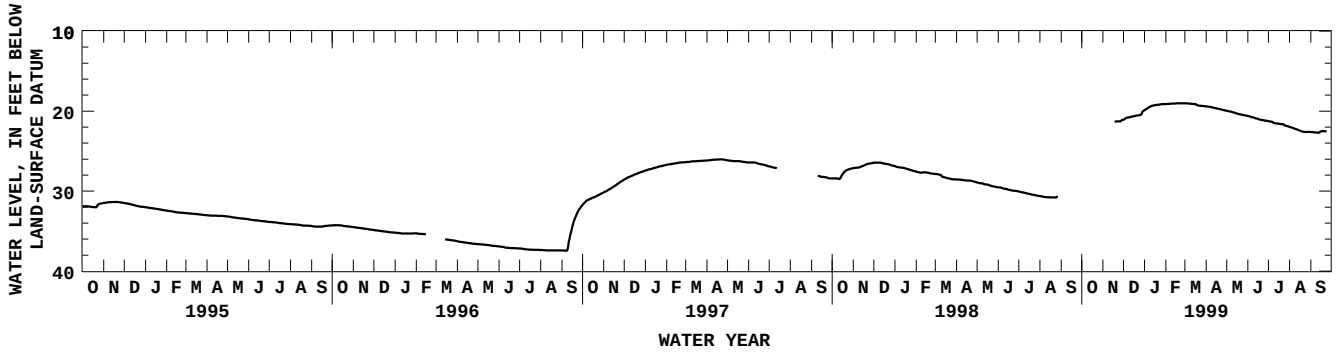


180002066132200. Local number, 1231.
LOCATION.--Lat 18°00'02", long 66°13'22", Hydrologic Unit 21010004, 3.30 mi southwest of Cerro Guaraco, 8.71 mi southwest of Cayey plaza, and 2.80 mi southeast of Hwy 1 km 82.3 on Rabo del Buey. Owner: US Geological Survey, WRD, Name: HW-TW-01.
AQUIFER.--Fractured, 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 32-37.0 ft (9.75-11.3 m). Depth 39.5 ft (12.0 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 10, 1998. Formerly published as local number HW-TW-01.
PERIOD OF RECORD.--April 14, 1988 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.01 ft (5.79 m), below land-surface datum, Feb. 17, 18, 19, 1999; lowest water level recorded, 37.45 ft (11.4 m), below land-surface datum, Sept. 10, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	21.07	19.90	19.11	19.03	19.40	19.94	20.60	21.24	21.95	22.61
2	---	---	21.07	19.84	19.11	19.03	19.41	19.96	20.61	21.26	21.98	22.61
3	---	---	21.07	19.77	19.11	19.03	19.43	19.98	20.63	21.28	22.02	22.62
4	---	---	20.91	19.75	19.10	19.03	19.43	20.00	20.64	21.29	22.03	22.62
5	---	---	20.86	19.67	19.09	19.03	19.44	20.02	20.66	21.31	22.06	22.63
6	---	---	20.85	19.62	19.09	19.04	19.45	20.04	20.74	21.32	22.07	22.64
7	---	---	20.82	19.56	19.08	19.04	19.46	20.05	20.75	21.34	22.14	22.66
8	---	---	20.79	19.48	19.08	19.05	19.48	20.07	20.77	21.35	22.17	22.67
9	---	---	20.79	19.47	19.08	19.06	19.50	20.09	20.79	21.48	22.21	22.67
10	---	---	20.78	19.45	19.06	19.07	19.53	20.14	20.83	21.50	22.22	22.67
11	---	---	20.77	19.37	19.04	19.08	19.55	20.16	20.84	21.51	22.24	22.68
12	---	---	20.73	19.35	19.04	19.09	19.57	20.18	20.88	21.53	22.27	22.69
13	---	---	20.70	19.33	19.05	19.10	19.59	20.19	20.90	21.54	22.32	22.69
14	---	---	20.70	19.30	19.05	19.11	19.61	20.22	20.92	21.54	22.34	22.71
15	---	---	20.65	19.26	19.04	19.11	19.62	20.26	20.94	21.54	22.40	22.58
16	---	---	20.64	19.26	19.04	19.12	19.64	20.29	20.95	21.56	22.42	22.54
17	---	---	20.63	19.25	19.04	19.13	19.66	20.32	20.99	21.58	22.44	22.52
18	---	21.30	20.62	19.25	19.01	19.14	19.68	20.34	21.03	21.59	22.47	22.50
19	---	21.30	20.61	19.21	19.01	19.23	19.70	20.37	21.06	21.60	22.52	22.50
20	---	21.30	20.56	19.21	19.02	19.28	19.72	20.38	21.07	21.62	22.55	22.50
21	---	21.29	20.55	19.21	19.02	19.30	19.74	20.40	21.09	21.63	22.57	22.50
22	---	21.29	20.53	19.18	19.02	19.31	19.76	20.42	21.10	21.63	22.58	22.51
23	---	21.29	20.53	19.19	19.02	19.32	19.78	20.43	21.12	21.64	22.60	22.53
24	---	21.29	20.52	19.15	19.02	19.33	19.81	20.45	21.14	21.64	22.60	22.54
25	---	21.28	20.49	19.15	19.02	19.33	19.83	20.47	21.15	21.77	22.60	22.57
26	---	21.27	20.47	19.15	19.02	19.34	19.85	20.49	21.17	21.80	22.60	---
27	---	21.27	20.44	19.13	19.03	19.35	19.86	20.51	21.18	21.82	22.60	---
28	---	21.27	20.44	19.12	19.03	19.36	19.88	20.53	21.20	21.84	22.60	---
29	---	21.11	20.11	19.12	---	19.37	19.90	20.55	21.21	21.88	22.60	---
30	---	21.10	20.00	19.12	---	19.38	19.92	20.56	21.23	21.88	22.61	---
31	---	---	19.95	19.12	---	19.39	---	20.58	---	21.93	22.61	---
MEAN	---	21.26	20.63	19.35	19.05	19.18	19.64	20.27	20.94	21.56	22.37	22.60

WTR YR 1999 MEAN 20.57 HIGHEST 19.01 FEB. 17, 18, 19, 1999 LOWEST 22.83 SEPT. 14, 1999



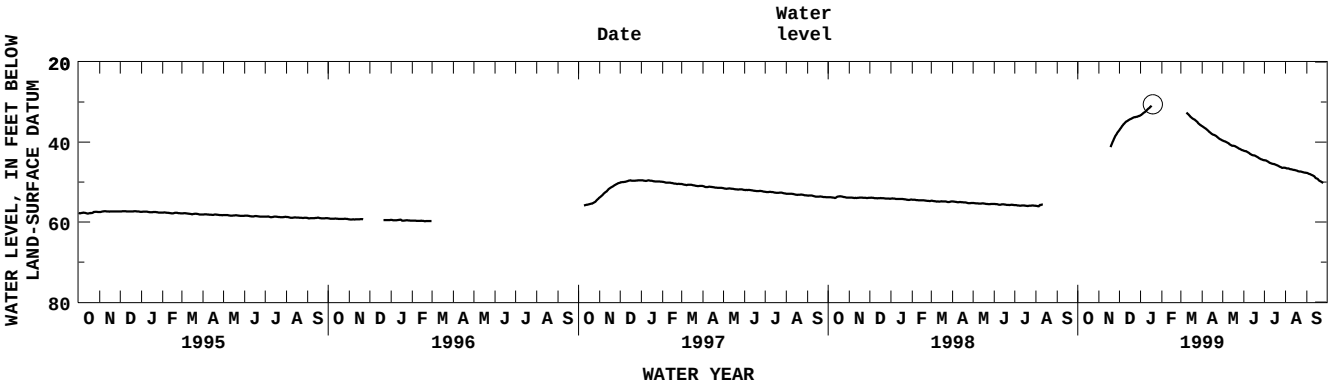
180001066122002. Local number, 1232.
LOCATION.--Lat 18°00'01", long 66°12'20", Hydrologic Unit 21010004, 8.27 mi southwest of Cayey plaza, 2.38 mi soutwest of Cerro Garau, and 3.45 mi southeast of Hwy 1 km 82.3. Owner: US Geological Survey, WRD, Name: HW-TW-03C.
AQUIFER.--Fractured, volcanic rock, water-table 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).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on April 15, 1998. Aquifer test performed during May 24, 25, 26, 1989. Formerly published as local number HW-TW-03C.
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, 59.82 ft (18.2 m), below land-surface datum, Mar. 1, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	37.11	33.36	---	---	36.00	39.57	42.12	44.54	46.45	47.69
2	---	---	36.87	33.24	---	---	36.10	39.65	42.20	44.53	46.49	47.72
3	---	---	36.64	33.13	---	---	36.20	39.73	42.25	44.58	46.63	47.77
4	---	---	36.36	33.00	---	---	36.30	39.79	42.27	44.62	46.59	47.87
5	---	---	36.12	32.86	---	---	36.42	39.85	42.31	44.70	46.57	47.96
6	---	---	35.87	32.72	---	---	36.56	39.93	42.44	44.81	46.60	47.97
7	---	---	35.68	32.57	---	---	36.69	40.01	42.51	44.92	46.65	48.07
8	---	---	35.47	32.45	---	---	36.82	40.10	42.61	45.02	46.82	48.16
9	---	---	35.33	32.32	---	32.52	36.96	40.18	42.70	45.14	46.78	48.25
10	---	---	35.10	32.15	---	32.70	37.12	40.29	42.88	45.22	46.81	48.34
11	---	---	34.97	31.93	---	32.87	37.29	40.46	43.00	45.29	46.86	48.43
12	---	---	34.82	31.78	---	33.04	37.44	40.60	43.08	45.38	46.90	48.52
13	---	---	34.73	31.66	---	33.21	37.60	40.71	43.23	45.42	46.94	48.62
14	---	---	34.60	31.51	---	33.40	37.75	40.80	43.28	45.46	46.97	48.93
15	---	---	34.52	31.34	---	33.58	37.91	40.89	43.30	45.47	47.01	49.02
16	---	---	34.41	31.16	---	33.76	38.03	40.92	43.33	45.50	47.08	49.11
17	---	---	34.29	30.98	---	33.91	38.11	40.94	43.36	45.58	47.10	49.20
18	---	41.48	34.22	30.79	---	34.05	38.18	40.95	43.42	45.64	47.13	49.29
19	---	41.03	34.17	---	---	34.15	38.23	40.99	43.50	45.74	47.19	49.57
20	---	40.62	34.08	---	---	34.25	38.28	41.05	43.60	45.80	47.29	49.66
21	---	40.22	33.97	---	---	34.36	38.37	41.16	43.70	45.89	47.34	49.76
22	---	39.83	33.87	---	---	34.47	38.51	41.25	43.81	45.98	47.36	49.85
23	---	39.43	33.81	---	---	34.62	38.65	41.34	43.93	46.08	47.37	49.96
24	---	39.04	33.78	---	---	34.76	38.79	41.48	44.04	46.16	47.37	50.07
25	---	38.71	33.73	---	---	34.89	38.92	41.60	44.15	46.24	47.43	50.19
26	---	38.39	33.70	---	---	35.08	39.06	41.67	44.22	46.30	47.49	50.30
27	---	38.09	33.69	---	---	35.31	39.20	41.74	44.31	46.40	47.53	---
28	---	37.82	33.69	---	---	35.46	39.30	41.87	44.37	46.46	47.57	---
29	---	37.53	33.51	---	---	35.63	39.39	41.94	44.44	46.43	47.63	---
30	---	37.33	33.50	---	---	35.75	39.47	42.02	44.49	46.41	47.65	---
31	---	---	33.46	---	---	35.88	---	42.04	---	46.41	47.67	---
MEAN	---	39.19	34.71	32.16	---	34.25	37.79	40.82	43.29	45.55	47.07	48.86

WTR YR 1999 MEAN 40.88 HIGHEST 30.50 JAN. 19, 1999 LOWEST 50.37 SEPT. 27, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS



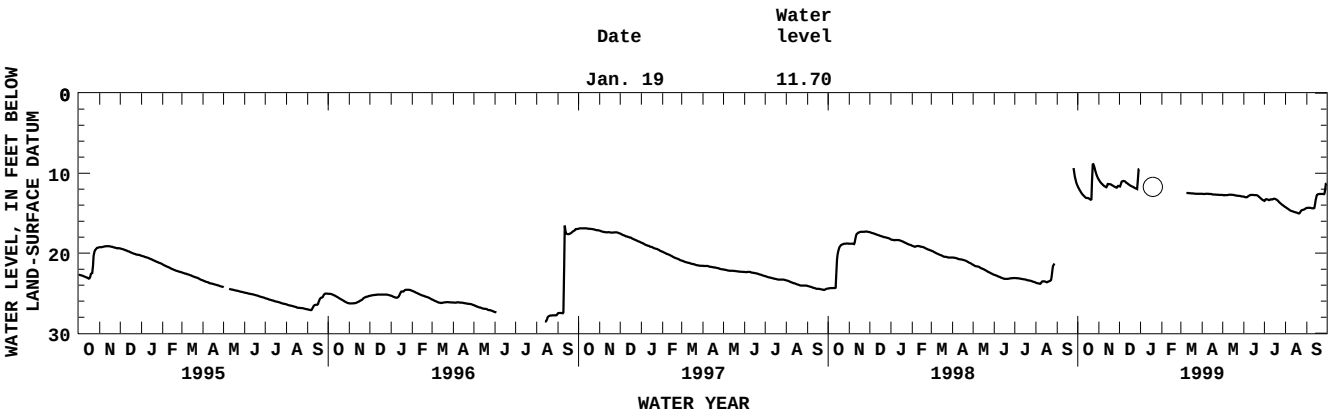
175947066130601. Local number, 1233.
LOCATION.--Lat 17°59'47", long 66°13'06", Hydrologic Unit 21010004, 2.70 mi northeast of Central Aguirre Church, 6.16 mi northwest of Escuela de Guayama, and 2.70 mi northeast of Hwy 3 km 151.3. Owner: US Geological Survey, WRD, Name: HW-TW-5B.
AQUIFER.--Fractured, volcanic rock, water-table aquifer.
WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-52.0 ft (0-15.8 m), cased 4 in (0.10 m), 0-51.0 ft (0-15.5 m), screened 41-46 ft (12.5-14.0 m). Depth 52.0 ft (15.8 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on April 15, 1998. Formerly published as local number HW-TW-5B.
PERIOD OF RECORD.--April 13, 1988 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.93 ft (1.81 m), below land-surface datum, Sept. 22, 1998; lowest water level recorded, 28.55 ft (8.70 m), below land-surface datum, Aug. 14, 15, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.53	10.75	11.62	---	---	---	12.58	12.73	12.91	13.45	14.22	14.35
2	11.73	10.91	11.64	---	---	---	12.59	12.73	12.97	13.49	14.28	14.34
3	11.89	11.05	11.67	---	---	---	12.59	12.76	12.98	13.29	14.34	14.33
4	12.05	11.15	11.15	---	---	---	12.59	12.76	13.01	13.26	14.40	14.32
5	12.20	11.25	11.05	---	---	---	12.59	12.75	13.02	13.26	14.46	14.32
6	12.34	11.34	10.99	---	---	---	12.59	12.75	13.02	13.28	14.51	14.32
7	12.47	11.43	10.97	---	---	---	12.58	12.75	12.96	13.33	14.58	14.35
8	12.58	11.50	10.97	---	---	---	12.58	12.75	12.87	13.36	14.65	14.37
9	12.70	11.57	11.00	---	---	12.49	12.58	12.72	12.80	13.39	14.70	14.38
10	12.80	11.64	11.05	---	---	12.49	12.58	12.70	12.76	13.28	14.71	14.39
11	12.87	11.71	11.14	---	---	12.49	12.59	12.70	12.73	13.28	14.75	14.41
12	12.97	11.75	11.21	---	---	12.49	12.59	12.70	12.73	13.28	14.78	14.38
13	13.04	11.79	11.26	---	---	12.49	12.60	12.70	12.72	13.31	14.80	14.32
14	13.11	11.36	11.33	---	---	12.51	12.60	12.70	12.72	13.25	14.84	13.66
15	13.10	11.36	11.41	---	---	12.51	12.62	12.70	12.72	13.22	14.87	13.06
16	13.10	11.36	11.45	---	---	12.52	12.64	12.70	12.73	13.19	14.91	12.79
17	13.12	11.37	11.53	---	---	12.52	12.66	12.72	12.74	13.22	14.92	12.67
18	13.18	11.40	11.56	---	---	12.52	12.67	12.73	12.74	13.25	14.95	12.63
19	13.24	11.41	11.63	---	---	12.53	12.67	12.75	12.74	13.28	14.97	12.60
20	13.29	11.46	11.67	---	---	12.54	12.67	12.78	12.76	13.35	15.01	12.60
21	13.33	11.52	11.70	---	---	12.55	12.67	12.78	12.77	13.43	15.02	12.59
22	13.23	11.57	11.74	---	---	12.56	12.69	12.80	12.82	13.51	15.02	12.59
23	8.96	11.62	11.80	---	---	12.57	12.70	12.81	12.89	13.60	14.85	12.60
24	8.85	11.66	11.85	---	---	12.58	12.70	12.83	12.97	13.69	14.70	12.61
25	8.93	11.70	11.89	---	---	12.57	12.70	12.84	13.07	13.76	14.64	12.61
26	9.31	11.75	11.92	---	---	12.57	12.70	12.85	13.13	13.84	14.60	12.61
27	9.63	11.80	11.96	---	---	12.57	12.72	12.85	13.22	13.91	14.57	12.63
28	9.92	11.82	11.98	---	---	12.57	12.73	12.88	13.28	14.00	14.56	12.48
29	10.19	11.60	9.65	---	---	12.57	12.73	12.89	13.34	14.05	14.55	11.41
30	10.41	11.60	9.37	---	---	12.57	12.73	12.91	13.39	14.10	14.45	11.26
31	10.60	---	9.59	---	---	12.57	---	12.91	---	14.18	14.40	---
MEAN	11.83	11.47	11.28	---	---	12.54	12.64	12.77	12.92	13.49	14.68	13.33

WTR YR 1999 MEAN 12.70 HIGHEST 8.80 OCT. 24, 1998 LOWEST 15.03 AUG. 22, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

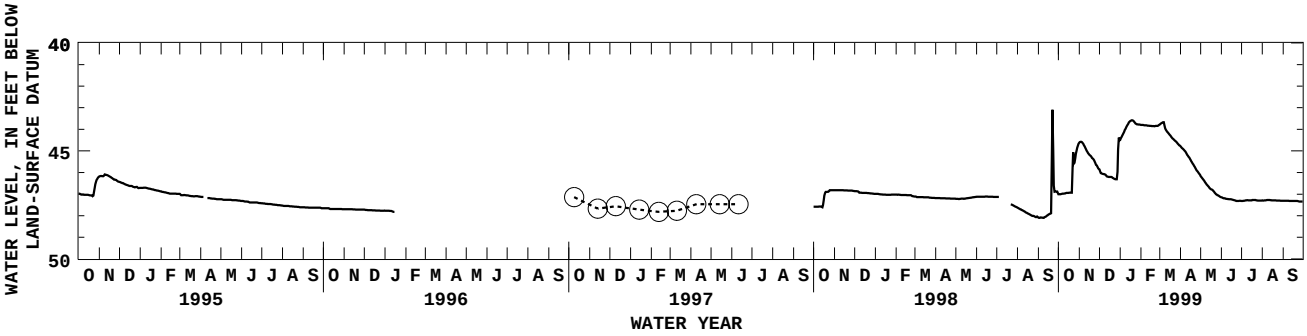


175957066123400. Local number, 1234.
LOCATION.--Lat 17°59'57", long 66°12'34", Hydrologic Unit 21010004, 3.11 northeast of Central Aguirre Church, 5.76 mi northwest of Escuela de Guayama, and 2.03 mi northeast of Hwy 3 km 151.3. Owner: US Geological Survey, WRD, Name: HW-TW-13.
AQUIFER.--Fractured, volcanic rock, water-table aquifer.
WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-69.0 ft (0-21.0 m), cased 4 in (0.10 m), 0-69.0 ft (0-21.0 m), screened 4.0-69 ft (1.22-21.0 m). Depth 69.0 ft (21.0 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on July 22, 1998. Formerly published as local number HW-TW-13.
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, 48.12 ft (14.7 m), below land-surface datum, Sept. 3, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47.00	44.63	45.85	44.52	43.79	43.79	44.77	46.14	47.15	47.32	47.29	47.31
2	47.00	44.60	45.86	44.45	43.80	43.77	44.80	46.20	47.15	47.32	47.29	47.31
3	47.00	44.58	46.02	44.39	43.80	43.74	44.85	46.23	47.16	47.32	47.30	47.31
4	47.00	44.58	46.04	44.33	43.80	43.71	44.87	46.27	47.19	47.31	47.29	47.31
5	47.00	44.58	46.04	44.27	43.80	43.71	44.90	46.32	47.19	47.31	47.28	47.31
6	46.99	44.61	46.06	44.20	43.81	43.67	44.93	46.33	47.19	47.30	47.29	47.31
7	46.98	44.65	46.07	44.15	43.81	43.67	44.97	46.41	47.20	47.29	47.28	47.31
8	46.98	44.71	46.07	44.06	43.81	43.68	45.01	46.43	47.21	47.29	47.28	47.31
9	46.98	44.77	46.08	43.99	43.81	43.92	45.04	46.49	47.22	47.28	47.27	47.31
10	46.97	44.81	46.09	43.95	43.82	43.98	45.10	46.53	47.22	47.28	47.27	47.31
11	46.97	44.89	46.11	43.87	43.83	44.04	45.15	46.57	47.23	47.28	47.27	47.32
12	46.96	44.96	46.17	43.81	43.83	44.08	45.21	46.60	47.23	47.29	47.27	47.32
13	46.95	45.01	46.18	43.78	43.83	44.13	45.25	46.64	47.24	47.29	47.28	47.32
14	46.94	45.07	46.19	43.70	43.84	44.15	45.29	46.68	47.24	47.29	47.28	47.32
15	46.94	45.12	46.20	43.66	43.84	44.20	45.33	46.72	47.24	47.29	47.28	47.32
16	46.94	45.15	46.20	43.62	43.84	44.24	45.39	46.75	47.24	47.29	47.29	47.32
17	46.94	45.19	46.20	43.61	43.84	44.28	45.45	46.78	47.25	47.28	47.29	47.32
18	46.93	45.22	46.20	43.59	43.85	44.31	45.51	46.78	47.25	47.27	47.29	47.32
19	46.93	45.24	46.20	43.57	43.85	44.36	45.55	46.80	47.27	47.27	47.29	47.32
20	46.93	45.30	46.21	43.59	43.85	44.40	45.61	46.83	47.27	47.27	47.29	47.32
21	46.93	45.35	46.23	43.60	43.85	44.43	45.65	46.87	47.29	47.27	47.29	47.32
22	46.93	45.36	46.26	43.64	43.86	44.45	45.71	46.91	47.29	47.27	47.29	47.32
23	44.60	45.40	46.28	43.67	43.84	44.49	45.76	46.95	47.31	47.28	47.30	47.32
24	45.51	45.46	46.29	43.72	43.84	44.52	45.82	46.99	47.32	47.29	47.30	47.33
25	45.66	45.52	46.31	43.75	43.84	44.55	45.88	47.01	47.32	47.29	47.30	47.34
26	45.44	45.62	46.31	43.76	43.84	44.57	45.92	47.04	47.32	47.30	47.30	47.34
27	45.23	45.67	46.31	43.77	43.84	44.61	45.95	47.06	47.32	47.30	47.30	47.34
28	45.05	45.67	46.32	43.77	43.81	44.66	46.00	47.06	47.31	47.30	47.30	47.34
29	44.91	45.77	45.61	43.78	---	44.68	46.05	47.09	47.31	47.30	47.31	47.34
30	44.79	45.82	44.26	43.78	---	44.72	46.08	47.11	47.31	47.29	47.31	47.34
31	44.70	---	44.51	43.78	---	44.75	---	47.13	---	47.30	47.31	---
MEAN	46.42	45.11	46.02	43.88	43.83	44.20	45.39	46.70	47.25	47.29	47.29	47.32

WTR YR 1999 MEAN 45.90 HIGHEST 43.57 JAN. 19, 20, 1999 LOWEST 47.34 SEPT. 24-30, 1999



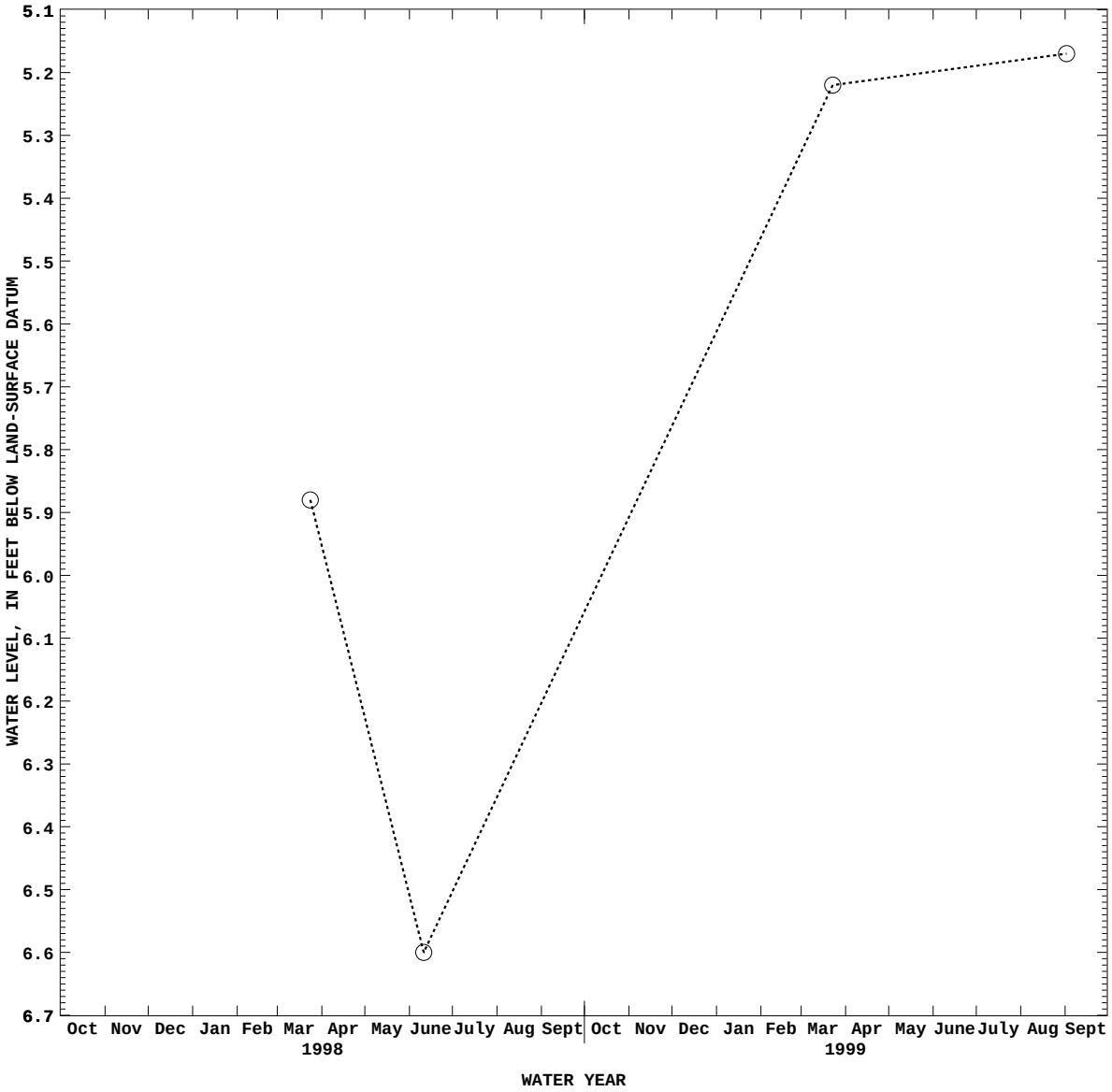
180027065541700. Local number, 1235.
LOCATION.--Lat 18°00'27", long 65°54'17", Hydrologic Unit 21010004, 400 ft (121.9 m) northeast of Hwy 3 bridge over Río Maunabo, 0.34 mi west southwest of Maunabo plaza, and 1.89 mi south southeast of Cerro Pandura. Owner: PR Aqueduct and Sewer Authority, Name: Maunabo 3.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Production well beging repaired..
DATUM.--Elevation of land-surface datum is about 25.0 ft (7.62 m), above mean sea level, from topographic map. Measuring point: Top of steel casing, 1.40 ft (0.43 m), above land-surface datum.
REMARKS.--Observation well.
PERIOD OF RECORD.--February 24, 1998 to September 2, 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.17 ft (1.58 m), below land-surface datum, Sept. 2, 1999; lowest water level measured, 6.60 ft (2.01 m), below land-surface datum, June 11, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level
Mar. 24	5.88	June 11	6.60

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level
Mar. 23	5.22	Sept. 17	5.17



RIO HUMACAO AT QUEBRADA AGUAS VERDES BASINS

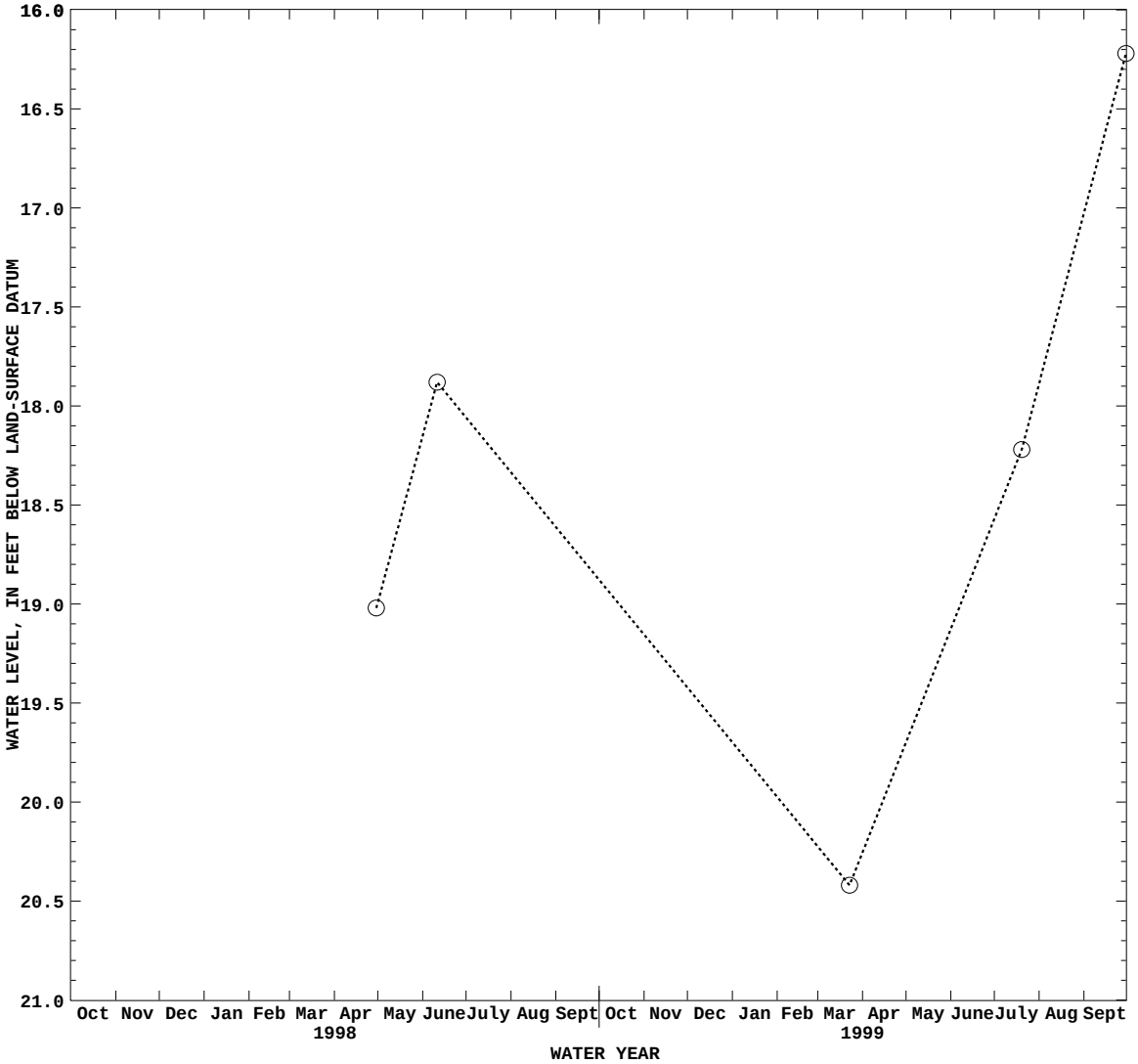
180018066010100. Local number, 1236.
LOCATION.--Lat 18°00'18", long 66°01'01", Hydrologic Unit 21010004, 0.20 mi south of Patillas Athletic Park, 0.31 mi southwest of Patillas plaza, and 1.12 mi south southeast of Patillas Dam. Owner: PR Aqueduct and Sewer Authority Name: Cacao Bajo.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Abandoned production well, diameter 13 in (0.34 m), open screen 40.0-88.0 ft (12.2-26.8 m), perforated 90.0-125 ft (27.4-38.1 m). Depth 100 ft (30.48 m).
DATUM.--Elevation of land-surface datum is about 50.0 ft (15.24 m), above mean sea level, from topographic map. Measuring point: Access from side, well now has submersible pump for irrigation, top of access hole 8.03 ft (2.45 m), above land-surface datum. Prior to Mar. 26, 1999, top of steel motor mount, 8.38 ft (2.55 m).
REMARKS.--Observation well.
PERIOD OF RECORD.--April 30, 1998 to September 30, 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.22 ft (4.94 m), below land-surface datum, Sept. 30, 1999; lowest water level measured, 20.42 ft (6.22 m), below land-surface datum, Mar. 23, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level
Apr. 30	19.02	June 11	17.88

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level
Mar. 23	20.42	Sept. 2	18.22	Sept. 30	16.22

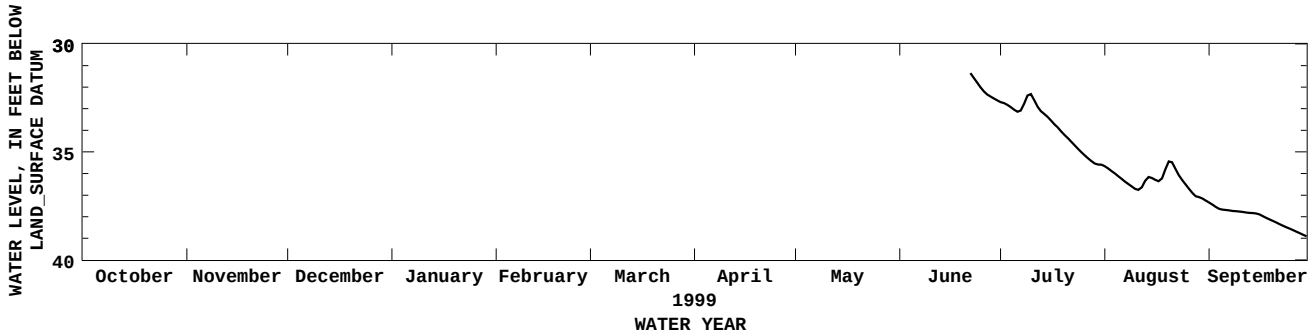


175903066024100. Local number, 1237.
LOCATION.--Lat 17°59′03", long 66°02'41", Hydrologic Unit 21010004, 1.03 mi east northeast of Central Lafayette, 1.57 mi north northwest of Punta Guilarte, and 1.93 mi northeast of Arroyo waterfront. Owner: Colón Moret, Name: Colón Moret well.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well.
INSTRUMENTATION.--Digital water level recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is about 59.0 ft (18.0 m), above mean sea level, from topographic map. Measuring point: Top of pipe in metal box, 3.36 ft (1.02 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on June 22, 1999.
PERIOD OF RECORD.--June 22, 1999 to September 30, 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 31.24 ft (9.52 m), below land-surface datum, June 22, 1999; lowest water level measured, 38.91 ft (11.86 m), below land-surface datum, Sept. 30, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	32.66	35.61	37.29
2	---	---	---	---	---	---	---	---	---	32.72	35.71	37.39
3	---	---	---	---	---	---	---	---	---	32.76	35.83	37.49
4	---	---	---	---	---	---	---	---	---	32.87	35.94	37.60
5	---	---	---	---	---	---	---	---	---	32.98	36.06	37.67
6	---	---	---	---	---	---	---	---	---	33.10	36.18	37.68
7	---	---	---	---	---	---	---	---	---	33.18	36.31	37.70
8	---	---	---	---	---	---	---	---	---	32.98	36.43	37.72
9	---	---	---	---	---	---	---	---	---	32.55	36.54	37.74
10	---	---	---	---	---	---	---	---	---	32.23	36.65	37.75
11	---	---	---	---	---	---	---	---	---	32.41	36.77	37.77
12	---	---	---	---	---	---	---	---	---	32.78	36.74	37.79
13	---	---	---	---	---	---	---	---	---	33.03	36.52	37.81
14	---	---	---	---	---	---	---	---	---	33.20	36.16	37.83
15	---	---	---	---	---	---	---	---	---	33.29	36.16	37.84
16	---	---	---	---	---	---	---	---	---	33.46	36.24	37.86
17	---	---	---	---	---	---	---	---	---	33.64	36.35	37.93
18	---	---	---	---	---	---	---	---	---	33.79	36.37	38.02
19	---	---	---	---	---	---	---	---	---	33.95	36.08	38.09
20	---	---	---	---	---	---	---	---	---	34.14	35.54	38.16
21	---	---	---	---	---	---	---	---	---	34.29	35.34	38.23
22	---	---	---	---	---	---	---	---	31.25	34.44	35.61	38.31
23	---	---	---	---	---	---	---	---	31.46	34.61	35.96	38.38
24	---	---	---	---	---	---	---	---	31.67	34.77	36.19	38.45
25	---	---	---	---	---	---	---	---	31.90	34.94	36.41	38.52
26	---	---	---	---	---	---	---	---	32.10	35.09	36.61	38.59
27	---	---	---	---	---	---	---	---	32.29	35.22	36.79	38.66
28	---	---	---	---	---	---	---	---	32.39	35.37	37.00	38.73
29	---	---	---	---	---	---	---	---	32.48	35.48	37.09	38.80
30	---	---	---	---	---	---	---	---	32.57	35.59	37.10	38.87
31	---	---	---	---	---	---	---	---	---	35.57	37.21	---
MEAN	---	---	---	---	---	---	---	---	32.01	33.78	36.31	38.02

WTR YR 1999 MEAN 35.66 HIGHEST 31.24 JUNE 22, 1999 LOWEST 38.91 SEPT. 30, 1999



175841066104500. Local number, 1238.
LOCATION.--Lat 17°58'41", long 66°10'45", Hydrologic Unit 21010004, on east side of Hwy 713, 1.0 mi south of Hwy 53, and 0.7 mi north of Hwy 3. Owner: PR Aqueduct and Sewer Authority, Name: Villodas.
AQUIFER.--Fractured rock.
WELL CHARACTERISTICS.--Abandoned production well, diameter 12 in (0.30 m), 0-20.0 ft (0-6.10 m), diameter 10 in (0.25 m), 20.0-97.0 ft (6.10-29.6 m), and diameter 8 in (0.20 m), 97.0-143 ft (29.6-43.6 m), open screened >20.0 ft (>6.10 m). Depth 143 ft (43.6 m).
INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 82.0 ft (25.0 m), above mean sea level, from topographic map. Measuring point: Hole in steel plate over well, 2.24 ft (0.68 m), above land-surface datum.
REMARKS.--Observation well.
PERIOD OF RECORD.--March 24, 1998 to September 30, 1999, only tape down measurements.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.95 ft (5.17 m), below land-surface datum, Mar. 9, 1999; lowest water level measured, 32.96 ft (10.0 m), below land-surface datum, July 22, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996
INSTANTANEOUS OBSERVATIONS

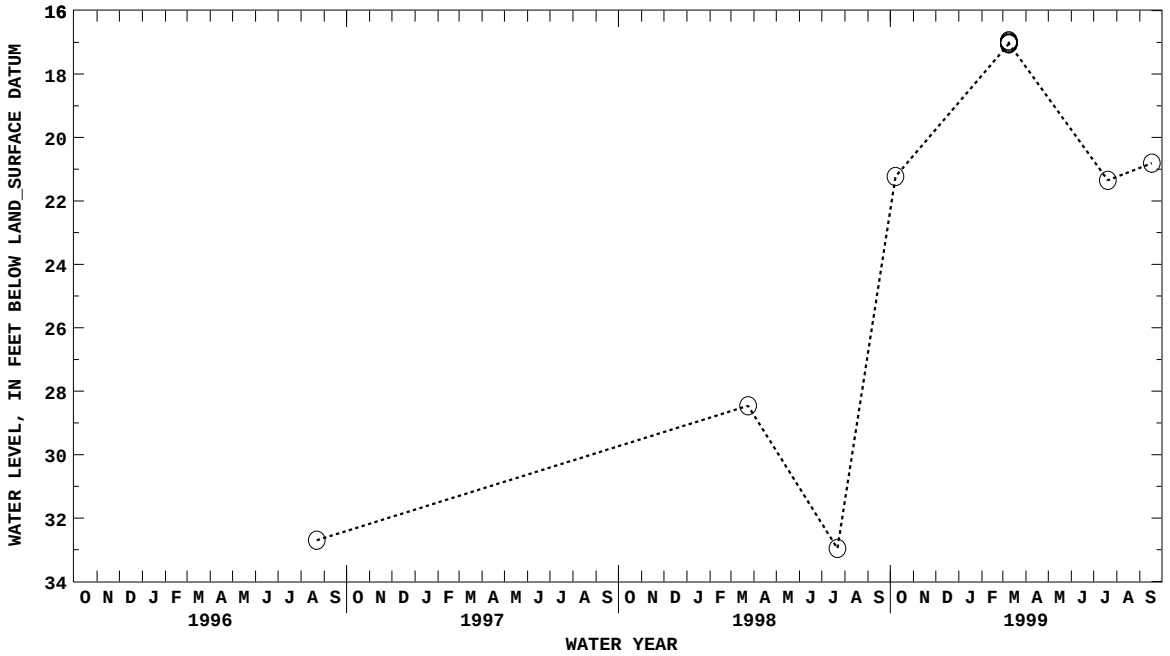
Date	Water level
Aug. 22	32.70

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level
Mar. 24	28.46	July 22	32.96

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 8	21.23	Mar. 9	16.99	Mar. 9	17.03	Sept. 17	20.81
Mar. 9	17.05	Mar. 9	16.95	July 20	21.35		



175814066102200. Local number, 1239.
LOCATION.--Lat 17°58'14", long 66°10'22", Hydrologic Unit 21010004, 1.0 mi northwest of Jobos community, 3.8 mi east of Colegio del Perpetuo Socorro, and 3.5 mi northeast of Central Aguirre. Owner: US Geological Survey, Name: Pozo Jobos.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well.
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 59.0 ft (18.0 m), above mean sea level, from topographic map. Measuring point: On shelter floor, 2.86 ft (0.87 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on Apr. 2, 1997, replaced by an Electronic Data Logger (EDL), installed on September 27, 1999.
PERIOD OF RECORD.--April 2, 1997 to September 30, 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.14 ft (1.87 m), below land-surface datum, Oct. 18, 1998; lowest water level measured, 31.42 ft (9.27 m), below land-surface datum, Aug. 6, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	26.46	27.41	28.29	29.59	30.57
2	---	---	---	---	---	---	25.43	26.49	27.44	28.32	29.60	30.61
3	---	---	---	---	---	---	25.45	26.52	27.46	28.36	29.66	30.63
4	---	---	---	---	---	---	25.45	26.55	27.46	28.42	29.69	30.65
5	---	---	---	---	---	---	25.48	26.59	27.47	28.47	29.72	30.71
6	---	---	---	---	---	---	25.50	26.62	27.48	28.52	29.73	30.74
7	---	---	---	---	---	---	25.54	26.67	27.47	28.56	29.76	30.76
8	---	---	---	---	---	---	25.59	26.71	27.50	28.61	29.81	30.79
9	---	---	---	---	---	---	25.63	26.73	27.59	28.63	29.83	30.82
10	---	---	---	---	---	---	25.67	26.76	27.61	28.70	29.87	30.84
11	---	---	---	---	---	---	25.71	26.77	27.63	28.87	29.88	30.88
12	---	---	---	---	---	---	25.75	26.80	27.65	28.92	29.96	30.92
13	---	---	---	---	---	---	25.76	26.85	27.67	28.96	29.98	30.96
14	---	---	---	---	---	---	25.78	26.85	27.70	29.00	30.03	30.97
15	---	---	---	---	---	---	25.85	26.87	27.73	29.05	30.08	30.97
16	---	---	---	---	---	---	25.88	26.91	27.75	29.13	30.11	30.98
17	---	---	---	---	---	---	25.91	26.94	27.77	29.18	30.13	31.00
18	---	---	---	---	---	---	25.95	26.97	27.80	29.21	30.17	31.02
19	---	---	---	---	---	---	25.99	26.98	27.84	29.24	30.19	31.02
20	---	---	---	---	---	---	26.02	27.03	27.88	29.29	30.22	31.14
21	---	---	---	---	---	---	26.06	27.08	27.92	29.31	30.26	31.14
22	---	---	---	---	---	---	26.08	27.10	27.97	29.25	30.29	31.16
23	---	---	---	---	---	---	26.14	27.14	27.99	29.27	30.31	31.18
24	---	---	---	---	---	---	26.16	27.18	28.03	29.31	30.33	31.20
25	---	---	---	---	---	---	26.25	27.23	28.06	29.35	30.34	31.19
26	---	---	---	---	---	---	26.28	27.26	28.09	29.42	30.37	31.24
27	---	---	---	---	---	---	26.31	27.27	28.14	29.46	30.40	31.28
28	---	---	---	---	---	---	26.34	27.30	28.17	29.47	30.41	31.26
29	---	---	---	---	---	---	26.36	27.33	28.21	29.50	30.43	31.24
30	---	---	---	---	---	---	26.40	27.37	28.26	29.54	30.46	31.28
31	---	---	---	---	---	---	---	27.40	---	29.56	30.50	---
MEAN	---	---	---	---	---	---	25.89	26.93	27.77	29.01	30.07	30.97

WTR YR 1997 MEAN 28.46 HIGHEST 25.42 APR. 2, 1997 LOWEST 31.30 SEPT. 30, 1997

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATIONS

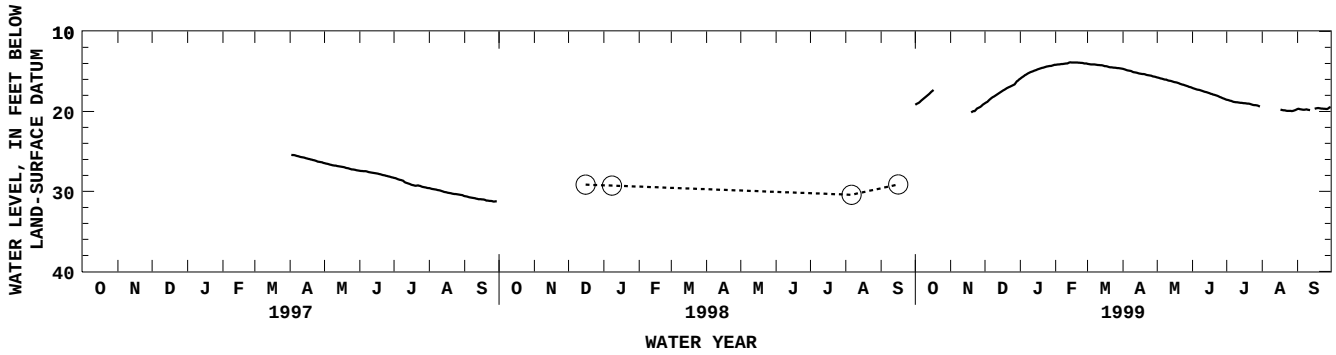
Date	Water level	Date	Water level	Date	Water level	Date	Water level
Dec. 16	29.16	Jan. 8	29.27	Aug. 6	30.42	Sept. 16	29.13

RIO HUMACAO AT QUEBRADA AGUAS VERDES BASINS--continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.21	---	19.02	15.94	14.17	14.03	14.68	15.73	17.04	18.54	---	19.73
2	19.11	---	18.92	15.85	14.17	14.07	14.70	15.78	17.10	18.56	---	19.67
3	19.04	---	18.86	15.73	14.15	14.10	14.74	15.80	17.16	18.59	---	19.69
4	18.97	---	18.74	15.63	14.13	14.11	14.83	15.86	17.21	18.65	---	19.74
5	18.87	---	18.60	15.53	14.11	14.14	14.84	15.89	17.25	18.66	---	19.75
6	18.74	---	18.48	15.43	14.10	14.13	14.89	15.92	17.28	18.73	---	19.77
7	18.61	---	18.37	15.36	14.08	14.13	14.91	15.97	17.29	18.80	---	19.80
8	18.49	---	18.26	15.27	14.06	14.14	14.93	16.02	17.33	18.81	---	19.79
9	18.36	---	18.17	15.20	14.05	14.16	14.95	16.02	17.40	18.85	---	19.75
10	18.25	---	18.08	15.14	14.02	14.18	15.07	16.05	17.45	18.85	---	19.76
11	18.13	---	17.98	15.06	14.02	14.20	15.10	16.12	17.49	18.87	---	19.80
12	18.00	---	17.90	15.00	14.02	14.22	15.12	16.16	17.53	18.90	---	19.83
13	17.88	---	17.79	14.96	13.92	14.22	15.13	16.18	17.59	18.93	---	19.85
14	17.75	---	17.70	14.88	13.86	14.24	15.18	16.21	17.59	18.94	---	---
15	17.63	---	17.60	14.84	13.87	14.26	15.23	16.28	17.65	18.94	---	---
16	17.49	---	17.52	14.79	13.89	14.33	15.26	16.31	17.70	18.96	---	19.68
17	17.38	---	17.40	14.73	13.89	14.35	15.29	16.34	17.77	18.97	19.74	19.64
18	17.25	---	17.34	14.68	13.89	14.35	15.31	16.38	17.81	19.00	19.78	19.62
19	---	20.17	17.25	14.65	13.90	14.39	15.33	16.41	17.86	19.02	19.84	19.58
20	---	20.07	17.15	14.58	13.89	14.45	15.34	16.45	17.91	19.03	19.85	19.58
21	---	19.98	17.06	14.54	13.90	14.48	15.37	16.52	17.95	19.04	19.86	19.61
22	---	19.96	16.99	14.52	13.90	14.49	15.43	16.59	17.99	19.07	19.88	19.64
23	---	19.95	16.94	14.46	13.93	14.50	15.47	16.63	18.04	19.11	19.94	19.65
24	---	19.67	16.88	14.40	13.92	14.54	15.49	16.65	18.10	19.17	19.94	19.66
25	---	19.62	16.81	14.38	13.95	14.53	15.49	16.71	18.17	19.22	19.94	19.67
26	---	19.55	16.73	14.36	13.99	14.55	15.53	16.75	18.23	19.23	19.94	19.68
27	---	19.47	16.65	14.33	14.02	14.56	15.58	16.80	18.30	19.22	19.95	19.71
28	---	19.39	16.59	14.32	14.01	14.59	15.63	16.82	18.34	19.24	19.95	19.70
29	---	19.22	16.28	14.30	---	14.59	15.66	16.90	18.41	19.31	19.94	19.54
30	---	19.13	16.20	14.23	---	14.61	15.68	16.95	18.46	19.36	19.85	19.47
31	---	---	16.07	14.20	---	14.65	---	16.99	---	19.41	19.81	---
MEAN	18.29	19.68	17.56	14.88	13.99	14.33	15.21	16.33	17.71	18.97	19.88	19.69

WTR YR 1999 MEAN 16.89 HIGHEST 6.14 OCT. 18, 1998 LOWEST 20.24 NOV. 18, 1998

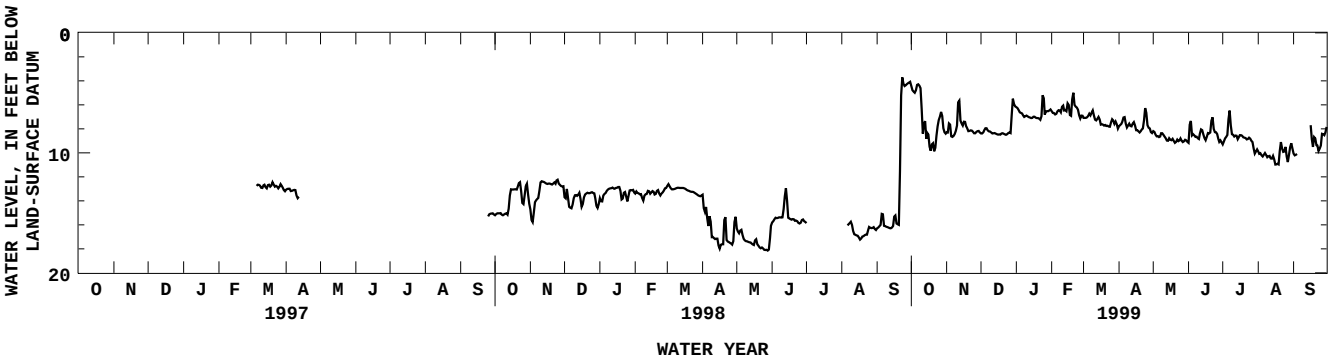


175809066133100. Local number, 1251.
LOCATION.--Lat 17°58'09", long 66°13'31", Hydrologic Unit 21010004, 0.49 mi southwest of the intersection of Hwy 706 with Hwy 3, 0.30 mi south of Hwy 3, and 0.12 mi east of Hwy 705. Owner: PR Land Authority, Name: Coqui Btr 1.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 18 in (0.46 m). Depth 199 ft (60.7 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is 16.4 ft (5.00 m), above mean sea level, from topographic map. Measuring point: Hole in the side of the 18 in (0.46 m) casing, 1.33 ft (0.41 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on March 6, 1997. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 27, 1999. Formerly published as local number CQ-1.
PERIOD OF RECORD.--March 6, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.30 ft (1.00 m), below land-surface datum, Sept. 22, 23, 1998; lowest water level recorded, 18.64 ft (5.68 m), below land-surface datum, May 29, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.07	8.29	8.38	6.13	6.42	7.08	7.85	8.22	9.11	9.35	9.65	9.89
2	4.80	8.30	8.39	6.25	6.64	7.08	7.71	8.17	9.24	9.23	10.13	10.25
3	4.78	8.31	8.37	6.30	6.70	7.08	7.64	8.35	6.06	8.89	10.04	10.16
4	5.02	6.80	8.20	6.55	6.68	7.09	7.53	8.62	8.62	8.72	10.03	10.16
5	4.98	8.50	7.97	6.70	6.91	6.98	7.29	8.62	8.46	8.63	10.39	10.02
6	4.60	8.75	7.92	6.66	6.60	6.88	6.81	8.58	8.44	8.40	10.22	---
7	4.08	8.58	7.99	6.79	6.49	6.60	7.23	8.79	8.64	5.99	10.10	---
8	4.51	8.60	8.26	7.01	6.39	7.16	7.92	8.49	8.71	6.98	9.93	---
9	4.28	8.27	8.17	7.02	6.53	6.16	7.84	8.24	8.60	8.43	10.41	---
10	4.95	8.04	8.29	6.86	6.72	6.77	7.60	8.48	8.96	8.47	10.31	---
11	7.80	7.40	8.32	6.92	5.60	6.99	7.55	8.52	8.73	8.52	10.27	---
12	9.00	4.17	8.46	6.99	6.52	7.46	7.96	8.77	8.08	8.76	10.25	---
13	6.15	7.14	8.28	7.05	6.42	7.12	7.61	8.79	8.02	8.36	10.68	---
14	8.58	7.47	8.42	7.07	6.44	7.22	7.54	9.15	8.19	8.78	10.29	---
15	9.10	7.64	8.39	7.13	6.60	6.81	7.33	8.85	8.73	8.94	10.21	---
16	7.58	7.82	8.52	7.03	5.14	7.62	8.10	8.71	8.82	8.49	10.89	7.18
17	9.38	7.00	8.43	6.94	6.88	7.67	8.12	9.11	9.06	8.56	11.05	8.22
18	9.60	7.85	8.50	7.04	6.81	7.55	8.12	8.79	8.29	8.51	10.88	9.52
19	10.04	7.68	8.46	7.10	7.01	7.76	8.30	8.88	8.41	8.65	10.94	9.49
20	8.54	8.22	8.32	7.10	4.07	7.71	8.30	9.14	8.36	8.76	10.99	7.88
21	9.86	8.17	8.40	7.10	5.90	7.66	8.07	9.20	8.24	8.70	8.71	9.73
22	9.89	8.17	8.43	7.20	6.10	7.86	8.06	8.96	6.42	8.84	9.49	8.98
23	9.28	8.09	8.49	7.29	6.18	7.64	7.88	8.84	7.67	8.91	9.73	9.82
24	7.86	8.21	8.51	6.60	6.28	7.97	6.72	9.22	8.33	8.78	10.12	9.87
25	7.71	8.27	8.38	3.81	6.51	7.69	5.81	8.70	8.23	8.68	9.67	9.44
26	6.82	8.45	8.32	7.10	7.23	7.24	7.50	8.89	8.34	8.95	9.34	9.35
27	7.13	8.28	8.28	6.54	7.05	7.15	7.89	9.08	8.53	9.05	11.27	7.49
28	6.04	8.24	8.43	6.54	6.73	7.46	7.91	9.12	9.13	9.16	10.27	9.40
29	7.82	8.13	5.24	6.51	---	7.70	8.04	8.95	9.03	10.12	10.09	7.67
30	8.08	8.22	5.75	6.56	---	7.10	8.49	8.87	8.89	10.00	8.99	8.90
31	8.50	---	6.12	6.36	---	8.12	---	9.05	---	9.78	9.41	---
MEAN	7.12	7.90	8.08	6.72	6.41	7.30	7.69	8.78	8.41	8.72	10.15	9.17

WTR YR 1999 MEAN 8.02 HIGHEST 3.81 JAN. 25, 1999 LOWEST 11.38 SEPT. 3, 1999

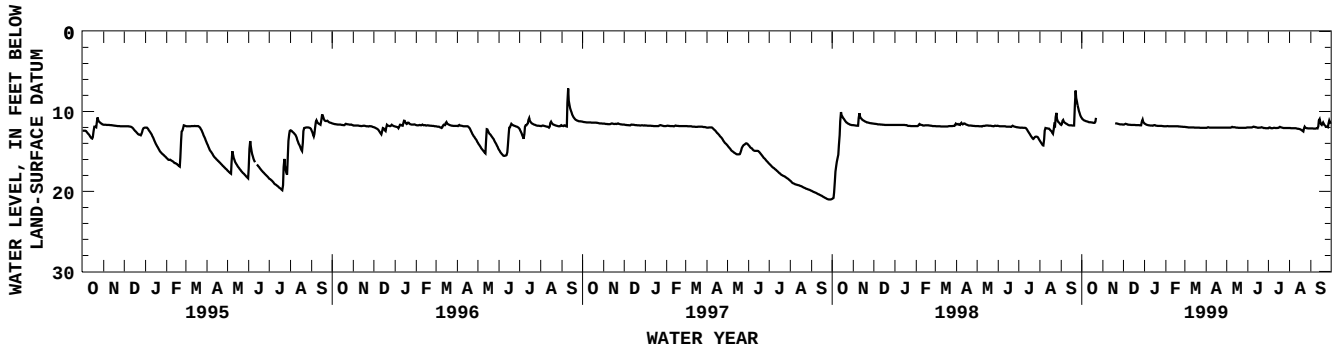


180206066135500. Local number, 1252.
LOCATION.--Lat 18°02'06", long 66°13'55", Hydrologic Unit 21010004, 6.98 mi southwest of Cayey plaza, 0.63 mi east of Hwy 1 km 82.3 on Rabo del Buey, and 1.75 mi southeast of Capilla de Santa Marta. Owner: US Geological Survey, WRD, Name: RM # 5.
AQUIFER.--Quaternary alluvium.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-34.0 ft (0-10.4 m), screened 24-34.0 ft (7.32-10.7 m). Depth 34.0 ft (10.4 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 276 ft (84.2 m), above mean sea level.
Measuring point: Top of shelter floor, 3.28 ft (1.00 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on June 3, 1998. Formerly published as local number RM-5.
PERIOD OF RECORD.--March 9, 1989 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.56 ft (1.69 m), below land-surface datum, Sept. 10, 1996; lowest water level recorded, 24.24 ft (7.39 m), below land-surface datum, Sept. 20, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.76	---	11.65	11.48	11.85	11.94	12.05	12.03	11.99	12.10	12.07	12.12
2	10.90	---	11.65	11.54	11.85	11.94	12.05	12.03	11.99	12.10	12.07	12.13
3	10.98	---	11.65	11.60	11.84	11.95	12.05	12.03	11.99	11.96	12.08	12.13
4	11.06	---	11.52	11.65	11.84	11.96	11.95	12.03	11.99	12.03	12.09	12.13
5	11.12	---	11.56	11.68	11.84	11.98	12.00	12.03	11.99	12.08	12.09	12.13
6	11.15	---	11.56	11.70	11.85	11.99	12.02	12.03	12.00	12.09	12.09	12.14
7	11.19	---	11.62	11.72	11.85	11.99	12.02	12.03	12.00	12.09	12.09	12.14
8	11.22	---	11.64	11.73	11.85	12.00	12.02	12.02	12.00	12.09	12.09	12.14
9	11.25	---	11.66	11.74	11.85	12.00	12.02	11.91	11.89	12.05	12.10	12.14
10	11.27	---	11.67	11.76	11.85	12.00	12.02	11.97	11.94	12.04	12.10	12.10
11	11.29	---	11.67	11.76	11.85	12.01	12.02	11.97	11.93	12.05	12.11	12.11
12	11.35	---	11.68	11.76	11.85	12.01	12.02	11.97	11.95	12.07	12.12	12.13
13	11.35	---	11.68	11.78	11.85	12.01	12.02	11.97	11.98	12.07	12.15	11.56
14	11.36	---	11.69	11.79	11.85	12.01	12.02	11.98	11.98	12.06	12.17	10.66
15	11.36	---	11.69	11.70	11.85	12.01	12.02	12.01	12.00	12.06	12.17	11.25
16	11.37	---	11.69	11.71	11.85	12.02	12.02	12.03	12.04	12.04	12.20	11.51
17	11.38	---	11.69	11.73	11.85	12.02	12.02	12.03	12.04	12.05	12.21	11.65
18	11.41	---	11.69	11.77	11.86	12.02	12.02	12.04	12.03	11.91	12.29	11.71
19	11.43	11.48	11.70	11.79	11.86	12.02	12.02	12.04	12.03	11.96	12.34	11.39
20	11.43	11.48	11.71	11.80	11.87	12.02	12.02	12.05	12.03	11.99	12.40	11.37
21	11.43	11.49	11.71	11.80	11.88	12.03	12.02	12.05	11.97	12.02	12.47	11.65
22	11.13	11.51	11.71	11.80	11.88	12.03	12.02	12.05	11.98	12.03	12.52	11.76
23	10.48	11.55	11.72	11.80	11.89	12.04	12.03	12.05	12.01	12.07	11.83	11.82
24	---	11.55	11.72	11.81	11.90	12.04	12.03	12.05	12.05	12.07	11.97	11.88
25	---	11.58	11.72	11.81	11.91	12.04	12.03	12.05	12.08	12.07	12.05	11.91
26	---	11.60	11.73	11.81	11.92	12.04	12.03	12.04	12.08	12.07	12.08	11.97
27	---	11.61	11.73	11.81	11.92	12.04	12.03	12.04	12.08	12.07	12.09	11.98
28	---	11.61	11.74	11.84	11.93	12.04	12.03	12.04	12.10	12.07	12.11	11.07
29	---	11.62	10.75	11.84	---	12.04	12.03	12.04	12.10	12.07	12.11	11.18
30	---	11.63	11.27	11.85	---	12.05	12.03	12.04	12.10	12.07	12.12	11.47
31	---	---	11.39	11.85	---	12.05	---	12.03	---	12.08	12.12	---
MEAN	11.20	11.56	11.62	11.75	11.87	12.01	12.02	12.02	12.01	12.05	12.15	11.78

WTR YR 1999 MEAN 11.87 HIGHEST 9.38 OCT. 22, 1998 LOWEST 12.52 AUG. 21, 22, 1999

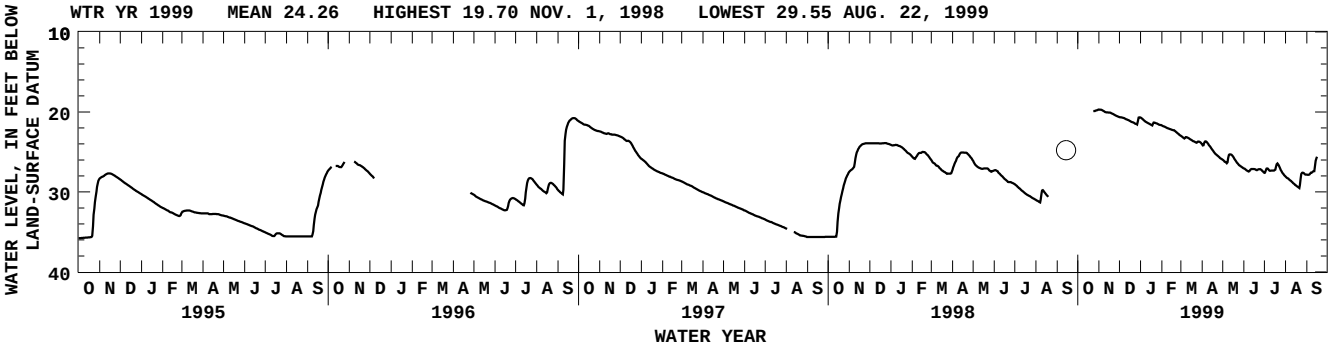


180104066152300. Local number, 1253.
LOCATION.--Lat 18°01'04", long 66°15'23", Hydrologic Unit 21010004, 8.00 mi southeast of Coamo plaza, 1.07 mi northeast of Escuela de Coco, and 0.70 mi southwest of Escuela Sabana Llana. Owner: US Geological Survey, WRD, Name: RM # 10.
AQUIFER.--Quaternary alluvium.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-37.0 ft (0-11.3 m), screened 27-37 ft (8.23-11.3 m). Depth 37.0 ft (11.3 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 164 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. Well dry at 35.77 ft (10.9 m). Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 11, 1998. From Sept. 14, 1998, monthly measurements only. Formerly published as local number RM-10.
PERIOD OF RECORD.--March 13, 1989 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.0 ft (5.49 m), below land-surface datum, Nov. 9, 1990; lowest water level recorded, 35.77 ft (10.9 m), below land-surface datum, Sept. 14 to Oct. 5, 1994

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	19.70	20.64	20.70	21.65	22.95	24.01	25.96	27.06	27.59	28.03	27.84
2	---	19.71	20.65	20.72	21.71	23.04	24.13	26.01	27.06	27.65	28.13	27.84
3	---	19.71	20.67	20.80	21.76	23.07	24.24	26.07	27.12	27.53	28.21	27.86
4	---	19.71	20.68	20.87	21.79	23.16	24.07	26.21	27.18	27.11	28.28	27.86
5	---	19.72	20.70	20.94	21.83	23.23	23.71	26.23	27.27	27.07	28.31	27.86
6	---	19.77	20.72	21.00	21.85	23.28	23.68	26.29	27.34	27.07	28.38	27.76
7	---	19.82	20.73	21.11	21.93	23.34	23.69	26.36	27.36	27.11	28.47	27.60
8	---	19.87	20.75	21.18	21.93	23.14	23.74	26.46	27.43	27.25	28.54	27.60
9	---	19.91	20.81	21.23	22.00	23.15	23.84	26.12	27.45	27.35	28.59	27.60
10	---	19.98	20.86	21.30	22.05	23.15	23.96	25.46	27.35	27.37	28.68	27.51
11	---	20.03	20.89	21.32	22.05	23.20	24.09	25.31	27.23	27.32	28.76	27.40
12	---	20.05	20.94	21.38	22.11	23.25	24.21	25.31	27.15	27.32	28.84	27.39
13	---	20.07	20.97	21.42	22.15	23.30	24.31	25.31	27.14	27.33	28.93	27.39
14	---	20.06	21.01	21.48	22.16	23.36	24.44	25.32	27.14	27.33	28.99	26.32
15	---	20.07	21.04	21.53	22.20	23.43	24.57	25.38	27.14	27.33	29.09	25.91
16	---	20.07	21.07	21.56	22.23	23.47	24.69	25.49	27.14	27.33	29.15	25.67
17	---	20.08	21.15	21.63	22.26	23.49	24.80	25.63	27.15	27.25	29.20	25.52
18	---	20.10	21.19	21.66	22.28	23.58	24.91	25.77	27.17	27.15	29.28	---
19	---	20.13	21.24	21.72	22.28	23.64	25.04	25.93	27.22	26.62	29.34	---
20	---	20.17	21.27	21.33	22.30	23.66	25.14	26.02	27.27	26.43	29.41	---
21	---	20.21	21.29	21.33	22.40	23.70	25.25	26.15	27.28	26.45	29.47	---
22	---	20.25	21.32	21.34	22.46	23.75	25.31	26.32	27.20	26.61	29.54	---
23	---	20.29	21.37	21.38	22.54	23.80	25.40	26.38	27.15	26.75	28.74	---
24	19.88	20.34	21.44	21.41	22.63	23.85	25.47	26.49	27.15	26.96	27.85	---
25	19.88	20.41	21.49	21.44	22.70	23.85	25.56	26.64	27.15	27.16	27.65	---
26	19.88	20.44	21.50	21.48	22.75	23.72	25.61	26.69	27.16	27.35	27.58	---
27	19.88	20.50	21.54	21.52	22.85	23.70	25.68	26.73	27.25	27.45	27.58	---
28	19.81	20.53	21.59	21.58	22.92	23.71	25.79	26.81	27.33	27.62	27.63	---
29	19.80	20.56	20.73	21.59	---	23.76	25.84	26.86	27.41	27.75	27.72	---
30	19.80	20.59	20.67	21.64	---	23.81	25.88	26.92	27.49	27.84	27.84	---
31	19.73	---	20.68	21.65	---	23.90	---	26.98	---	27.95	27.84	---
MEAN	19.83	20.09	21.02	21.33	22.21	23.47	24.70	26.12	27.23	27.24	28.52	27.23

WTR YR 1999 MEAN 24.26 HIGHEST 19.70 NOV. 1, 1998 LOWEST 29.55 AUG. 22, 1999

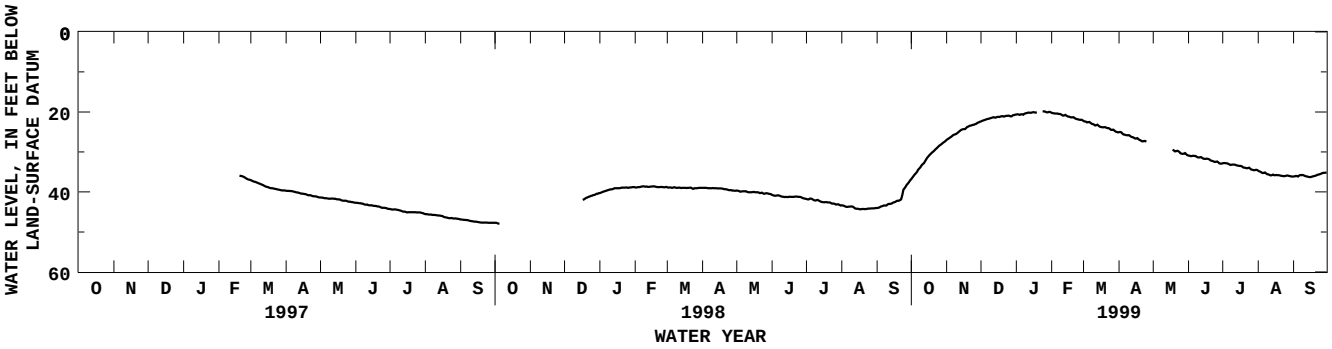


175910066155500. Local number, 1254.
LOCATION.--Lat 17°59'10", long 66°15'55", Hydrologic Unit 21010004, 0.55 mi south of Hwy 52, 0.92 mi north of the Salinas Speedway, and 2.27 mi northeast of the intersection if Hwy 1 with Hwy 3. Owner: US Geologial Survey, WRD, Name: USGS piezometer D.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), 0-86.0 ft (0-26.2 m). Depth 86.0 ft (26.2 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 73.0 ft (22.3 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. Automated Digital Recorder (ADR), installed on Feb. 19, 1997. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on August 17, 1999. Formerly published as local number SA-D.
PERIOD OF RECORD.--February 19, 1997 to curremt year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.7 ft (6.00 m), below land-surface datum, Jan. 24, 25, 1999; lowest water level recorded, 47.98 ft (14.6 m) below land-surface datum, Oct. 7, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36.90	27.11	22.40	20.67	20.20	22.17	25.16	---	30.84	32.86	34.53	36.16
2	36.61	26.87	22.29	20.63	20.23	22.35	24.98	---	30.94	32.80	34.87	36.10
3	36.19	26.74	22.19	20.58	20.35	22.34	25.05	---	30.99	32.78	34.85	36.05
4	35.82	26.48	22.09	20.71	20.39	22.54	25.12	---	31.10	32.80	35.00	35.98
5	35.43	26.36	21.97	20.73	20.45	22.67	25.66	---	30.93	32.88	35.26	36.13
6	35.21	26.09	21.86	20.48	20.39	22.45	25.59	---	31.00	32.88	35.34	36.15
7	34.64	25.85	21.78	20.72	20.42	22.53	25.77	---	31.01	33.10	35.14	35.67
8	34.23	25.62	21.71	20.64	20.60	22.91	25.82	---	31.01	33.27	35.12	35.87
9	34.05	25.65	21.65	20.36	20.44	22.99	25.85	---	31.36	33.21	35.63	35.72
10	33.49	25.41	21.52	20.31	20.72	23.10	25.81	---	31.31	33.15	35.52	35.77
11	33.09	25.23	21.49	20.27	20.82	23.21	25.88	---	31.44	33.16	35.75	35.97
12	33.00	25.01	21.36	20.17	21.07	23.50	26.21	---	31.27	33.20	35.74	36.03
13	32.54	24.73	21.30	20.16	20.72	23.14	26.26	---	31.32	33.27	35.95	36.13
14	32.03	24.53	21.49	20.26	20.76	23.19	26.35	---	31.63	33.45	35.67	36.20
15	31.64	24.38	21.36	20.14	21.10	23.64	26.59	---	31.72	33.39	35.67	36.30
16	31.25	24.30	21.20	20.10	21.13	23.72	26.71	---	31.78	33.52	35.92	36.32
17	30.95	24.28	21.22	20.03	21.23	23.80	26.53	---	31.67	33.48	35.73	36.27
18	30.62	24.27	21.26	20.23	21.30	23.81	26.58	29.42	31.68	33.50	35.76	36.07
19	30.37	23.79	21.09	20.12	21.44	23.91	26.98	29.41	31.73	33.81	35.88	36.09
20	30.03	23.74	21.04	20.06	21.32	23.75	27.11	29.82	31.87	33.93	35.77	36.00
21	29.91	23.56	21.14	---	21.35	23.82	27.15	29.91	32.23	33.96	35.94	35.88
22	29.48	23.36	21.20	---	21.64	24.04	27.43	29.72	32.21	34.04	35.93	35.79
23	29.25	23.49	20.97	---	21.76	24.06	27.31	29.71	32.35	34.11	36.03	35.68
24	28.99	23.16	20.97	19.71	21.82	24.07	27.26	29.87	32.46	33.94	36.05	35.60
25	28.70	23.35	20.95	19.96	21.84	24.41	27.31	30.27	32.51	33.97	36.04	35.53
26	28.45	23.01	20.95	19.77	22.02	24.57	27.57	30.37	32.35	34.38	35.94	35.46
27	28.22	23.07	20.96	19.96	21.95	24.38	---	30.45	32.43	34.47	35.88	35.24
28	28.01	22.78	21.25	20.08	21.95	24.45	---	30.54	32.71	34.45	35.95	35.24
29	27.78	22.66	20.90	20.14	---	24.89	---	30.28	32.91	34.67	36.03	35.23
30	27.55	22.54	20.81	19.95	---	24.95	---	30.33	32.97	34.48	36.11	35.17
31	27.32	---	20.73	19.95	---	25.08	---	30.81	---	34.45	36.13	---
MEAN	31.67	24.58	21.39	20.25	21.05	23.56	26.31	30.07	31.72	33.59	35.65	35.86

WTR YR 1999 MEAN 28.00 HIGHEST 19.70 JAN. 24, 25, 1999 LOWEST 37.17 OCT. 1, 1998

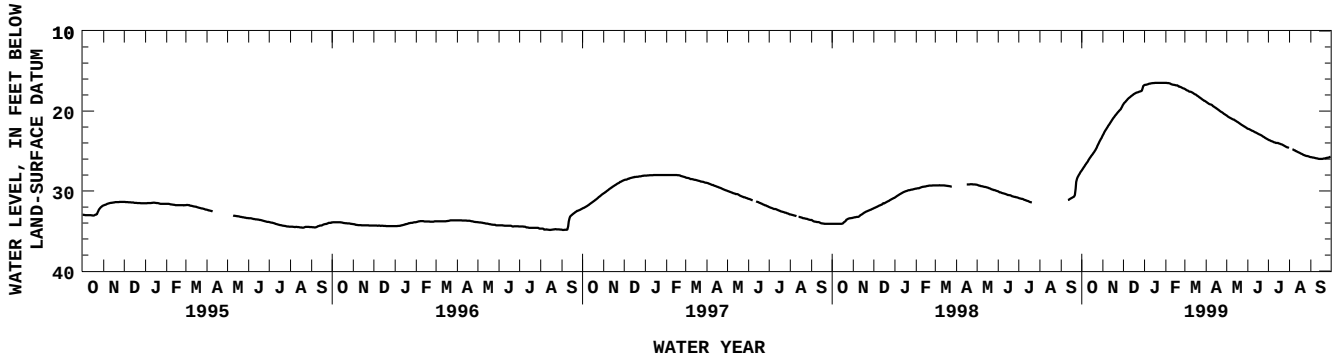


175903066165000. Local number, 1256.
LOCATION.--Lat 17°59'03", long. 66°16'50", Hydrologic Unit 21010004, 0.42 mi north of Hwy 3, 0.60 mi southeast of the intersection of Hwy 1 with Hwy 52, and 1.56 mi northeast of Punta Salinas. Owner: C. Godreau, Name: Pozo Godreau No. 7.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-120 ft (0-36.6 m), perforated 30-120 ft (9.1-36.6 m). Depth 120 ft (36.6 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 54.0 ft (16.5 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 20 in (0.50 m) casing, 3.63 ft (1.11 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on June 3, 1998. Formerly published as local number PG-07.
PERIOD OF RECORD.--September 25, 1991 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 16.46 ft (5.02 m), below land-surface datum, Jan. 27, 28 1999; lowest water level recorded, 34.87 ft (10.6 m), below land-surface datum, Sept. 3, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.48	23.11	19.21	16.77	16.48	17.24	18.83	20.54	22.19	23.57	24.63	25.76
2	27.38	22.92	19.07	16.74	16.48	17.27	18.88	20.60	22.23	23.61	---	25.76
3	27.24	22.76	19.00	16.72	16.49	17.34	18.93	20.67	22.23	23.63	---	25.77
4	27.08	22.59	18.88	16.70	16.50	17.38	19.00	20.72	22.28	23.67	---	25.79
5	26.98	22.44	18.78	16.68	16.50	17.43	19.05	20.76	22.34	23.73	24.78	25.82
6	26.85	22.31	18.68	16.66	16.52	17.47	19.13	20.82	22.38	23.75	24.77	25.82
7	26.70	22.18	18.61	16.62	16.55	17.53	19.17	20.87	22.44	23.79	24.84	25.85
8	26.60	22.04	18.50	16.59	16.57	17.57	19.18	20.93	22.47	23.82	24.89	25.87
9	26.47	21.89	18.42	16.58	16.63	17.58	19.19	20.97	22.51	23.87	24.92	25.89
10	26.34	21.77	18.34	16.56	16.65	17.59	19.22	21.03	22.56	23.90	24.96	25.91
11	26.22	21.63	18.28	16.54	16.67	17.64	19.35	21.07	22.60	23.93	25.02	25.92
12	26.05	21.52	18.21	16.53	16.71	17.67	19.40	21.08	22.63	23.97	25.04	25.94
13	25.93	21.38	18.13	16.51	16.72	17.72	19.47	21.12	22.69	24.00	25.10	26.00
14	25.81	21.24	18.07	16.50	16.74	17.79	19.52	21.18	22.72	24.00	25.15	25.99
15	25.67	21.12	18.01	16.50	16.75	17.84	19.58	21.22	22.78	23.99	25.18	25.99
16	25.56	20.97	17.93	16.49	16.77	17.89	19.64	21.30	22.81	24.01	25.22	25.99
17	25.43	20.86	17.87	16.49	16.80	17.93	19.69	21.35	22.87	24.05	25.25	25.98
18	25.32	20.73	17.82	16.47	16.80	17.96	19.76	21.40	22.91	24.08	25.32	25.98
19	25.19	20.63	17.78	16.47	16.80	18.05	19.82	21.47	22.94	24.11	25.36	25.97
20	25.09	20.49	17.73	16.47	16.92	18.11	19.87	21.52	23.00	24.14	25.38	25.95
21	24.95	20.43	17.69	16.47	16.93	18.18	19.93	21.58	23.03	24.17	25.45	25.93
22	24.82	20.29	17.66	16.47	16.96	18.25	20.02	21.63	23.08	24.22	25.49	25.92
23	24.67	20.22	17.63	16.47	17.02	18.30	20.07	21.70	23.14	24.26	25.52	25.89
24	24.47	20.07	17.61	16.47	17.02	18.37	20.13	21.76	23.20	24.32	25.55	25.89
25	24.27	20.02	17.58	16.47	17.07	18.43	20.18	21.80	23.23	24.36	25.59	25.86
26	24.08	19.90	17.55	16.47	17.13	18.49	20.22	21.87	23.32	24.40	25.60	25.84
27	23.90	19.82	17.54	16.47	17.16	18.57	20.31	21.92	23.37	24.45	25.64	25.83
28	23.73	19.71	17.50	16.48	17.18	18.61	20.37	21.96	23.41	24.49	25.63	25.81
29	23.58	19.54	17.36	16.48	---	18.68	20.43	22.03	23.47	24.54	25.65	25.77
30	23.44	19.37	16.95	16.48	---	18.72	20.49	22.08	23.51	24.56	25.69	25.74
31	23.29	---	16.81	16.48	---	18.76	---	22.13	---	24.59	25.74	---
MEAN	25.50	21.13	18.04	16.54	16.77	17.95	19.63	21.33	22.81	24.06	25.26	25.88

WTR YR 1999 MEAN 21.23 HIGHEST 16.46 JAN. 27, 28, 1999 LOWEST 27.55 OCT. 1, 1998

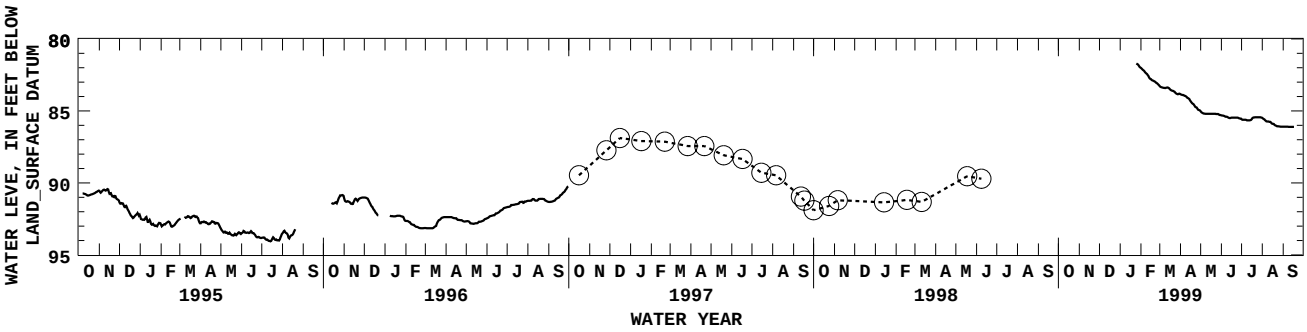


175943066224800. Local number 1257.
LOCATION.--Lat 17°59'43", long 66°22'48", Hydrologic Unit 2101004, 0.74 mi east of Hwy 153, 1.45 mi northeast of Estación Santa Isabel, and 1.98 mi north of Hwy 1. Owner: Luce and Company, Name: Paso Seco No. 7.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well. Depth 235 ft (71.6 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 89.0 ft (27.1 m) above mean sea level, from topographic map. Measuring point: Side of the casing, 0.80 ft (0.24 m) above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 17, 1997. Water levels affected by nearby pumping wells. Formerly published as local number PS-07.
PERIOD OF RECORD.--March 27, 1992 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 81.11 ft (24.72 m) below land-surface datum, Dec. 3, 4, 6, 7, 1992; lowest water level recorded, 101.28 ft (30.87 m) below land-surface datum, Sept. 13, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	82.00	83.25	83.82	85.00	85.30	85.54	85.46	86.09
2	---	---	---	---	82.04	83.31	83.85	85.06	85.32	85.61	85.51	86.09
3	---	---	---	---	82.08	83.34	83.88	85.12	85.32	85.61	85.55	86.09
4	---	---	---	---	82.14	83.36	83.89	85.13	85.32	85.61	85.56	86.09
5	---	---	---	---	82.17	83.37	83.90	85.17	85.34	85.61	85.62	86.09
6	---	---	---	---	82.20	83.38	83.90	85.17	85.36	85.61	85.66	86.09
7	---	---	---	---	82.29	83.40	83.94	85.19	85.40	85.61	85.70	86.09
8	---	---	---	---	82.33	83.40	83.95	85.19	85.40	85.61	85.73	86.09
9	---	---	---	---	82.38	83.41	83.97	85.20	85.40	85.65	85.73	86.09
10	---	---	---	---	82.41	83.41	84.00	85.20	85.41	85.66	85.73	86.11
11	---	---	---	---	82.46	83.40	84.05	85.20	85.45	85.66	85.74	86.11
12	---	---	---	---	82.55	83.38	84.10	85.20	85.46	85.65	85.75	86.11
13	---	---	---	---	82.60	83.37	84.11	85.20	85.50	85.65	85.76	86.11
14	---	---	---	---	82.72	83.39	84.15	85.20	85.49	85.65	85.77	86.11
15	---	---	---	---	82.77	83.41	84.21	85.20	85.50	85.63	85.85	86.11
16	---	---	---	---	82.79	83.44	84.31	85.20	85.46	85.62	85.89	86.11
17	---	---	---	---	82.82	83.51	84.36	85.20	85.46	85.53	85.89	86.11
18	---	---	---	---	82.88	83.55	84.42	85.20	85.46	85.48	85.89	86.10
19	---	---	---	---	82.88	83.57	84.48	85.20	85.46	85.46	85.93	---
20	---	---	---	---	82.90	83.59	84.51	85.20	85.46	85.45	86.00	---
21	---	---	---	---	82.93	83.61	84.54	85.20	85.48	85.45	86.01	---
22	---	---	---	---	82.96	83.62	84.61	85.20	85.46	85.44	86.02	---
23	---	---	---	---	82.98	83.65	84.70	85.20	85.47	85.44	86.06	---
24	---	---	---	---	83.04	83.69	84.73	85.21	85.47	85.44	86.06	---
25	---	---	---	81.71	83.06	83.76	84.75	85.21	85.47	85.44	86.06	---
26	---	---	---	81.71	83.10	83.79	84.78	85.21	85.47	85.44	86.08	---
27	---	---	---	81.75	83.15	83.82	84.89	85.21	85.50	85.44	86.08	---
28	---	---	---	81.78	83.19	83.84	84.93	85.21	85.50	85.44	86.09	---
29	---	---	---	81.82	---	83.85	84.94	85.27	85.53	85.44	86.09	---
30	---	---	---	81.93	---	83.80	84.95	85.28	85.53	85.44	86.09	---
31	---	---	---	81.96	---	83.81	---	85.28	---	85.46	86.09	---
MEAN	---	---	---	81.81	82.64	83.53	84.32	85.19	85.44	85.54	85.85	86.10

WTR YR 1999 MEAN 84.69 HIGHEST 81.70 JAN. 25, 26, 1999 LOWEST 86.11 SEPT. 9-18, 1999



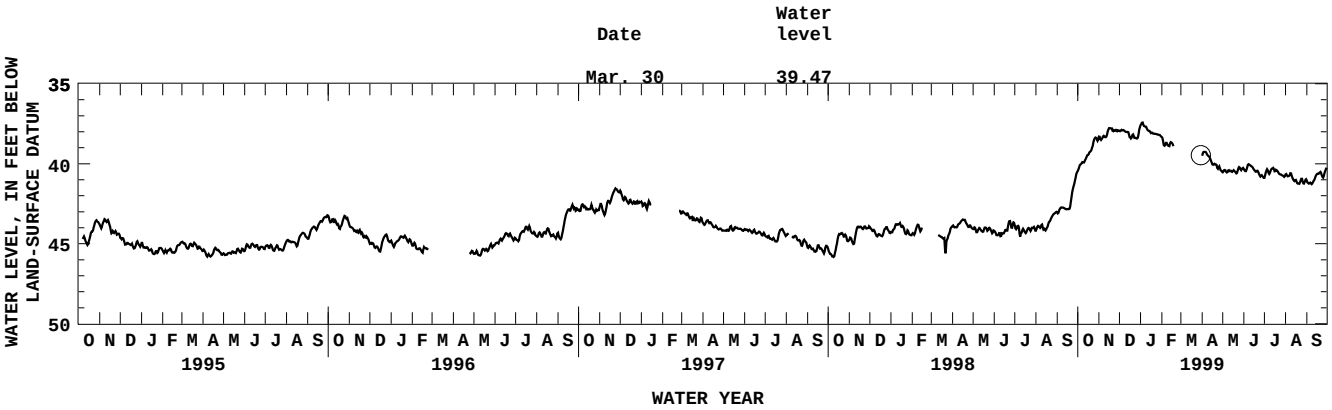
175829066232200. Local number, 87.
LOCATION.--Lat 17°58'29", long 66°23'22", Hydrologic Unit 21010004, 1.10 mi northeast of Santa Isabel plaza, 3.69 mi southeast of Escuela Playita Cortada, and 1.07 mi southeast of Estación Experimental Santa Isabel. Owner: Francisco Alomar, Name: Alomar 1.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), iron cased. Depth 112 ft (34.14 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 35.3 ft (10.8 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. Automated Digital recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on December 16, 1997.
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 FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40.47	38.35	37.95	37.64	38.32	---	39.56	40.53	40.23	40.92	40.73	40.96
2	40.43	38.26	37.96	37.54	38.35	---	39.45	40.53	40.43	40.85	40.60	41.13
3	40.29	38.37	37.97	37.48	38.43	---	39.25	40.41	40.42	40.64	40.67	41.21
4	40.15	38.55	37.87	37.39	38.84	---	39.26	40.39	40.49	40.48	40.77	41.21
5	40.04	38.48	37.89	37.46	38.84	---	39.25	40.38	40.43	40.34	40.80	41.27
6	40.04	38.46	37.93	37.63	38.92	---	39.26	40.44	40.29	40.34	40.74	41.16
7	40.00	38.33	37.88	37.66	38.74	---	39.26	40.54	40.11	40.52	40.77	41.19
8	39.90	38.28	37.91	37.68	38.65	---	39.36	40.55	40.01	40.60	40.62	41.27
9	39.90	38.23	37.94	37.68	38.75	---	39.47	40.48	40.05	40.67	40.57	41.28
10	39.92	38.33	38.00	37.69	38.85	---	39.47	40.38	40.09	40.52	40.65	41.21
11	39.92	38.34	38.01	37.88	38.86	---	39.56	40.42	40.09	40.37	40.85	41.10
12	39.81	38.34	38.01	37.88	38.92	---	39.50	40.50	40.15	40.30	40.90	41.05
13	39.70	38.25	38.01	37.94	38.87	---	39.71	40.40	40.18	40.30	41.01	40.98
14	39.65	38.05	38.02	37.94	38.63	---	39.72	40.47	40.19	40.26	41.09	40.84
15	39.50	37.91	38.02	37.96	38.67	---	39.90	40.52	40.28	40.26	41.07	40.71
16	39.45	37.77	38.33	38.07	38.68	---	39.98	40.49	40.36	40.44	41.01	40.67
17	39.45	37.77	38.35	38.09	38.73	---	40.09	40.40	40.40	40.51	41.01	40.61
18	39.35	37.78	38.38	38.03	38.86	---	40.03	40.40	40.46	40.41	41.19	40.62
19	39.24	37.79	38.45	38.10	38.94	---	40.06	40.49	40.54	40.33	41.24	40.63
20	39.26	37.79	38.28	38.11	---	---	39.96	40.51	40.45	40.46	41.23	40.59
21	39.20	37.81	38.15	38.12	---	---	40.12	40.55	40.44	40.46	41.24	40.51
22	39.08	38.06	38.19	38.13	---	---	39.97	40.65	40.43	40.55	41.26	40.50
23	38.94	37.88	38.36	38.13	---	---	40.19	40.52	40.58	40.63	41.09	40.70
24	38.80	37.93	38.41	38.14	---	---	40.33	40.32	40.66	40.65	40.99	40.76
25	38.55	37.94	38.35	38.14	---	---	40.29	40.21	40.77	40.67	40.89	40.90
26	38.43	37.94	38.41	38.18	---	---	40.18	40.21	40.81	40.67	40.99	40.84
27	38.36	37.83	38.42	38.18	---	---	40.15	40.27	40.69	40.72	41.20	40.65
28	38.35	37.95	38.42	38.19	---	---	40.38	40.41	40.73	40.73	41.26	40.51
29	38.41	37.98	38.29	38.20	---	---	40.42	40.38	40.82	40.74	41.23	40.39
30	38.50	37.88	37.97	38.22	---	---	40.47	40.28	40.83	40.83	41.03	40.28
31	38.64	---	37.77	38.28	---	---	---	40.27	---	40.81	40.96	---
MEAN	39.41	38.09	38.13	37.93	38.73	---	39.82	40.43	40.41	40.55	40.96	40.86

WTR YR 1999 MEAN 39.60 HIGHEST 37.39 JAN. 4, 1999 LOWEST 41.31 AUG. 28, 29, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

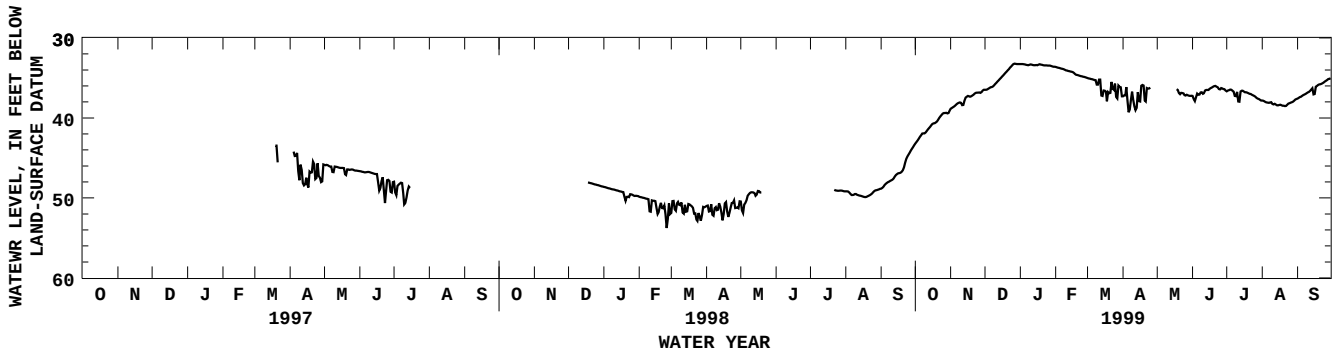


180020066261500. Local number, 1258.
LOCATION.--Lat 18°00'20", long 66°26'15", Hydrologic Unit 21010004, 1.04 mi north of the intersection of Hwy 536 with Hwy 1, 0.60 mi northwest of Central Cortada, and 0.10 mi west of Hwy 536. Owner: PR Land Authority, Name: Cabrera 1.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 18 in (0.46 m). Depth 80.0 ft (24.4 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 65.6 ft (20.0 m), above mean sea level, from topographic map. Measuring point: Shelter floor on the top of 4 in (0.10 m) casing, 3.12 ft (0.95 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on Mar. 1, 1997. Well level affected by nearby pumping well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on July 22, 1998. Formerly published as local number CA-1.
PERIOD OF RECORD.--March 18, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 33.19 ft (10.1 m), below land-surface datum, Dec. 27, 1998; lowest water level recorded, 55.0 ft (16.8 m), below land-surface datum, Apr. 14, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43.29	38.92	36.47	33.27	33.60	34.99	38.64	---	37.23	36.74	37.84	37.60
2	43.10	38.78	36.47	33.25	33.66	35.03	35.97	---	37.27	36.60	37.81	37.55
3	42.93	38.75	36.49	33.27	33.70	35.08	38.39	---	38.01	36.56	37.87	37.41
4	42.71	38.60	36.37	33.26	33.73	35.12	35.95	---	37.80	36.48	37.98	37.38
5	42.47	38.52	36.30	33.30	33.77	35.15	36.32	---	37.03	36.45	38.06	37.29
6	42.26	38.37	36.22	33.34	33.81	35.19	39.32	---	36.87	36.51	38.08	37.19
7	42.06	38.25	36.12	33.37	33.85	35.23	39.26	---	37.32	36.70	38.11	37.11
8	41.86	38.13	36.15	33.41	33.88	35.26	38.64	---	36.82	36.74	38.10	37.05
9	41.98	38.10	36.01	33.39	33.92	35.30	36.84	---	36.83	37.78	38.04	36.98
10	41.90	38.04	35.85	33.33	34.03	36.35	36.61	---	36.76	36.76	38.06	36.85
11	41.72	38.20	35.69	33.29	34.06	35.33	38.90	---	37.20	36.72	38.43	36.79
12	41.50	38.58	35.53	33.36	34.10	35.09	38.21	---	36.61	39.16	38.19	36.72
13	41.33	38.15	35.38	33.40	34.14	35.32	39.85	---	36.55	36.78	38.27	36.55
14	41.17	37.56	35.22	33.41	34.18	39.09	37.60	---	36.48	36.63	38.39	36.34
15	41.03	37.38	35.06	33.40	34.21	35.39	35.94	---	36.53	36.56	38.45	36.24
16	40.82	37.29	34.90	33.39	34.25	37.76	39.86	---	36.49	36.62	38.41	37.87
17	40.68	37.22	34.75	33.41	34.29	35.45	36.02	---	36.25	36.79	38.35	36.15
18	40.70	37.35	34.59	33.27	34.46	37.97	35.91	36.39	36.28	36.77	38.34	36.06
19	40.61	37.34	34.43	33.31	34.58	37.86	35.87	36.44	36.12	36.80	38.52	35.92
20	40.53	37.23	34.27	33.35	34.62	35.68	36.04	36.56	36.05	36.88	38.44	35.82
21	40.33	37.15	34.12	33.38	34.66	38.14	39.61	37.21	35.99	36.95	38.51	35.79
22	40.11	37.04	33.96	33.43	34.69	35.57	36.28	36.86	36.00	37.00	38.54	35.77
23	39.88	36.90	33.80	33.42	34.75	35.44	36.26	36.86	36.21	37.04	38.43	35.72
24	39.71	36.84	33.64	33.45	34.79	37.22	36.39	36.91	36.14	37.16	38.27	35.63
25	39.53	36.83	33.49	33.43	34.83	35.73	36.24	36.97	36.61	37.21	38.17	35.51
26	39.40	36.84	33.33	33.47	34.86	35.67	36.17	37.33	36.25	37.28	38.13	35.40
27	39.36	36.81	33.19	33.45	34.90	39.07	---	37.08	36.30	37.41	38.05	35.32
28	39.40	36.90	33.23	33.48	34.96	36.04	---	37.14	36.33	37.56	38.01	35.18
29	39.32	36.64	33.27	33.52	---	35.85	---	37.20	36.42	37.60	37.92	35.07
30	39.53	36.49	33.27	33.57	---	36.38	---	37.25	36.42	37.66	37.76	35.15
31	39.23	---	33.28	33.61	---	35.96	---	37.24	---	37.81	37.67	---
MEAN	40.98	37.64	34.87	33.39	34.26	36.09	37.35	36.96	36.64	37.02	38.17	36.38

WTR YR 1999 MEAN 36.64 HIGHEST 33.19 DEC. 27, 1998 LOWEST 43.41 OCT. 1, 1998



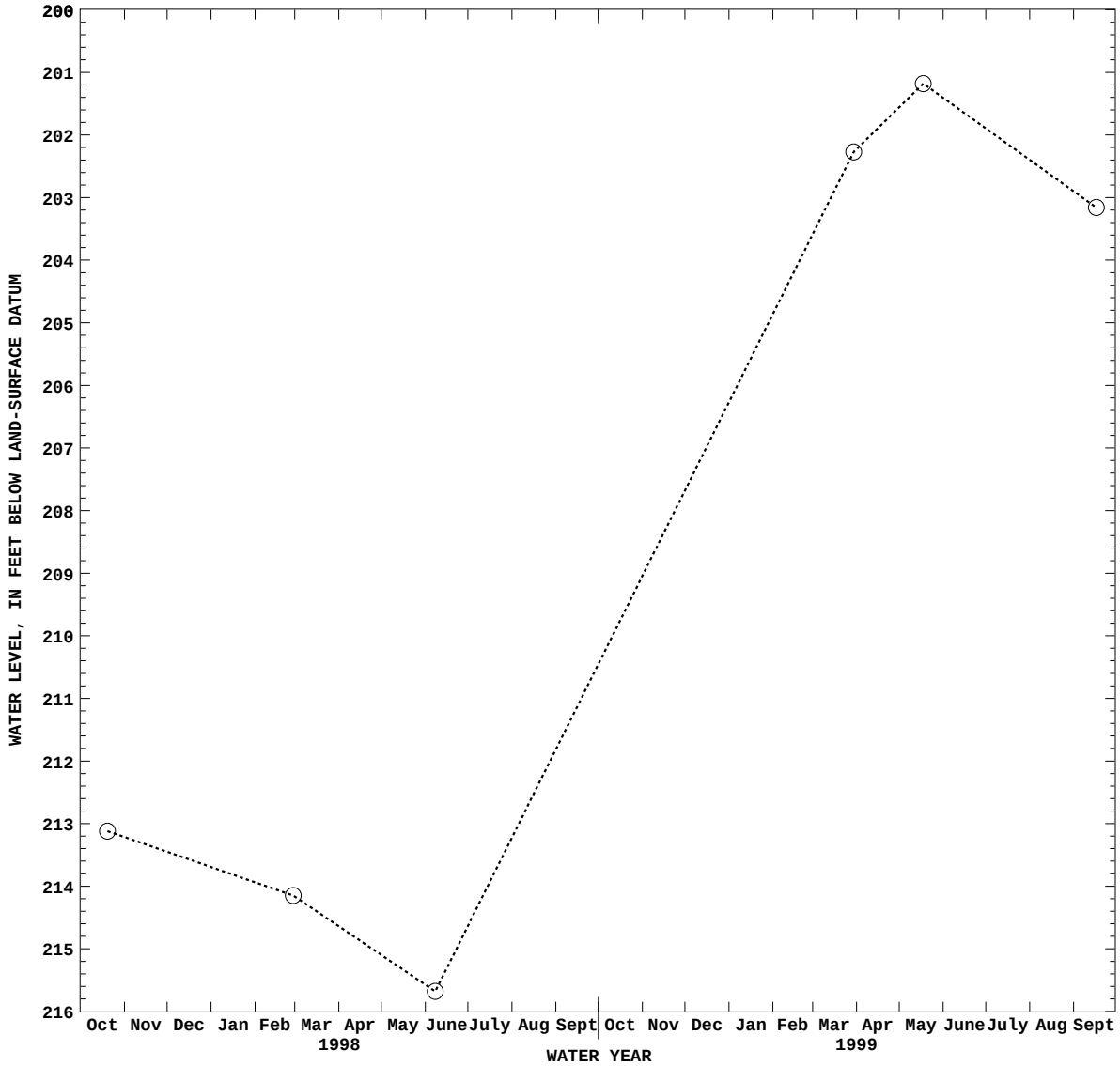
180602066133100. Local number, 1260.
LOCATION.--Lat 18°06'02", long 66°13'31", Hydrologic Unit 21010004, 130 ft (39.62 m) north of Hwy 1 km. 68.9, 0.10 mi east of Hwy 162, and 4.0 west southwest of Cayey plaza. Onwer: PR Aqueduct and Sewer Authority, Name: Bauza 1.
AQUIFER.--Fractured rock Limestone.
WELL CHARACTERISTICS.--Unused production well, diameter 10 in (0.25 m), open screen 220-320 ft (67.1-97.5 m). Depth 320 ft (97.5 m).
DATUM.--Elevation of land-surface datum is about 2178 ft (664 m), above mean sea level, from topographic map. Measuring point: Top of access hole, 0.49 ft (0.15 m), above land-surface datum.
REMARKS.--Observation well.
PERIOD OF RECORD.--October 20, 1997 to September 30, 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 201.2 ft (61.32 m), below land-surface datum, May 18, 1999; lowest water level measured, 215.7 ft (65.74 m), below land-surface datum, June 8, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level
Oct. 20	213.12	Feb. 24	214.15	June 8	215.68

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level
Mar. 30	202.27	May 18	201.18	Sept. 17	203.16

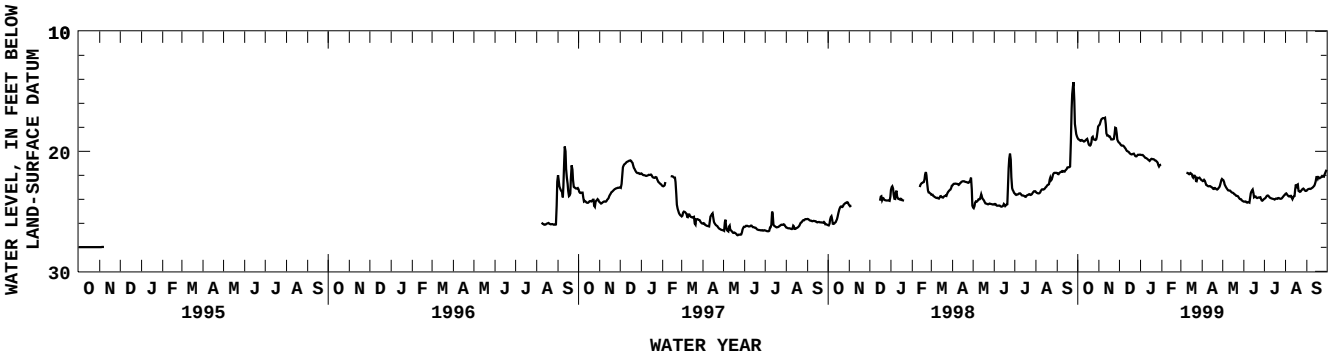


175950066354200. Local number, 141.
LOCATION.--Lat 17°59'50", long 66°35'42", Hydrologic Unit 21010004, 1.71 mi southeast of Plaza Degetau at Ponce, 1.31 mi southeast of the intersection between Hwy 10 and Hwy 2, and 2.60 mi notheast of Muellle de Ponce. Owner: PR Aqueduct and Sewer Authority, Name: Restaurada 8A.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Drilled unused public supply well, diameter 16-10 in (0.41-0.25 m), cased 16 in (0.41 m) 2.00-20.0 ft (0.6-6.1 m), perforated 20-130 ft (6.10-39.6 m), 10 in (0.25 m) 128-165 ft (39.0-50.3 m), perforated. Depth 165 ft (50.3 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 24.0 ft (7.30 m), above mean sea level, from topographic map. Measuring point: Bottom edge of hole on side of casing 1.90 ft (0.58 m), above land-surface datum, 26.2 ft (7.67 m), above mean sea level.
REMARKS.--Recording observation well. Discontinued on Nov. 8, 1994 due to apparent collapsed casing, repair on August 7, 1996. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 12, 1998.
PERIOD OF RECORD.--October 1981 to March 1, 1986, discontinued, November 18, 1991 to November 8, 1994, discontinued, August 7, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.2 ft (3.41 m), below land-surface datum, Oct. 9, 1985; lowest water level recorded, 28.6 ft (8.71 m), below land-surface datum, July 9, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.84	17.85	19.27	20.26	21.10	---	22.42	22.36	24.17	23.98	23.59	23.27
2	18.99	17.82	19.32	20.31	---	---	22.43	22.39	24.23	23.93	23.49	23.27
3	19.00	17.73	19.40	20.31	---	---	22.52	22.41	24.17	23.90	23.52	23.14
4	19.04	17.50	19.50	20.29	---	---	22.41	22.70	24.17	23.80	23.62	23.15
5	19.11	17.33	19.53	20.33	---	---	22.37	22.83	24.23	23.70	23.70	23.13
6	19.13	17.28	19.51	20.38	---	---	22.55	22.97	24.28	23.68	23.77	23.11
7	19.04	17.25	19.53	20.46	---	---	22.77	23.02	24.26	23.69	23.76	23.15
8	19.08	17.22	19.56	20.53	---	---	22.82	23.15	24.21	23.73	23.76	23.09
9	19.12	17.26	19.66	20.56	---	21.79	22.83	23.23	24.27	23.85	23.66	23.05
10	19.16	17.22	19.73	20.57	---	21.77	22.92	23.26	24.26	23.87	23.75	23.02
11	19.20	17.18	19.81	20.61	---	21.81	22.91	23.28	23.61	23.90	23.97	22.96
12	19.13	18.34	19.94	20.67	---	21.82	22.90	23.24	23.41	23.93	24.00	22.91
13	19.07	18.65	20.01	20.70	---	21.92	22.89	23.32	23.32	23.94	23.75	22.81
14	19.03	18.70	20.00	20.77	---	21.90	22.93	23.36	23.17	23.98	23.78	22.65
15	18.97	18.62	20.06	20.82	---	21.77	22.98	23.45	23.19	23.97	23.67	22.37
16	18.96	18.80	20.11	20.69	---	21.86	23.01	23.44	23.80	24.01	22.80	21.91
17	19.37	18.74	20.20	20.63	---	21.88	23.08	23.47	23.85	24.01	22.75	22.37
18	19.44	18.80	20.21	20.63	---	21.94	23.17	23.53	23.71	23.97	23.37	22.22
19	19.53	18.98	20.26	20.65	---	22.33	23.09	23.60	23.81	23.89	22.21	22.09
20	19.50	19.03	20.25	20.66	---	22.04	23.02	23.61	23.86	23.98	23.28	22.32
21	19.44	19.00	20.22	20.66	---	22.03	23.10	23.69	23.90	23.94	23.30	22.17
22	19.04	19.02	20.20	20.73	---	22.02	23.13	23.74	23.86	23.87	23.38	22.17
23	18.65	18.98	20.20	20.77	---	22.16	23.21	23.69	23.84	23.89	23.36	22.15
24	18.92	18.94	20.36	20.77	---	22.79	23.17	23.78	23.84	23.95	23.32	22.10
25	19.01	18.09	20.40	20.86	---	22.21	23.10	23.85	23.84	23.94	23.22	22.07
26	19.03	17.97	20.42	20.91	---	22.20	23.01	23.93	23.82	23.95	23.17	22.13
27	19.05	18.15	20.40	20.98	---	22.25	22.98	24.01	24.08	23.91	23.10	22.09
28	19.05	18.95	20.30	21.37	---	22.20	22.77	23.95	24.10	23.87	23.10	21.81
29	18.97	19.11	20.29	21.17	---	22.20	22.50	24.04	24.12	23.76	23.20	21.77
30	18.63	19.24	20.30	21.12	---	22.30	22.26	24.11	24.01	23.68	23.28	21.57
31	18.01	---	20.28	21.11	---	22.37	---	24.15	---	23.64	23.31	---
MEAN	19.05	18.26	19.98	20.69	21.10	22.07	22.84	23.41	23.91	23.87	23.42	22.53

WTR YR 1999 MEAN 21.81 HIGHEST 17.18 NOV. 11, 1998 LOWEST 24.28 JUNE 6, 1999

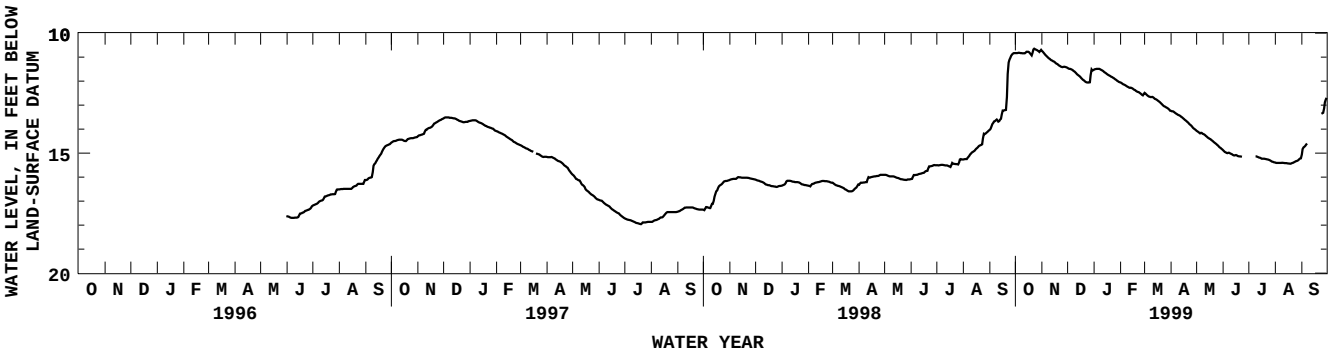


175934066364800. Local number, 1276.
LOCATION.--Lat 17°59'34", long 66°36'48", Hydrologic Unit 21010004, 0.35 mi southeast of the intersection of Hwy 10 with Hwy 2, 0.32 mi south of Hwy 2, 0.10 mi southwest of Plaza del Caribe Mall, and 1.90 mi north of Punta Carenero. Owner: Plaza del Caribe, Name: Constancia 3.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 13 in (0.33 m). Depth 84 ft (25.6 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is 16.0 ft (4.90 m), above mean sea level, from topographic map. Measuring point: Shelter floor on the top of 4 in (0.10 m) casing, 3.12 ft (0.95 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 30, 1996, replaced by an Electronic Data Logger (EDL,) installed during Mar. 19 to April 9, 1997. Automated Digital Recorder (ADR), re-installed on April 9, 1997, replaced by an Electronic Data Logger (EDL), installed on June 4, 1998. Formerly published as local number CO-3.
PERIOD OF RECORD.--May 30, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.63 ft (3.24 m), below land-surface datum, Oct. 23, 1998; lowest water level recorded, 17.96 ft (5.47 m), below land-surface datum, July 19, 20, 21, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.84	10.72	11.44	11.53	12.05	12.49	13.23	14.06	14.86	---	15.39	15.21
2	10.83	10.76	11.45	11.51	12.07	12.49	13.25	14.09	14.90	---	15.40	14.90
3	10.83	10.80	11.49	11.50	12.09	12.53	13.26	14.10	14.94	---	15.41	14.76
4	10.83	10.84	11.48	11.49	12.12	12.57	13.25	14.14	14.96	---	15.41	14.76
5	10.82	10.88	11.50	11.49	12.14	12.60	13.29	14.17	14.98	---	15.41	14.72
6	10.82	10.92	11.51	11.49	12.15	12.63	13.31	14.18	15.00	---	15.41	14.68
7	10.83	10.96	11.53	11.48	12.17	12.65	13.34	14.13	15.00	---	15.41	14.62
8	10.83	10.99	11.56	11.49	12.20	12.65	13.37	14.19	14.97	---	15.41	14.58
9	10.84	11.04	11.59	11.51	12.22	12.67	13.39	14.20	15.00	15.14	15.40	---
10	10.84	11.05	11.61	11.54	12.24	12.65	13.41	14.21	15.02	15.14	15.40	---
11	10.84	11.09	11.65	11.55	12.26	12.66	13.43	14.24	15.03	15.14	15.41	---
12	10.84	11.12	11.70	11.58	12.29	12.69	13.44	14.27	15.05	15.16	15.41	---
13	10.84	11.14	11.73	11.61	12.27	12.72	13.47	14.30	15.08	15.18	15.42	---
14	10.77	11.15	11.75	11.64	12.28	12.75	13.50	14.34	15.09	15.19	15.42	---
15	10.78	11.18	11.78	11.65	12.29	12.76	13.53	14.36	15.10	15.20	15.42	---
16	10.78	11.19	11.81	11.69	12.32	12.78	13.56	14.39	15.07	15.22	15.43	---
17	10.78	11.23	11.85	11.72	12.35	12.81	13.59	14.41	15.09	15.24	15.43	---
18	10.82	11.26	11.89	11.74	12.37	12.84	13.62	14.43	15.11	15.23	15.44	---
19	10.86	11.28	11.93	11.76	12.39	12.86	13.64	14.46	15.13	15.23	15.44	---
20	10.91	11.30	11.95	11.78	12.42	12.90	13.68	14.49	15.13	15.24	15.44	---
21	10.94	11.34	11.98	11.81	12.44	12.93	13.71	14.52	15.14	15.24	15.41	---
22	10.73	11.36	12.02	11.82	12.45	12.97	13.75	14.55	15.14	15.25	15.41	---
23	10.63	11.38	12.04	11.85	12.47	13.00	13.79	14.58	15.15	15.26	15.39	---
24	10.67	11.41	12.05	11.86	12.49	13.04	13.82	14.61	15.16	15.27	15.37	13.37
25	10.68	11.41	12.06	11.89	12.52	13.05	13.85	14.64	---	15.28	15.35	13.35
26	10.69	11.42	12.06	11.92	12.55	13.08	13.89	14.67	---	15.29	15.33	13.33
27	10.72	11.40	12.05	11.94	12.58	13.09	13.93	14.70	---	15.31	15.32	13.31
28	10.74	11.40	12.04	11.97	12.60	13.12	13.97	14.75	---	15.35	15.31	12.97
29	10.77	11.41	11.46	12.00	---	13.14	14.00	14.77	---	15.35	15.26	12.79
30	10.80	11.42	11.56	12.02	---	13.16	14.02	14.80	---	15.37	15.23	12.73
31	10.68	---	11.55	12.04	---	13.23	---	14.84	---	15.38	15.22	---
MEAN	10.79	11.16	11.74	11.71	12.31	12.82	13.58	14.41	15.05	15.25	15.38	14.01

WTR YR 1999 MEAN 13.07 HIGHEST 10.63 OCT. 23, 1998 LOWEST 15.45 AUG. 18, 19, 1999

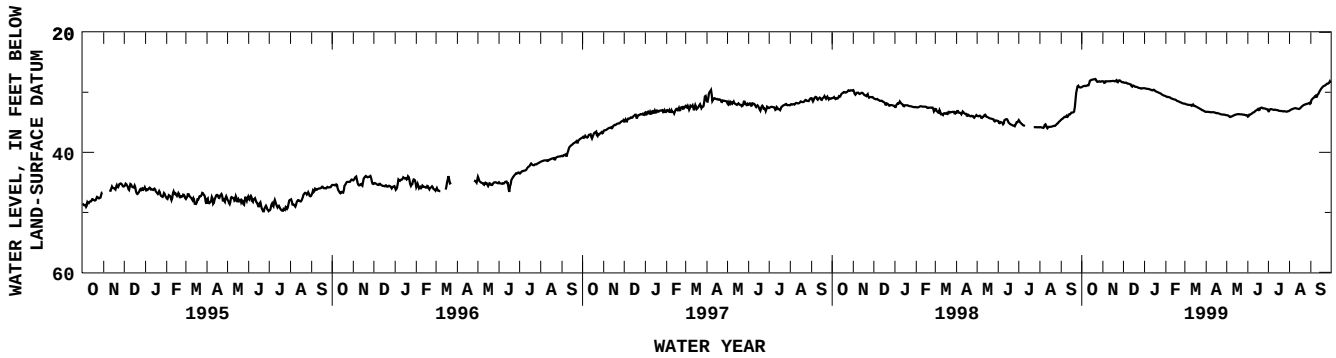


180045066381600. Local number 1277.
LOCATION.--Lat 18°00'45", long 66°38'16", Hydrologic Unit 21010004, 0.27 mi east of the intersection of Hwy 10 with Hwy 132, 0.60 mi northwest of Parque Montaner, and 0.04 mi south of Hwy 132. Owner: Albergue de Niños de Ponce, Name: Albergue de Niños.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well.
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 49.0 ft (14.90 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 5.42 ft (1.65 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 12, 1998. Formerly published as local number AN-1.
PERIOD OF RECORD.--March 30, 1992 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 27.67 ft (8.43 m), below land-surface datum, Oct. 23, 1998; lowest water level recorded, 51.88 ft (15.81 m), below land-surface datum, Aug. 30, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.14	28.13	28.33	29.32	30.64	31.88	33.27	33.80	33.85	32.87	33.10	32.14
2	29.07	28.20	28.32	29.32	30.70	31.91	33.25	33.82	34.23	33.41	33.01	31.41
3	29.02	28.21	28.46	29.36	30.76	31.97	33.27	33.85	33.76	32.88	32.93	31.21
4	28.95	28.61	28.37	29.40	30.79	32.01	33.23	33.89	33.71	32.84	32.85	31.08
5	28.95	28.19	28.39	29.41	30.73	32.05	33.25	33.92	33.73	32.78	32.80	30.97
6	28.92	28.15	28.41	29.43	30.81	32.06	33.28	34.16	33.62	32.82	32.77	30.87
7	28.96	28.17	28.56	29.44	30.80	32.08	33.30	34.07	33.56	32.85	32.72	30.77
8	28.93	28.16	28.52	29.45	30.90	32.08	33.33	34.05	33.50	32.85	32.69	30.57
9	28.89	28.18	28.55	29.51	30.99	32.13	33.31	34.03	33.34	32.93	32.66	30.52
10	28.84	28.12	28.59	29.54	31.05	32.10	33.31	33.95	33.37	32.91	32.65	31.01
11	28.85	28.19	28.64	29.57	31.06	32.11	33.30	33.90	33.26	32.89	32.65	30.41
12	28.80	28.16	28.68	29.62	31.14	32.41	33.32	33.84	33.15	32.92	32.69	30.34
13	28.17	28.12	28.72	29.69	31.14	31.98	33.32	33.78	33.05	32.96	32.72	30.21
14	28.03	28.13	29.24	29.63	31.17	32.08	33.36	33.75	32.98	32.97	32.74	29.92
15	27.96	28.10	28.86	29.49	31.22	32.32	33.40	33.71	32.91	32.97	32.77	29.69
16	27.91	28.09	28.88	29.69	31.26	32.25	33.47	33.66	32.81	33.01	32.76	29.50
17	27.88	28.10	28.90	29.77	31.34	32.31	33.45	33.64	32.73	33.08	32.62	29.35
18	27.86	28.16	29.01	29.85	31.42	32.37	33.46	33.63	33.20	33.07	32.56	29.21
19	27.85	28.17	29.07	29.89	31.47	32.44	33.48	33.64	32.67	33.10	32.39	29.07
20	27.84	28.14	29.08	29.94	31.50	32.50	33.50	33.65	32.61	33.14	32.30	28.98
21	27.80	27.92	29.07	29.97	31.56	32.56	33.56	33.67	32.57	33.13	32.23	28.93
22	27.75	28.00	29.16	30.04	31.60	32.63	33.61	33.68	32.53	33.13	32.10	28.87
23	28.03	28.56	29.23	30.09	31.67	32.69	33.64	33.67	32.65	33.17	32.07	28.81
24	28.27	28.09	29.26	30.15	31.72	32.76	33.69	33.69	32.67	33.19	32.03	28.68
25	28.23	28.06	29.27	30.22	31.78	32.82	33.70	33.72	32.69	33.13	31.99	28.60
26	28.22	27.96	29.30	30.28	31.84	32.92	33.69	33.72	32.68	33.15	31.95	28.52
27	28.19	28.11	29.34	30.36	31.86	32.97	33.72	33.73	32.72	33.20	31.93	28.54
28	28.14	28.20	29.39	30.42	31.87	33.02	33.71	33.73	32.74	33.23	31.91	28.47
29	28.29	28.28	29.33	30.49	---	33.10	33.73	33.84	32.83	33.20	31.86	28.23
30	28.16	28.33	29.32	30.54	---	33.16	33.76	33.78	32.81	33.14	31.77	28.12
31	28.16	---	29.33	30.57	---	33.21	---	33.82	---	33.13	31.70	---
MEAN	28.39	28.17	28.89	29.82	31.24	32.42	33.46	33.80	33.10	33.03	32.45	29.77

WTR YR 1999 MEAN 31.21 HIGHEST 27.67 OCT. 23, 1998 LOWEST 34.63 MAY 6, 1999

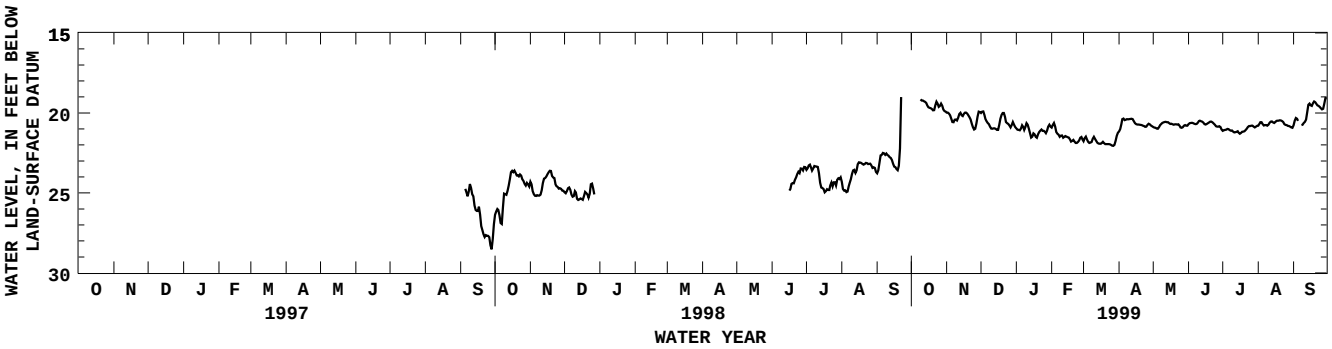


180156066434000. Local number, 1278.
LOCATION.--Lat 18°01'56", long 66°43'40", Hydrologic Unit 21010004, 1.23 mi north of Hwy 2, 0.10 mi west of Hwy 385, and 0.14 mi east of Río Tallaboa. Owner: CORCO, Name: Luciano Ventura.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well. Depth 66.4 ft (20.2 m).
INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 66.0 ft (20.1 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. Automated Digital Recorder (ADR), installed on September 5, 1997. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 7, 1999. Formerly published as local number LV-1.
PERIOD OF RECORD.--September 5, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 16.65 ft (5.07 m), below land-surface datum, Sept. 23, 1998; lowest water level recorded, 28.87 ft (8.80 m), below land-surface datum, Sept. 28, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	19.96	20.04	20.89	21.00	21.77	21.18	20.85	20.79	21.12	20.81	20.91
2	---	20.00	19.98	21.03	20.82	21.76	21.13	20.92	20.62	21.11	20.78	20.64
3	---	19.97	19.86	21.07	20.68	21.40	20.90	20.92	20.66	21.06	20.62	20.32
4	---	20.10	19.95	21.04	20.58	21.55	20.51	20.94	20.59	21.07	20.55	20.30
5	---	20.20	20.33	21.12	21.10	21.78	20.26	21.01	20.65	21.03	20.60	20.43
6	---	20.50	20.42	20.83	21.29	21.83	20.45	20.97	20.64	20.97	20.80	20.57
7	---	20.64	20.63	20.72	21.30	21.92	20.44	20.81	20.71	21.05	20.76	---
8	---	20.51	20.62	21.05	21.43	21.79	20.41	20.72	20.70	21.10	20.77	20.70
9	19.07	20.34	20.77	21.08	21.56	21.84	20.37	20.67	20.68	21.12	20.76	20.82
10	19.23	20.48	20.95	20.67	21.28	21.38	20.42	20.59	20.55	21.07	20.83	20.65
11	19.22	20.47	21.01	20.61	21.53	21.60	20.35	20.59	20.47	21.27	20.65	20.61
12	19.23	20.13	20.96	20.86	21.57	21.65	20.40	20.54	20.50	21.17	20.58	20.51
13	19.31	19.99	20.96	21.09	21.44	21.83	20.33	20.58	20.54	21.24	20.51	20.32
14	19.31	19.99	20.98	21.42	21.44	21.89	20.45	20.57	20.54	21.12	20.55	19.58
15	19.45	20.30	21.02	21.67	21.53	21.94	20.60	20.60	20.67	21.18	20.64	19.40
16	19.59	20.09	21.10	21.28	21.50	21.90	20.68	20.69	20.73	21.29	20.62	19.43
17	19.69	20.02	21.03	21.28	21.58	21.95	20.72	20.68	20.73	21.31	20.51	19.62
18	19.66	19.95	20.47	21.40	21.71	21.78	20.72	20.68	20.65	21.20	20.47	19.50
19	19.74	20.01	20.26	21.59	21.87	21.83	20.72	20.74	20.63	21.16	20.50	19.28
20	19.76	20.08	20.00	21.52	21.61	21.95	20.75	20.74	20.55	21.18	20.46	19.29
21	19.90	20.22	20.00	21.16	21.75	21.94	20.74	20.69	20.55	21.12	20.45	19.37
22	19.75	20.31	20.00	21.22	21.84	21.96	20.77	20.74	20.55	21.02	20.50	19.51
23	19.30	20.52	20.49	20.99	21.92	21.94	20.81	20.72	20.64	20.95	20.51	19.53
24	19.30	20.84	20.64	21.09	21.84	21.95	20.84	20.70	20.68	20.82	20.62	19.59
25	19.53	20.95	20.63	21.16	21.78	21.97	20.90	20.88	20.80	20.82	20.78	19.64
26	19.71	21.11	20.75	21.08	21.67	22.02	20.82	20.92	20.86	20.83	20.71	19.77
27	19.42	20.86	20.82	21.25	21.44	22.08	20.68	20.94	20.85	20.76	20.81	19.79
28	19.42	20.48	20.99	21.27	21.57	22.04	20.68	20.85	20.85	20.83	20.80	19.70
29	19.68	19.99	20.52	20.95	---	21.94	20.75	20.74	20.81	20.89	20.85	19.14
30	19.89	19.85	20.61	20.76	---	21.56	20.82	20.79	20.96	20.91	20.86	19.00
31	19.88	---	20.86	20.71	---	21.30	---	20.81	---	20.80	20.95	---
MEAN	19.52	20.30	20.57	21.09	21.45	21.81	20.65	20.76	20.67	21.05	20.66	19.93

WTR YR 1999 MEAN 20.73 HIGHEST 18.97 SEPT. 30, 1999 LOWEST 22.11 MAR. 27, 28, 1999

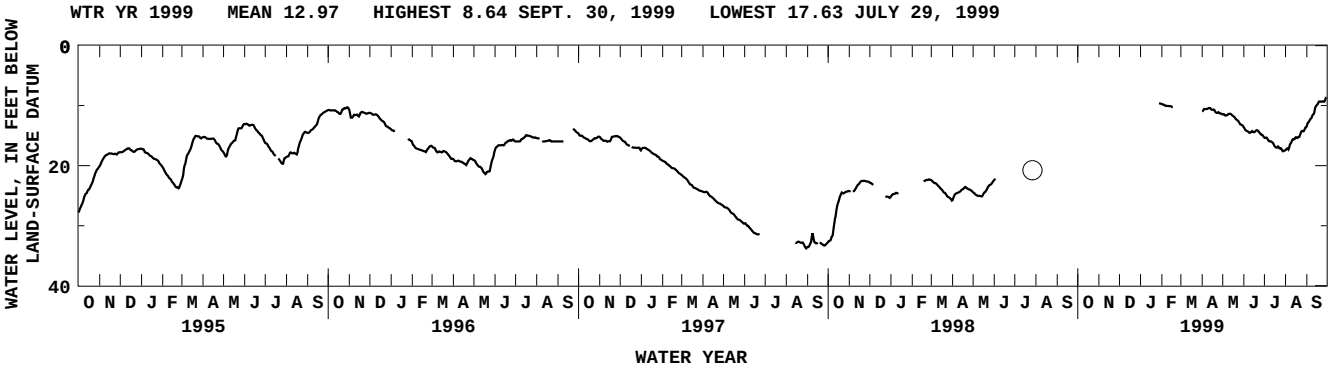


180133066503300. Local number, 132.
LOCATION.--Lat 18°01'33", long 66°50'33", Hydrologic Unit 21010004, 0.90 mi southeast of Yauco plaza, 3.46 mi west of Guayanilla plaza, and 1.32 mi north of Escuela Segunda Unidad Barinas. Owner: Pittsburg Plate Glass 4, Name: Yauco 2.
AQUIFER.--Limestone of Tertiary Age.
WELL CHARACTERISTICS.--Drilled observation well, cased 20 in (0.51 m) 0-20.0 ft (0-6.10 m), 12 in (0.30 m) perforated pipe 20-84.0 ft (6.10-25.6 m), 10 in (0.25 m) perforated pipe 84-190 ft (25.6-57.9 m). Depth 190 ft (57.9 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 75.0 ft (22.9 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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 17, 1998. [+, above land-surface datum]. From July 27, 1998, monthly measurements only.
PERIOD OF RECORD.--July 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.12 ft (0.04 m), above 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 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	9.74	---	11.02	11.45	13.52	15.27	17.43	13.64
2	---	---	---	---	9.75	---	10.96	11.46	13.72	15.38	17.39	13.20
3	---	---	---	---	9.79	---	10.86	11.38	13.92	15.41	17.18	12.82
4	---	---	---	---	9.88	---	10.55	11.51	14.09	15.33	17.14	12.79
5	---	---	---	---	9.87	---	10.55	11.68	14.22	15.31	17.13	12.67
6	---	---	---	---	9.93	---	10.55	11.62	14.22	15.56	17.47	12.32
7	---	---	---	---	10.05	---	10.54	11.59	14.28	15.75	16.78	12.19
8	---	---	---	---	10.06	---	10.56	11.61	14.41	15.86	16.41	12.10
9	---	---	---	---	10.06	---	10.58	11.49	14.41	16.02	16.30	11.92
10	---	---	---	---	10.06	---	10.46	11.38	14.62	15.93	16.15	11.48
11	---	---	---	---	10.06	---	10.43	11.36	14.45	15.97	15.80	11.48
12	---	---	---	---	10.08	---	10.40	11.34	14.45	16.02	15.62	11.38
13	---	---	---	---	10.08	---	10.37	11.35	14.29	16.12	15.57	10.95
14	---	---	---	---	10.06	---	10.48	11.43	14.22	16.21	15.67	10.18
15	---	---	---	---	10.07	---	10.69	11.56	14.43	16.41	15.48	10.08
16	---	---	---	---	10.20	---	10.68	11.64	14.40	16.66	15.28	9.88
17	---	---	---	---	10.27	---	10.69	11.79	14.44	16.84	15.23	9.81
18	---	---	---	---	10.27	---	10.70	11.85	14.30	16.98	15.35	9.67
19	---	---	---	---	---	---	10.62	11.90	14.18	16.97	15.41	9.33
20	---	---	---	---	---	---	10.89	12.12	14.11	17.06	15.24	9.31
21	---	---	---	---	---	---	11.08	12.28	14.04	16.77	15.24	9.36
22	---	---	---	---	---	---	11.20	12.37	14.21	16.80	15.15	9.28
23	---	---	---	---	---	---	11.20	12.42	14.30	17.05	14.75	9.40
24	---	---	---	---	---	---	11.21	12.52	14.44	17.18	14.41	9.27
25	---	---	---	---	---	---	11.16	12.70	14.62	17.08	14.26	9.28
26	---	---	---	---	---	---	11.08	12.89	14.78	17.12	14.18	9.32
27	---	---	---	---	---	---	11.29	13.08	14.83	17.32	14.29	9.38
28	---	---	---	9.61	---	---	11.28	13.17	14.81	17.58	14.27	9.24
29	---	---	---	9.62	---	---	11.32	13.18	14.97	17.63	14.16	8.75
30	---	---	---	9.63	---	---	11.37	13.26	15.14	17.50	13.68	8.67
31	---	---	---	9.68	---	---	---	13.33	---	17.51	13.58	---
MEAN	---	---	---	9.64	10.02	---	10.83	12.02	14.36	16.47	15.55	10.64

WTR YR 1999 MEAN 12.97 HIGHEST 8.64 SEPT. 30, 1999 LOWEST 17.63 JULY 29, 1999



+ above land-surface datum

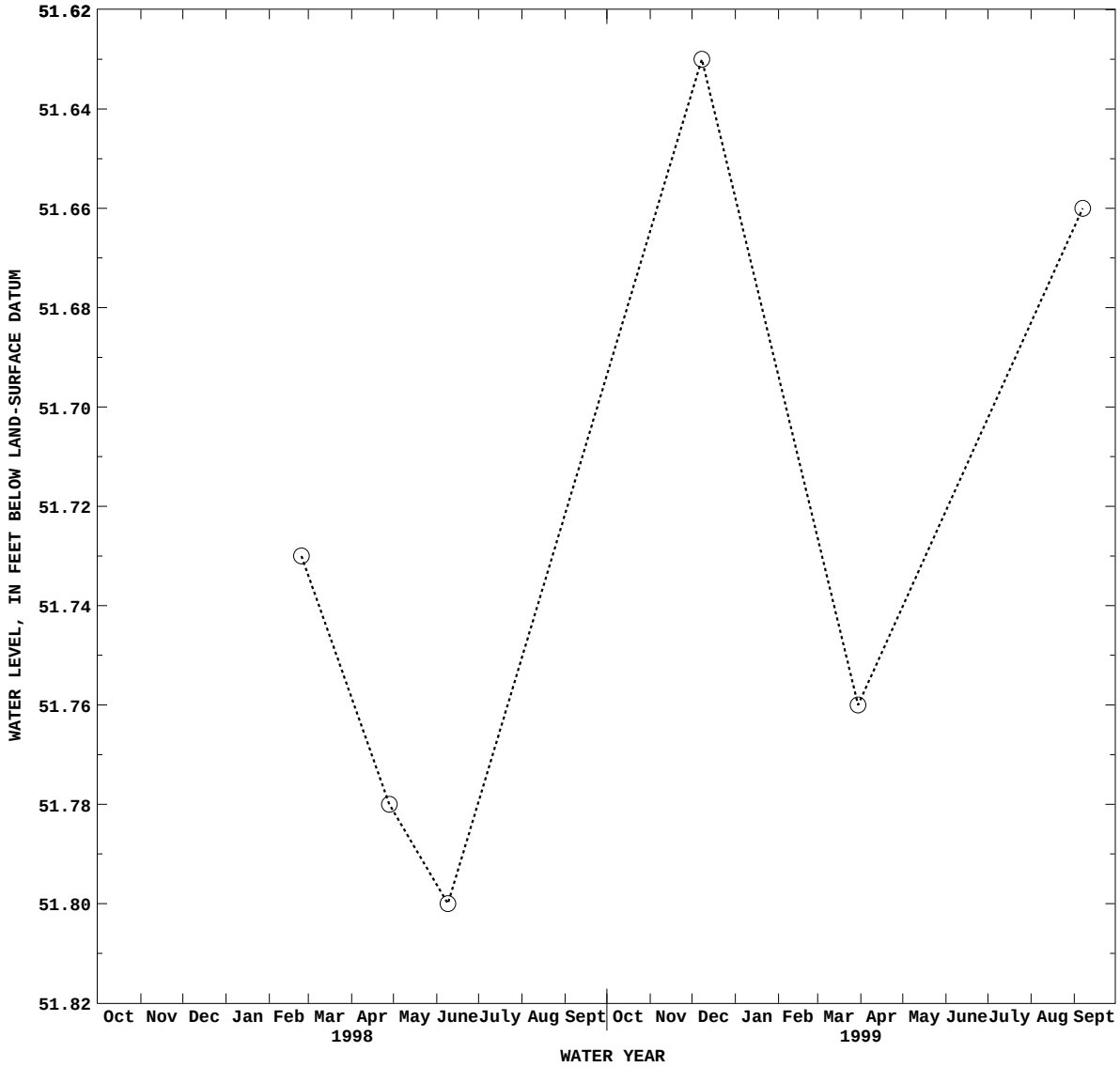
175840066494400. Local number, 1279.
LOCATION.--Lat 17°58'40", long 66°49'44", Hydrologic Unit 21010004, 0.60 mi southwest of Central San Francisco, 1.50 mi northwest of Punta Ventana, and 0.80 mi south southeast of Escuela Arturo Lluberas. Onwer: Tropical Fruit Corp., Name: Criollo 3.
AQUIFER.--Limestone.
WELL CHARACTERISTICS.--Abandoned production well, diameter 12 in (0.30 m). Depth 238 ft (72.5 m).
DATUM.--Elevation of land-surface datum is about 130 ft (39.62 m), above mean sea level, from topographic map. Measuring point: Top of steel pipe, 2.00 ft (0.61 m), above land-surface datum.
REMARKS.--Observation well.
PERIOD OF RECORD.--February 24, 1998 to September 30, 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 51.63 ft (15.74 m), below land-surface datum, Dec. 8, 1998; lowest water level measured, 51.80 ft (15.79 m), below land-surface datum, June 9, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level
Feb. 24	51.73	Apr. 28	51.78	June 9	51.80

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level
Dec. 8	51.63	Mar. 30	51.76	Sept. 7	51.66



180132067033800. Local number, 143.
LOCATION.--Lat 18°01'32", long 67°03'38", Hydrologic Unit 21010003, 1.86 mi south of Lajas plaza, 1.27 mi southeast of the Estación Experimental Agrícola, and 1.30 mi northwest of the intersection of Hwy 116 with Hwy 305. 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).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
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. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on January 14, 1998. From July 27, 1998 to Mar. 18, 1999, monthly measurements only.
PERIOD OF RECORD.--December 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 37.4 ft (11.4 m), below land, -surface datum, Nov. 20, 1985; lowest water level recorded, 40.85 ft (12.45 m) below land-surface datum, Oct. 8, 9, 1997.

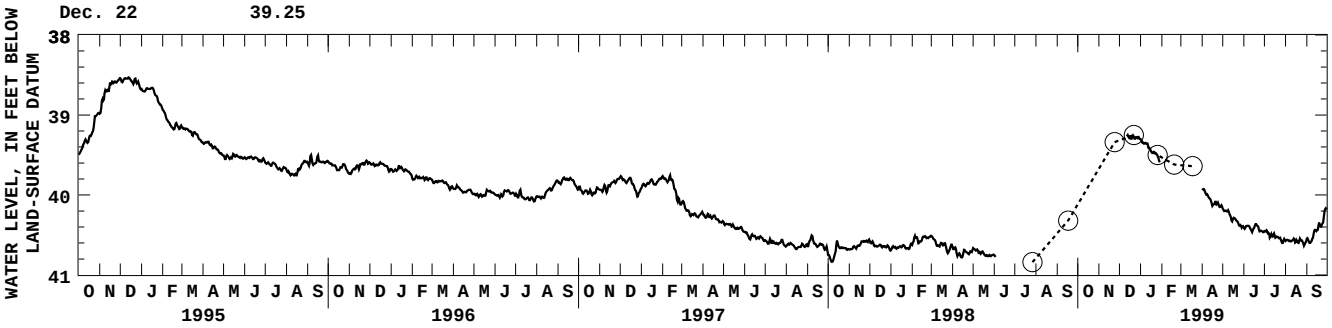
WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	39.30	---	---	39.95	40.16	40.40	40.46	40.57	40.56
2	---	---	---	39.30	---	---	39.93	40.18	40.42	40.44	40.58	40.53
3	---	---	---	39.33	---	---	39.93	40.19	40.43	40.46	40.55	40.55
4	---	---	---	39.35	---	---	39.92	40.21	40.40	40.45	40.57	40.57
5	---	---	---	39.35	---	---	39.94	40.19	40.38	40.43	40.55	40.59
6	---	---	---	39.35	---	---	39.97	40.20	40.39	40.47	40.59	40.61
7	---	---	---	39.36	---	---	39.99	40.19	40.38	40.49	40.56	40.59
8	---	---	---	39.35	---	---	40.00	40.22	40.39	40.46	40.58	40.58
9	---	---	---	39.35	---	---	39.98	40.19	40.38	40.51	40.58	40.57
10	---	---	---	39.36	---	---	40.02	40.19	40.41	40.56	40.58	40.53
11	---	---	---	39.35	---	---	40.02	40.23	40.42	40.48	40.57	40.54
12	---	---	39.28	39.36	---	---	40.05	40.25	40.44	40.50	40.56	40.44
13	---	---	39.25	39.41	---	---	40.04	40.26	40.45	40.53	40.56	40.45
14	---	---	39.25	39.42	---	---	40.07	40.29	40.48	40.51	40.53	40.42
15	---	---	39.29	39.42	---	---	40.08	40.35	40.41	40.48	40.58	40.45
16	---	---	39.28	39.44	---	---	40.14	40.31	40.43	40.48	40.61	40.45
17	---	---	39.26	39.46	---	---	40.13	40.29	40.40	40.52	40.56	40.43
18	---	---	39.29	39.47	---	---	40.11	40.28	40.37	40.55	40.56	40.44
19	---	---	39.30	39.48	---	---	40.12	40.30	40.36	40.51	40.59	40.34
20	---	---	39.29	39.47	---	---	40.11	40.29	40.37	40.53	40.60	40.35
21	---	---	39.26	39.46	---	---	40.06	40.32	40.39	40.52	40.60	40.39
22	---	---	39.25	39.48	---	---	40.11	40.32	40.38	40.53	40.54	40.40
23	---	---	39.29	39.48	---	---	40.13	40.33	40.41	40.55	40.55	40.39
24	---	---	39.30	39.49	---	---	40.10	40.34	40.45	40.53	40.57	40.35
25	---	---	39.29	39.48	---	---	40.09	40.38	40.46	40.54	40.57	40.36
26	---	---	39.27	39.51	---	---	40.14	40.38	40.44	40.57	40.57	40.32
27	---	---	39.29	39.52	---	---	40.15	40.39	40.45	40.59	40.60	40.21
28	---	---	39.28	39.55	---	---	40.15	40.36	40.45	40.61	40.62	40.20
29	---	---	39.27	39.59	---	---	40.14	40.41	40.46	40.59	40.65	40.15
30	---	---	39.28	39.59	---	---	40.12	40.41	40.47	40.54	40.58	40.18
31	---	---	39.30	---	---	---	---	40.38	---	40.56	40.61	---
MEAN	---	---	39.28	39.43	---	---	40.06	40.28	40.42	40.51	40.58	40.43

WTR YR 1999 MEAN 40.16 HIGHEST 39.20 DEC. 13, 1998 LOWEST 40.65 AUG. 29, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 24	39.34	Jan. 26	39.50	Feb. 19	39.62	Mar. 18	39.64
Dec. 22	39.25						

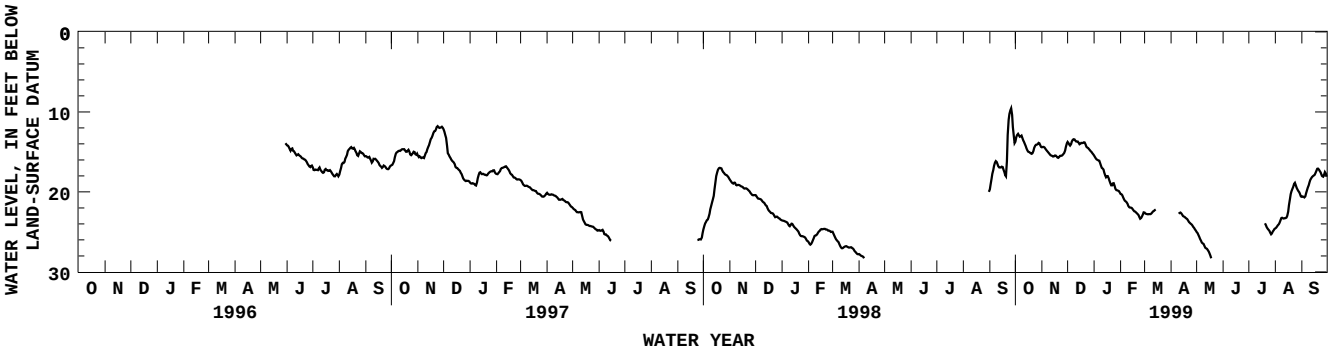


180541067084000. Local number, 1301.
LOCATION.--Lat 18°05'41", long 67°08'40", Hydrologic Unit 21010003, 0.35 mi east of Hwy 311, 0.30 mi north of Hwy 102 in Central Cabo Rojo, and 0.50 mi norhwest of the intersection of Hwy 102 with hwy 103. Owner: PR Aqueduct and Sewer Authority, Name: Cabo Rojo 1.
AQUIFER.--Coquí Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (0.30 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 18.9 ft (12.0 m), above mean sea level, from topographic map. Measuring point: Hole in the side of the 12.0 in (0.30 m) casing, 1.30 ft (0.40 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 25, 1996. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on April 9, 1999. Formerly published as local number CR-1.
PERIOD OF RECORD.--May 25, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.37 ft (2.86 m), below land-surface datum, Sept. 27, 1998; lowest water level recorded, 28.52 ft (8.69 m) below land-surface datum, May 19, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.26	14.43	13.77	15.37	20.26	22.50	---	24.95	---	---	24.56	20.66
2	13.18	14.40	13.73	15.53	20.26	22.66	---	25.07	---	---	24.56	20.56
3	13.08	14.34	13.99	15.71	20.35	22.74	---	25.23	---	---	24.41	20.58
4	12.71	14.40	14.18	15.90	20.51	22.76	---	25.51	---	---	24.20	20.65
5	12.77	14.52	14.23	15.99	20.80	22.81	---	25.76	---	---	24.13	20.72
6	13.06	14.68	13.86	16.01	21.05	22.81	---	25.99	---	---	23.99	20.43
7	13.17	14.82	13.55	16.08	21.14	22.76	---	26.25	---	---	23.74	19.95
8	12.94	14.96	13.44	16.15	21.25	22.80	---	26.42	---	---	23.37	19.58
9	12.98	15.07	13.39	16.61	21.31	22.74	---	26.43	---	---	23.20	19.35
10	13.46	15.21	13.50	16.83	21.65	22.65	22.80	26.55	---	---	23.27	18.96
11	13.64	15.37	13.67	17.13	21.86	22.48	22.67	26.88	---	---	23.33	18.61
12	13.84	15.45	13.74	17.04	21.98	22.38	22.60	27.05	---	---	23.32	18.38
13	14.12	15.46	13.68	17.39	21.93	22.36	22.59	27.07	---	---	23.25	18.19
14	14.42	15.56	13.74	17.79	21.97	22.19	22.75	27.18	---	---	23.32	18.08
15	14.70	15.58	14.00	18.13	22.05	22.23	22.95	27.35	---	---	23.12	17.96
16	14.95	15.50	14.06	18.19	22.21	---	23.08	27.57	---	---	22.86	17.96
17	15.01	15.42	13.89	17.87	22.37	---	23.09	27.79	---	---	22.05	17.76
18	15.04	15.47	13.87	18.16	22.45	---	23.18	28.18	---	---	21.26	17.54
19	15.13	15.65	13.91	18.41	22.49	---	23.30	28.39	---	---	20.53	17.16
20	15.24	15.74	13.85	18.77	22.61	---	23.34	---	---	23.82	20.05	17.08
21	15.26	15.74	13.77	19.08	22.76	---	23.46	---	---	24.03	19.78	17.11
22	15.10	15.56	13.90	19.26	22.81	---	23.73	---	---	24.29	19.44	17.29
23	14.64	15.47	14.26	19.10	23.03	---	23.79	---	---	24.54	19.31	17.44
24	14.33	15.48	14.43	18.75	23.30	---	23.95	---	---	24.64	18.66	17.70
25	14.15	15.50	14.46	19.05	23.39	---	24.02	---	---	24.78	19.05	17.98
26	14.08	15.31	14.57	19.45	23.13	---	24.11	---	---	24.96	19.36	18.11
27	14.12	15.22	14.70	19.78	23.04	---	24.29	---	---	25.19	19.63	18.08
28	13.96	15.08	14.85	19.79	22.60	---	24.43	---	---	25.39	19.81	17.56
29	13.79	14.60	14.97	19.80	---	---	24.59	---	---	25.02	19.96	17.50
30	14.07	14.14	15.09	19.88	---	---	24.73	---	---	24.87	20.15	17.91
31	14.30	---	15.25	19.91	---	---	---	---	---	24.75	20.46	---
MEAN	14.05	15.14	14.07	17.84	21.95	22.59	23.50	26.61	---	24.69	21.88	18.56

WTR YR 1999 MEAN 19.22 HIGHEST 12.41 OCT. 4, 5, 1998 LOWEST 28.52 MAY 19, 1999



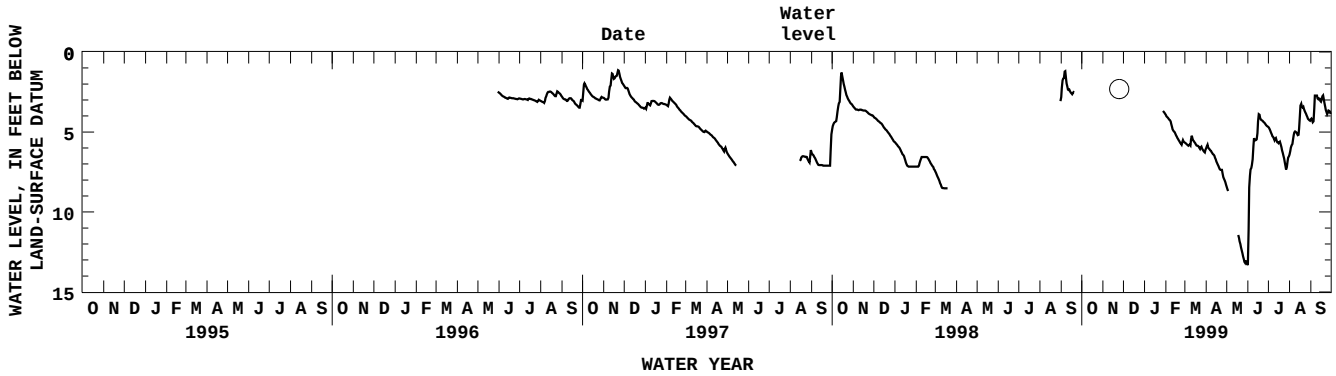
180628067084300. Local number, 1302.
LOCATION.--Lat 18°06'28", long 67°08'43", Hydrologic Unit 21010003, 1.29 mi north of Cabo Rojo plaza, 1.54 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.23 mi southeast of Escuela Sabana Alta. Owner: US Geological Survey, WRD, Name: CR-TW-9A.
AQUIFER.--Sandy and clay.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-24.0 ft (0-7.32 m), screened 19-24 ft (5.79-7.32 m). Depth 24.0 ft (7.32 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 33.2 ft (10.1 m), above mean sea level, from topographic map. Measuring point: Hole on shelter floor, 4.51 ft (1.37 m), above land-surface datum.
REMARKS.--Recording observation well. Drilled on Mar. 25, 1992. Automatic Digital Recorder (ADR), re-installed on May 29, 1996. Automatic Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on Jan. 27, 1999. Formerly published as local number CR-TW-9A.
PERIOD OF RECORD.--July 1992 to January 1994, discontinued, May 27, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.24 ft (+0.07 m), below land-surface datum, Oct. 12, 1992; lowest water level recorded, 13.39 ft (4.08 m), below land-surface datum, June 2, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	3.89	5.64	5.92	8.36	13.26	4.68	6.49	4.28
2	---	---	---	---	3.98	5.69	6.10	8.50	13.37	4.70	6.32	4.11
3	---	---	---	---	4.05	5.71	5.70	8.61	8.80	4.78	6.07	4.23
4	---	---	---	---	4.09	5.76	5.90	8.76	8.11	4.90	5.89	4.34
5	---	---	---	---	4.13	5.80	6.00	---	7.35	5.01	5.78	4.44
6	---	---	---	---	4.19	5.84	6.06	---	7.33	5.10	5.71	4.23
7	---	---	---	---	4.25	5.88	6.12	---	7.17	5.23	5.28	2.83
8	---	---	---	---	4.27	5.74	6.16	---	6.97	5.30	5.09	2.63
9	---	---	---	---	4.42	5.83	6.21	---	6.45	5.33	4.96	2.83
10	---	---	---	---	4.58	5.86	6.29	---	5.31	5.46	4.97	2.62
11	---	---	---	---	4.77	5.08	6.35	---	5.46	5.57	5.01	2.82
12	---	---	---	---	4.89	5.38	6.41	---	5.52	5.25	5.05	2.98
13	---	---	---	---	4.96	5.48	6.44	---	5.51	5.50	5.14	2.92
14	---	---	---	---	4.97	5.56	6.55	---	5.48	5.59	5.25	2.89
15	---	---	---	---	5.07	5.61	6.67	---	5.44	5.69	5.10	2.94
16	---	---	---	---	5.17	5.67	6.78	---	4.71	5.62	4.46	3.20
17	---	---	---	---	5.25	5.73	6.90	---	3.97	5.78	3.51	3.02
18	---	---	---	---	5.34	5.81	6.99	11.34	3.80	5.50	3.18	2.90
19	---	---	---	---	5.42	5.87	7.08	11.52	4.05	5.70	3.29	2.65
20	---	---	---	---	5.47	5.85	7.17	11.74	4.20	5.84	3.55	2.78
21	---	---	---	---	5.56	5.89	7.29	11.92	4.26	6.06	3.39	3.05
22	---	---	---	---	5.62	5.95	7.37	12.09	4.27	6.23	3.45	3.33
23	---	---	---	---	5.70	6.03	7.37	12.29	4.29	6.39	3.66	3.54
24	---	---	---	---	5.76	6.09	7.37	12.50	4.36	6.55	3.71	3.72
25	---	---	---	---	5.84	5.85	7.37	12.68	4.41	6.76	3.82	3.82
26	---	---	---	---	5.46	5.98	7.77	12.86	4.43	6.99	3.91	3.96
27	---	---	---	---	5.55	6.07	7.85	13.03	4.51	7.27	4.01	3.59
28	---	---	---	3.64	5.63	6.15	7.96	13.21	4.55	7.41	4.13	3.72
29	---	---	---	3.73	---	6.22	8.08	13.16	4.62	7.00	4.23	3.65
30	---	---	---	3.77	---	6.24	8.21	13.00	4.64	6.66	4.22	3.78
31	---	---	---	3.83	---	6.31	---	13.19	---	6.54	4.32	---
MEAN	---	---	---	3.74	4.94	5.82	6.81	11.60	5.89	5.82	4.61	3.39

WTR YR 1999 MEAN 5.79 HIGHEST 2.61 SEPT. 10, 1999 LOWEST 13.39 JUNE 2, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS



+ above land-surface datum

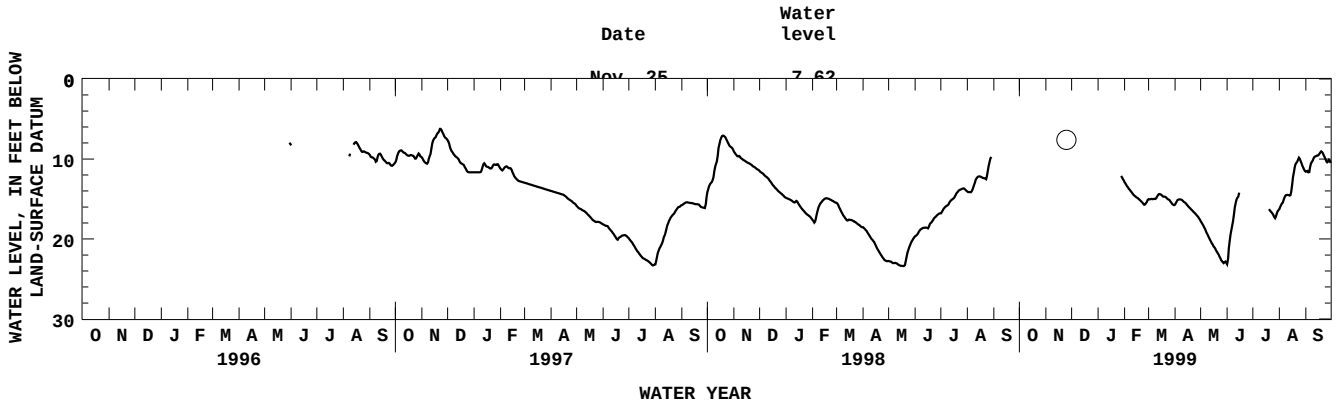
180628067084301. Local number, 1303.
LOCATION.--Lat 18°06'28", long 67°08'43", Hydrologic Unit 21010003, 1.29 mi north of Cabo Rojo plaza, 1.54 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.23 mi southeast of Escuela Sabana Alta. Owner: US Geological Survey, WRD, Name: CR-TW-9B.
AQUIFER.--Cotuí Limestone.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-109 ft (0-33.2m), screened 104-109 ft (31.7-33.2 m). Depth 109 ft (33.2 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 33.2 ft (10.1 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 4.73 ft (1.44 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 29, 1996. Automatic Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on Jan. 27, 1999. Formerly published as local number CR-TW-9B.
PERIOD OF RECORD.--May 29, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.18 ft (1.88 m), below land-surface datum, Nov. 23, 1996; lowest water level recorded, 23.38 ft (7.13 m), below land-surface datum, May 18, 19, 20, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	12.79	15.01	15.75	17.66	23.08	---	16.37	11.58
2	---	---	---	---	13.01	15.06	15.65	17.86	23.25	---	16.16	11.60
3	---	---	---	---	13.15	15.04	15.38	18.04	21.68	---	15.87	11.48
4	---	---	---	---	13.35	15.01	15.18	18.22	20.59	---	15.65	11.52
5	---	---	---	---	13.46	14.99	15.08	18.42	19.68	---	15.50	11.83
6	---	---	---	---	13.67	15.01	15.05	18.64	19.17	---	15.39	11.45
7	---	---	---	---	13.78	15.03	15.05	18.87	18.35	---	14.92	10.60
8	---	---	---	---	13.93	14.99	15.05	19.12	18.16	---	14.69	10.45
9	---	---	---	---	14.07	14.98	15.08	19.34	17.31	---	14.53	10.33
10	---	---	---	---	14.20	15.01	15.16	19.56	16.39	---	14.49	10.02
11	---	---	---	---	14.36	14.79	15.28	19.77	15.74	---	14.49	9.86
12	---	---	---	---	14.50	14.59	15.37	20.00	15.22	---	14.49	9.69
13	---	---	---	---	14.59	14.43	15.43	20.22	14.92	---	14.54	9.66
14	---	---	---	---	14.63	14.35	15.53	20.43	14.76	---	14.61	9.62
15	---	---	---	---	14.77	14.39	15.68	20.60	14.65	---	14.42	9.54
16	---	---	---	---	14.83	14.44	15.80	20.80	13.76	---	13.74	9.60
17	---	---	---	---	14.88	14.52	15.93	20.99	---	---	12.63	9.38
18	---	---	---	---	15.01	14.64	16.02	21.11	---	---	11.94	9.30
19	---	---	---	---	15.10	14.73	16.15	21.29	---	---	11.35	9.04
20	---	---	---	---	15.19	14.71	16.26	21.51	---	16.19	10.75	9.04
21	---	---	---	---	15.32	14.73	16.36	21.70	---	16.37	10.54	9.20
22	---	---	---	---	15.39	14.79	16.48	21.85	---	16.51	10.39	9.40
23	---	---	---	---	15.57	14.93	16.61	22.05	---	16.63	10.32	9.65
24	---	---	---	---	15.70	15.04	16.71	22.32	---	16.75	9.78	9.87
25	---	---	---	---	15.76	15.06	16.81	22.53	---	16.92	9.89	10.17
26	---	---	---	---	15.60	15.13	16.93	22.73	---	17.11	10.12	10.40
27	---	---	---	---	15.47	15.28	17.03	22.85	---	17.34	10.42	10.44
28	---	---	---	12.03	15.24	15.42	17.13	23.01	---	17.44	10.69	10.19
29	---	---	---	12.22	---	15.60	17.33	23.00	---	16.99	10.99	10.03
30	---	---	---	12.42	---	15.70	17.48	22.77	---	16.61	11.22	10.36
31	---	---	---	12.60	---	15.79	---	22.90	---	16.46	11.42	---
MEAN	---	---	---	12.32	14.55	14.94	15.96	20.65	17.92	16.78	12.98	10.18

WTR YR 1999 MEAN 15.18 HIGHEST 9.02 SEPT. 19, 20, 1999 LOWEST 23.26 JUNE 2, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS



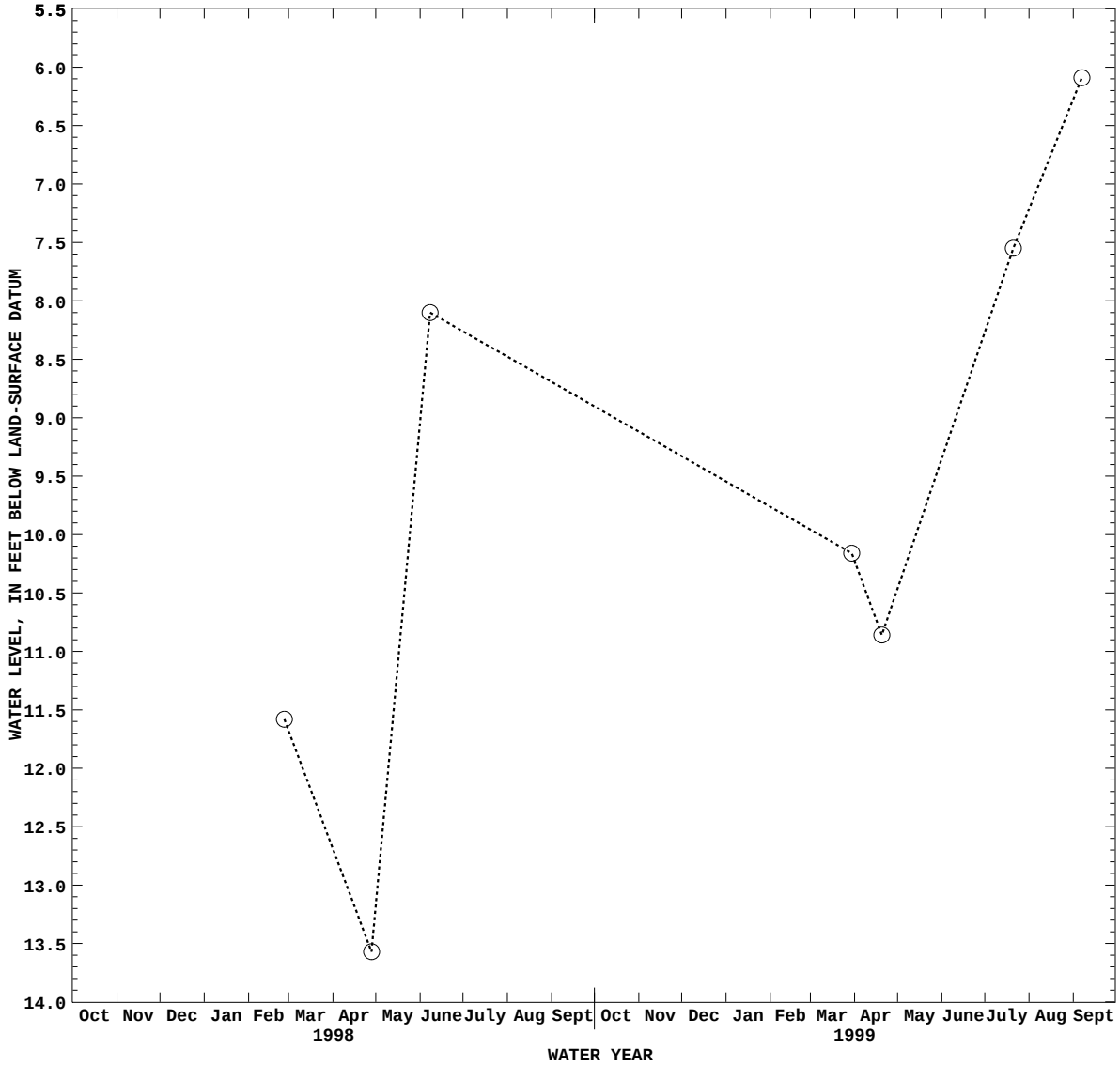
180802067073300. Local number, 1304.
LOCATION.--Lat 18°08'02", long 67°07'33", Hydrologic Unit 21010003, on west side of Hwy 319, 0.30 mi south of Hwy 3, and 0.60 mi south southeast of Hormigueros plaza. Onwer: PR Aqueduct and Sewer Authority, Name: Hormigueros.
AQUIFER.--Sandy and clay.
WELL CHARACTERISTICS.--Abandoned production well.
DATUM.--Elevation of land-surface datum is about 31.0 ft (9.45 m), above mean sea level, from topographic map. Measuring point: Access hole in steel covering, 0.50 ft (0.15 m), above land-surface datum.
REMARKS.--Observation well.
PERIOD OF RECORD.--February 26, 1998 to September 30, 1999.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.08 ft (1.86m), below land-surface datum, Sept. 7, 1999; lowest water level measured, 13.57 ft (4.14 m), below land-surface datum, Apr. 28, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level
Feb. 26	11.58	Apr. 28	13.57	June 8	8.10

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 30	10.16	Apr. 20	10.86	July 21	7.55	Sept. 7	6.08



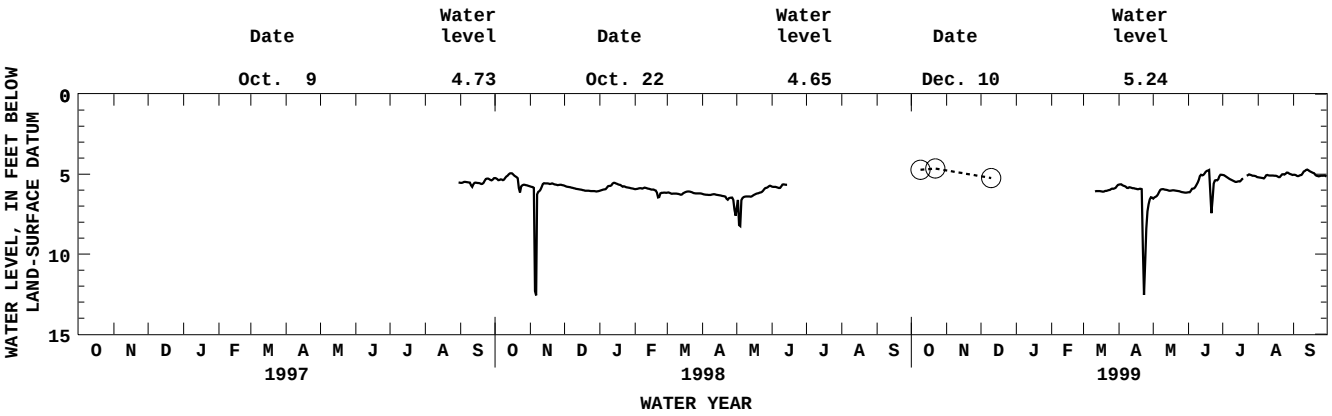
181232067083700. Local number, 1326.
LOCATION.--Lat 18°12'32", long 67°08'37", Hydrologic Unit 21010003,0.10 mi east of Hwy 2, 0.92 mi southeast of the intersection of Hwy 104 with Hwy 2, and 0.20 mi southwest of the University of Puerto Rico, Mayaguez Campus. Owner: Cervecería India, Name: Cervecería India.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled emergency use water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-100 ft (0-30.5 m), perforated 85-95.0 ft (25.9-28.9 m). Depth 100 ft (30.5 m).
INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 10.0 ft (3.05 m), above mean sea level.
Measuring point: Top of shelter floor, 2.80 ft (0.85 m), above land-surface datum. Prior to Nov. 20, 1992, hole on side of casing, 2.00 ft (0.61 m), above land-surface datum.
REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on August 29, 1997. Water level affected by nearby pumoing well. Formerly published as local number CI-1.
PERIOD OF RECORD.--August 29, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.69 ft (1.43 m), below land-surface datum, Sept. 13, 1999; lowest water level recorded, 18.86 ft (5.75 m), below land-surface datum, Apr. 24, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	5.66	6.55	6.13	5.06	5.20	5.06
2	---	---	---	---	---	---	5.64	6.51	6.13	5.05	5.20	5.03
3	---	---	---	---	---	---	5.63	6.39	6.13	5.09	5.22	5.05
4	---	---	---	---	---	---	5.66	6.44	5.94	5.14	5.22	5.09
5	---	---	---	---	---	---	5.71	6.31	5.90	5.18	5.24	5.14
6	---	---	---	---	---	---	5.73	6.24	5.90	5.23	5.25	5.12
7	---	---	---	---	---	---	5.77	6.02	5.86	5.29	5.29	5.08
8	---	---	---	---	---	---	5.79	5.97	5.71	5.32	5.11	5.06
9	---	---	---	---	---	---	5.92	5.94	5.59	5.36	5.05	5.04
10	---	---	---	---	---	---	5.82	5.93	5.46	5.39	5.06	4.86
11	---	---	---	---	---	6.12	5.83	5.95	5.22	5.43	5.09	4.82
12	---	---	---	---	---	6.06	5.83	5.97	5.02	5.46	5.08	4.78
13	---	---	---	---	---	6.06	5.89	5.98	5.05	5.50	5.09	4.70
14	---	---	---	---	---	6.07	5.87	6.00	5.11	5.47	5.09	4.73
15	---	---	---	---	---	6.06	5.90	6.03	5.00	5.44	5.09	4.78
16	---	---	---	---	---	6.07	5.91	6.04	4.93	5.45	5.10	4.84
17	---	---	---	---	---	6.07	5.93	6.02	4.80	5.48	5.10	4.85
18	---	---	---	---	---	6.10	5.94	6.02	4.80	5.32	5.12	4.91
19	---	---	---	---	---	6.09	5.93	6.01	4.75	5.29	5.17	4.93
20	---	---	---	---	---	6.07	5.91	6.01	4.72	5.29	5.21	4.96
21	---	---	---	---	---	6.03	5.93	6.03	7.45	---	5.16	5.12
22	---	---	---	---	---	6.06	5.95	6.04	7.42	5.09	5.04	5.09
23	---	---	---	---	---	5.99	13.24	6.05	5.75	5.11	5.00	5.13
24	---	---	---	---	---	6.00	11.86	6.06	5.44	5.02	5.01	5.15
25	---	---	---	---	---	5.97	9.23	6.09	5.37	5.02	5.05	5.11
26	---	---	---	---	---	5.90	7.57	6.11	5.38	5.05	4.92	5.09
27	---	---	---	---	---	5.90	7.08	6.12	5.40	5.09	4.89	5.10
28	---	---	---	---	---	5.92	6.66	6.14	5.24	5.10	4.93	5.09
29	---	---	---	---	---	5.86	6.49	6.15	5.05	5.11	4.98	5.09
30	---	---	---	---	---	5.84	6.39	6.16	5.02	5.12	5.00	5.13
31	---	---	---	---	---	5.69	---	6.15	---	5.16	5.04	---
MEAN	---	---	---	---	---	6.00	6.56	6.11	5.52	5.24	5.10	5.00

WTR YR 1999 MEAN 5.63 HIGHEST 4.69 SEPT. 13, 1999 LOWEST 18.86 APR. 24, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

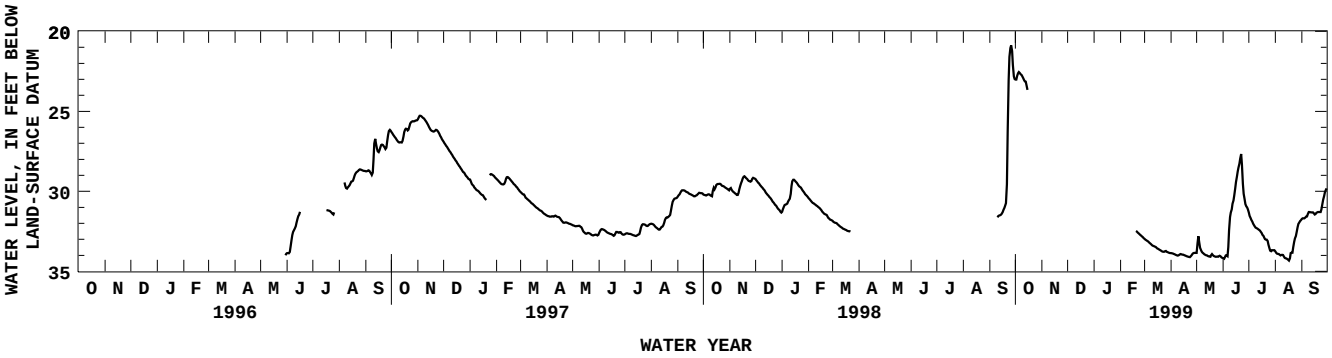


182017067143300. Local number, 1352.
LOCATION.--Lat 18°20'17", long 67°14'33", Hydrologic Unit 21010003, 0.63 mi southeast of the intersection of Hwy 412 with Hwy 115, 1.13 mi south of the intersection of Hwy 413 with Hwy 115, and 0.01 mi north of Hwy 411. Owner: PR Aqueduct and Sewer Authority, Name: Rincón 4.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (0.30 m), cased 0-69.0 ft (0-21.0 m). Depth 64.0 ft (21.0 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 39.0 ft (11.9 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of the 4 in (0.10 m) casing, 3.53 ft (1.08 m), above land-surface datum.
REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 30, 1996. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 18, 1999. Formerly published as local number R-4.
PERIOD OF RECORD.--May 30, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 20.80 ft (6.34 m), below land-surface datum, Sept. 27, 1998; lowest water level recorded, 34.38 ft (10.5 m), below land-surface datum, Aug. 18, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.90	---	---	---	---	32.95	33.86	33.85	34.18	31.22	33.72	31.77
2	23.12	---	---	---	---	32.99	33.86	33.85	34.22	31.44	33.79	31.69
3	22.90	---	---	---	---	33.04	33.88	32.57	34.22	31.62	33.88	31.69
4	22.69	---	---	---	---	33.07	33.89	33.03	34.04	31.71	33.90	31.69
5	22.55	---	---	---	---	33.11	33.92	33.42	33.97	31.85	33.91	31.69
6	22.55	---	---	---	---	33.15	33.94	33.62	34.05	31.94	33.92	31.58
7	22.65	---	---	---	---	33.20	33.96	33.75	34.06	32.08	34.00	31.58
8	22.71	---	---	---	---	33.25	33.99	33.81	32.92	32.16	34.00	31.56
9	22.75	---	---	---	---	33.29	34.02	33.86	31.92	32.23	33.97	31.29
10	22.87	---	---	---	---	33.35	34.02	33.91	31.30	32.29	33.96	31.29
11	22.98	---	---	---	---	33.40	33.97	33.95	31.36	32.30	34.00	31.30
12	23.10	---	---	---	---	33.41	33.93	33.98	30.90	32.34	34.12	31.31
13	23.13	---	---	---	---	33.45	33.92	34.00	30.66	32.40	34.19	31.31
14	23.15	---	---	---	---	33.46	33.94	34.02	30.49	32.42	34.19	31.31
15	23.60	---	---	---	---	33.49	33.96	34.06	30.04	32.50	34.21	31.31
16	23.72	---	---	---	---	33.56	33.96	34.07	29.60	32.55	34.26	31.42
17	---	---	---	---	---	33.59	34.00	34.08	29.25	32.67	34.30	31.47
18	---	---	---	---	---	33.61	34.00	34.09	28.90	32.76	34.36	31.37
19	---	---	---	---	32.46	33.65	34.04	33.87	28.63	32.80	34.01	31.32
20	---	---	---	---	32.49	33.68	34.06	33.97	28.41	32.97	33.70	31.30
21	---	---	---	---	32.55	33.71	34.08	34.02	28.12	32.99	33.97	31.29
22	---	---	---	---	32.61	33.76	34.10	34.06	27.80	33.04	33.71	31.29
23	---	---	---	---	32.64	33.77	34.11	34.08	27.54	32.99	33.30	31.30
24	---	---	---	---	32.70	33.77	34.11	34.09	29.11	33.21	33.02	31.28
25	---	---	---	---	32.75	33.78	34.03	34.08	29.98	33.46	32.87	30.96
26	---	---	---	---	32.79	33.71	33.95	34.08	30.32	33.64	32.72	30.62
27	---	---	---	---	32.84	33.75	33.90	34.09	30.68	33.78	32.38	30.43
28	---	---	---	---	32.89	33.79	33.85	34.02	30.92	33.69	32.09	30.17
29	---	---	---	---	---	33.81	33.85	34.03	30.97	33.67	31.99	29.97
30	---	---	---	---	---	33.84	33.85	34.10	31.04	33.70	31.88	29.86
31	---	---	---	---	---	33.86	---	34.14	---	33.65	31.84	---
MEAN	22.96	---	---	---	32.67	33.49	33.97	33.89	30.99	32.65	33.55	31.21

WTR YR 1999 MEAN 32.17 HIGHEST 22.53 OCT. 5, 1998 LOWEST 34.38 AUG. 19, 1999



182442067091700. Local number, 200.
LOCATION.--Lat 18°24'42", long 67°09'17", Hydrologic Unit 21010002, 1.40 mi south of Aguadilla plaza, 3.04 mi northeast of Aguada plaza, and 0.20 mi north of Hwy 2 km 146.4. Owner: Carmelo Sánchez, Name: Aguadilla Cement North Well.
AQUIFER.--Alluvial deposits.
WELL CHARACTERISTICS.--Abandoned water-table industrial well, diameter 4 in (0.10 m), cased 0-20.0 ft (0-6.10 m), perforated 11-20.0 ft (3.35-6.10 m). Depth 20.0 ft (6.10 m).
INSTRUMENTATION.--Electronic water level logger--60-minute interval.
DATUM.--Elevation of land-surface datum is about 10.0 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. Automated Digital Recorder (ADR) replaced by an Electronic Data Logger (EDL), installed on February 18, 1998. Water levels affected by nearby pumping well.
PERIOD OF RECORD.--October 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.61 ft (0.49 m), below land-surface datum, Sept. 22, 1998; lowest water level recorded, 9.60 ft (2.93 m), below land-surface datum, Feb. 20, 1992.

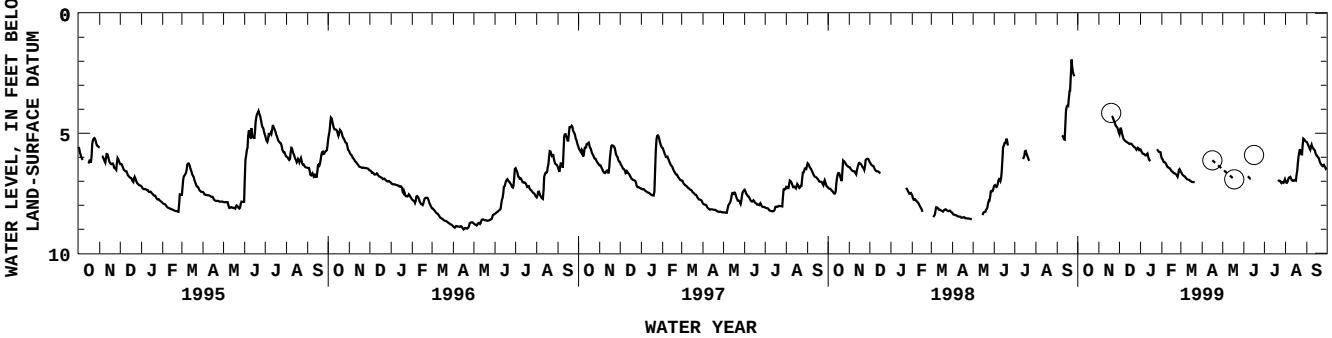
WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	5.00	5.60	6.07	6.60	---	---	---	---	6.91	5.36
2	---	---	5.08	5.74	6.04	6.61	---	---	---	---	7.06	5.38
3	---	---	4.69	5.75	6.10	6.70	---	---	---	---	7.06	5.46
4	---	---	4.85	5.84	6.19	6.72	---	---	---	---	7.07	5.52
5	---	---	4.98	5.85	6.21	6.77	---	---	---	---	6.95	5.58
6	---	---	5.07	5.86	6.21	6.79	---	---	---	---	6.84	5.67
7	---	---	5.21	5.87	6.23	6.79	---	---	6.78	---	6.86	5.70
8	---	---	5.25	5.92	6.30	6.83	---	---	6.81	---	6.81	5.45
9	---	---	5.29	5.92	6.38	6.88	---	---	6.84	---	6.83	5.51
10	---	---	5.32	5.92	6.40	6.90	---	---	6.89	---	6.95	5.61
11	---	---	5.34	5.84	6.42	6.92	---	---	6.88	---	6.96	5.62
12	---	---	5.36	5.86	6.46	6.93	---	---	6.88	---	6.98	5.67
13	---	---	5.38	6.06	6.46	6.94	---	---	---	---	6.99	5.71
14	---	---	5.40	6.09	6.47	6.94	---	---	---	---	6.98	5.73
15	---	---	5.42	6.17	6.57	6.99	---	---	---	---	6.91	5.97
16	---	---	5.44	6.16	6.58	7.00	---	---	---	---	6.97	5.87
17	---	---	5.46	---	6.61	7.01	---	---	---	---	6.97	5.98
18	---	---	5.41	---	6.61	7.04	---	---	---	---	6.55	6.00
19	---	---	5.45	---	6.68	7.03	---	---	---	---	6.57	6.02
20	---	4.27	5.45	---	6.67	7.04	---	---	---	---	5.96	6.13
21	---	4.29	5.52	---	6.67	7.03	---	---	---	7.04	5.96	6.22
22	---	4.34	5.53	---	6.71	7.04	---	---	---	6.97	5.59	6.27
23	---	4.46	5.57	---	6.73	---	---	---	---	6.99	5.73	6.32
24	---	4.48	5.59	---	6.76	---	---	---	---	6.97	5.83	6.37
25	---	4.57	5.61	5.65	6.86	---	---	---	---	7.00	5.92	6.37
26	---	4.67	5.66	5.68	6.57	---	---	---	---	7.08	5.84	6.29
27	---	4.73	5.72	5.73	6.49	---	---	---	---	7.06	5.21	6.33
28	---	4.75	5.59	5.77	6.50	---	---	---	---	7.01	5.23	6.41
29	---	4.79	5.62	5.78	---	---	---	---	---	7.05	5.26	6.45
30	---	4.92	5.66	5.79	---	---	---	---	---	7.07	5.32	6.51
31	---	---	5.73	5.80	---	---	---	---	---	6.92	5.34	---
MEAN	---	4.57	5.38	5.85	6.46	6.89	---	---	6.85	7.01	6.40	5.92

WTR YR 1999 MEAN 6.10 HIGHEST 3.89 JAN. 16, 1999 LOWEST 7.10 JULY 20, 1999

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 19	4.15	Apr. 16	6.13	May 18	6.92	June 16	5.90



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Surface-Water Records for 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 mouth, and 2.5 mi (4.0 km) northwest of Fort Christian, Charlotte Amalie.

DRAINAGE AREA.--0.49 mi^2 (1.27 km^2).

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

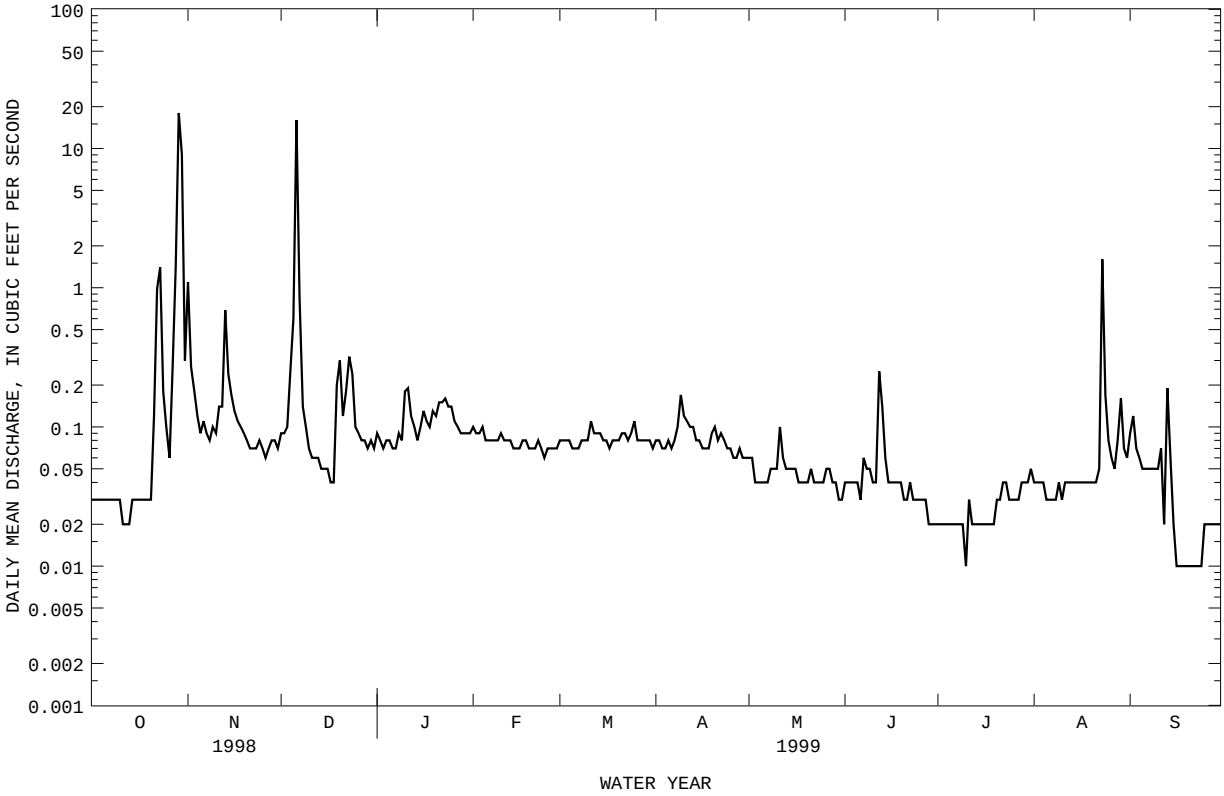
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	1.1	.09	.09	.10	.08	.08	.06	.04	.02	.04	.09
2	.03	.27	.09	.08	.09	.08	.08	.06	.04	.02	.04	.12
3	.03	.18	.10	.07	.09	.08	.07	.04	.04	.02	.04	.07
4	.03	.12	.25	.08	.10	.08	.07	.04	.04	.02	.04	.06
5	.03	.09	.60	.08	.08	.07	.08	.04	.04	.02	.03	.05
6	.03	.11	16	.07	.08	.07	.07	.04	.03	.02	.03	.05
7	.03	.09	.85	.07	.08	.07	.08	.04	.06	.02	.03	.05
8	.03	.08	.14	.09	.08	.08	.10	.05	.05	.02	.03	.05
9	.03	.10	.10	.08	.08	.08	.17	.05	.05	.02	.04	.05
10	.03	.09	.07	.18	.09	.08	.12	.05	.04	.01	.03	.05
11	.02	.14	.06	.19	.08	.11	.11	.10	.04	.03	.04	.07
12	.02	.14	.06	.12	.08	.09	.10	.06	.25	.02	.04	.02
13	.02	.69	.06	.10	.08	.09	.10	.05	.14	.02	.04	.19
14	.03	.24	.05	.08	.07	.09	.08	.05	.06	.02	.04	.06
15	.03	.17	.05	.10	.07	.08	.08	.05	.04	.02	.04	.02
16	.03	.13	.05	.13	.07	.08	.07	.05	.04	.02	.04	.01
17	.03	.11	.04	.11	.08	.07	.07	.04	.04	.02	.04	.01
18	.03	.10	.04	.10	.08	.08	.07	.04	.04	.02	.04	.01
19	.03	.09	.20	.13	.07	.08	.09	.04	.04	.02	.04	.01
20	.03	.08	.30	.12	.07	.08	.10	.04	.03	.03	.04	.01
21	.12	.07	.12	.15	.07	.09	.08	.05	.03	.03	.04	.01
22	.98	.07	.18	.15	.08	.09	.09	.04	.04	.04	.05	.01
23	1.4	.07	.32	.16	.07	.08	.08	.04	.03	.04	1.6	.01
24	.18	.08	.24	.14	.06	.09	.07	.04	.03	.03	.17	.01
25	.10	.07	.10	.14	.07	.11	.07	.04	.03	.03	.08	.02
26	.06	.06	.09	.11	.07	.08	.06	.05	.03	.03	.06	.02
27	.27	.07	.08	.10	.07	.08	.06	.05	.03	.03	.05	.02
28	1.4	.08	.08	.09	.07	.08	.07	.04	.02	.04	.08	.02
29	18	.08	.07	.09	---	.08	.06	.04	.02	.04	.16	.02
30	9.1	.07	.08	.09	---	.08	.06	.03	.02	.04	.07	.02
31	.30	---	.07	.09	---	.07	---	.03	---	.05	.06	---
TOTAL	32.48	4.84	20.63	3.38	2.18	2.55	2.49	1.44	1.43	0.81	3.17	1.21
MEAN	1.05	.16	.67	.11	.078	.082	.083	.046	.048	.026	.10	.040
MAX	18	1.1	16	.19	.10	.11	.17	.10	.25	.05	1.6	.19
MIN	.02	.06	.04	.07	.06	.07	.06	.03	.02	.01	.03	.01
AC-FT	64	9.6	41	6.7	4.3	5.1	4.9	2.9	2.8	1.6	6.3	2.4
CFSM	2.14	.33	1.36	.22	.16	.17	.17	.09	.10	.05	.21	.08
IN.	2.47	.37	1.57	.26	.17	.19	.19	.11	.11	.06	.24	.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1999, BY WATER YEAR (WY)

MEAN	.51	.67	.10	.070	.060	.051	.062	.29	.12	.044	.061	.88
MAX	3.09	4.22	.67	.35	.38	.31	.34	2.06	.89	.18	.23	8.91
(WY)	1986	1988	1999	1992	1992	1987	1986	1987	1987	1988	1988	1989
MIN	.011	.011	.002	.016	.005	.001	.000	.002	.004	.010	.010	.009
(WY)	1997	1995	1995	1986	1995	1995	1995	1995	1995	1994	1994	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1964 - 1999	
ANNUAL TOTAL	82.88		76.61			
ANNUAL MEAN	.23		.21		.24	
HIGHEST ANNUAL MEAN					.77	1989
LOWEST ANNUAL MEAN					.026	1964
HIGHEST DAILY MEAN	18	Oct 29	18	Oct 29	169	Apr 18 1983
LOWEST DAILY MEAN	.01	Jan 11	.01	Jul 10	.00	Apr 11 1980
ANNUAL SEVEN-DAY MINIMUM	.01	Jan 11	.01	Sep 16	.00	Jan 31 1986
INSTANTANEOUS PEAK FLOW			388	Oct 29	1650	Apr 18 1983
INSTANTANEOUS PEAK STAGE			4.36	Oct 29	7.00	Apr 18 1983
ANNUAL RUNOFF (AC-FT)	164		152		175	
ANNUAL RUNOFF (CFSM)	.46		.43		.43	
ANNUAL RUNOFF (INCHES)	6.29		5.82		6.65	
10 PERCENT EXCEEDS	.14		.14		.11	
50 PERCENT EXCEEDS	.03		.07		.02	
90 PERCENT EXCEEDS	.01		.02		.01	

50252000 BONNE RESOLUTION GUT AT BONNE RESOLUTION, ST. THOMAS, VI--Continued



50274000 TURPENTINE RUN AT MOUNT ZION, ST. THOMAS, VI

LOCATION.--Lat 18°19'55", long 64°53'20", Hydrologic Unit 21020001, on left bank at Mount Zion, 0.6 mi (0.9 km) east southeast from Donoe School, 0.5 mi (0.8 km) northwest from Mariendal, and 0.4 mi (0.6 km) southeast from conjunction of roads 38 and 32.

DRAINAGE AREA.--2.33 mi^2 (6.03 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to December 1969, October 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 120 ft (36 m), from topographic map. Datum of gage for period of October 1992 to current year is 1.62 ft (0.49 m), higher than previous record.

REMARKS.--Records poor. Flow affected by three sewage treatment plants, Donoe, Old Tutu and New Tutu that discharges to a retention pond located 0.80 mi upstream from station. Gage-height and precipitation satellite telemtry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.64	3.9	2.1	1.2	1.1	.58	.41	e.46	.40	.99	.23	e.74
2	.69	2.3	4.8	1.2	.71	.51	.40	e.39	.38	.24	.18	e.71
3	.64	1.9	3.6	1.2	.67	.50	.42	e.33	.26	.18	.19	e.55
4	.64	1.8	10	e1.2	.67	.47	.43	e.34	.19	.17	.15	e.50
5	.59	1.7	6.2	e1.3	.66	.46	.40	e.31	.41	.31	.14	e.46
6	.49	1.9	66	e1.2	.66	.50	.38	e.28	.36	.17	.19	e.50
7	.53	1.5	9.7	e1.1	.67	.53	.36	e.25	.20	.15	.17	e.46
8	.54	1.5	3.7	e.98	.67	.65	2.1	e.28	1.8	1.1	.15	e.48
9	.57	3.6	2.6	e.92	.69	.53	.97	e.25	.47	.54	.12	e.44
10	.58	2.7	2.2	e.93	.65	.51	.56	e.26	.35	.26	e.13	e.47
11	.57	11	2.0	e.97	.65	.48	.53	e.27	.23	.56	.16	e.61
12	.58	3.4	1.8	e.98	.66	.47	.48	e.32	2.4	.36	.14	e.71
13	.53	5.4	1.6	e.91	.62	.50	.45	.32	.69	.56	.17	e1.6
14	.49	2.6	e1.7	e.87	.65	.46	.42	.27	.27	.54	1.8	e.93
15	.46	2.6	e1.4	e.87	.69	.47	.38	.35	.66	.98	.55	e.65
16	.49	2.3	1.4	e.98	.64	.49	.40	.27	.48	.43	.39	e.57
17	.49	2.0	1.5	e.90	.58	.53	.40	.28	.51	.51	.22	e.51
18	.50	2.1	1.3	e.85	.59	.44	.47	.24	.27	.29	.16	e.48
19	.47	1.8	1.6	e.81	.61	.43	.41	.25	.21	.23	.13	e.45
20	.48	1.9	1.6	e.79	.59	.43	.36	.25	.30	.17	.32	e.44
21	2.7	2.1	2.1	e.78	.61	.45	.34	.20	.20	.35	.21	e.43
22	4.0	1.7	2.0	e.80	.63	.46	.33	.21	.18	.28	.33	e.43
23	4.4	1.7	1.8	e.77	.59	.46	.46	.22	.16	.39	7.0	e.47
24	2.1	1.6	1.4	e.76	.56	.55	e.54	.23	.19	.33	.74	e.53
25	1.6	1.6	1.6	e.75	.57	1.0	e.31	.26	.22	.22	.43	.47
26	1.5	1.5	1.3	e.73	.55	.50	e.29	.24	.19	.20	.33	.56
27	1.6	1.5	2.6	.67	.56	.43	e.30	.33	.20	.20	.25	.96
28	43	2.9	2.3	.65	.57	.42	e.30	.21	.19	.18	e32	1.2
29	17	4.9	1.5	.64	---	.43	e.33	.26	.29	.18	e2.3	.57
30	19	2.0	1.7	.63	---	.44	e.37	.25	.17	.28	e.74	.48
31	3.2	---	1.3	.69	---	.41	---	.75	---	.23	e.53	---
TOTAL	111.07	79.4	146.4	28.03	18.07	15.49	14.30	9.13	12.83	11.58	50.55	18.36
MEAN	3.58	2.65	4.72	.90	.65	.50	.48	.29	.43	.37	1.63	.61
MAX	43	11	66	1.3	1.1	1.0	2.1	.75	2.4	1.1	32	1.6
MIN	.46	1.5	1.3	.63	.55	.41	.29	.20	.16	.15	.12	.43
AC-FT	220	157	290	56	36	31	28	18	25	23	100	36
CFSM	1.54	1.14	2.03	.39	.28	.21	.20	.13	.18	.16	.70	.26
IN.	1.77	1.27	2.34	.45	.29	.25	.23	.15	.20	.18	.81	.29

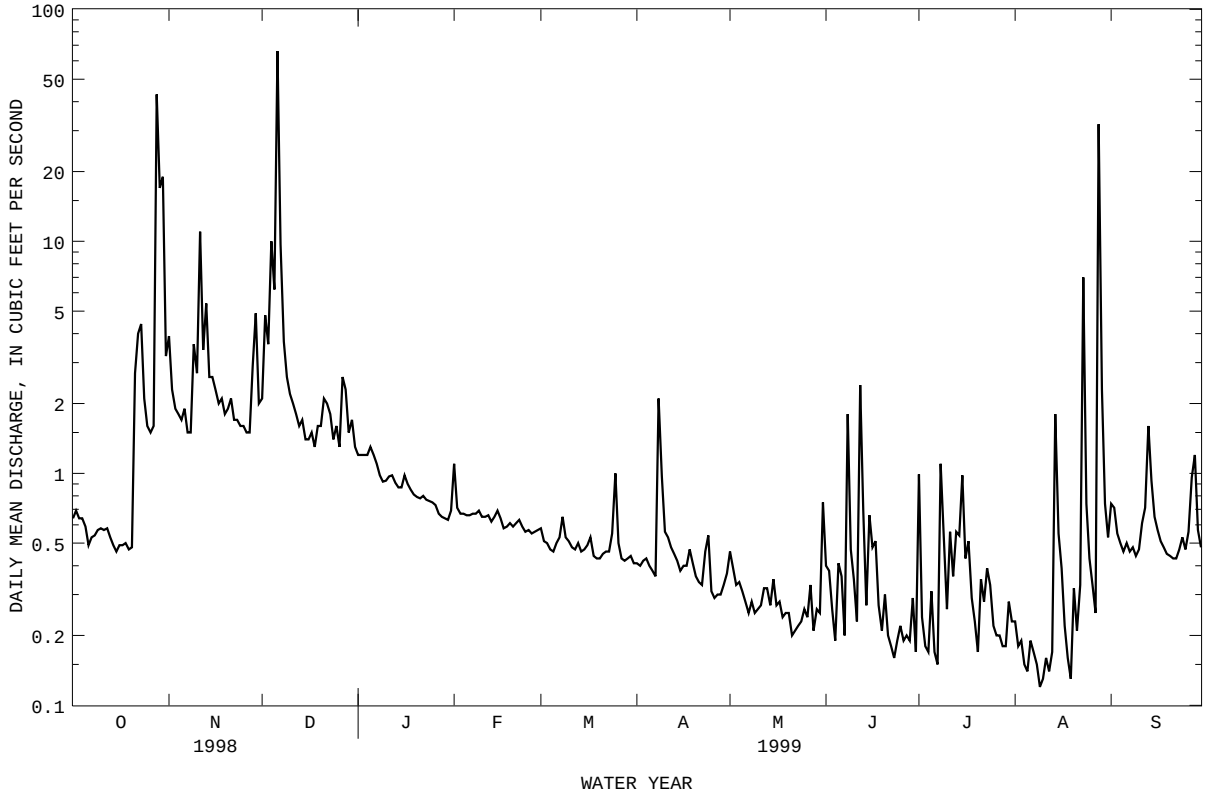
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)

MEAN	.21	.82	.51	.077	.043	.10	.033	.62	.28	.068	.068	.41
MAX	3.58	6.49	4.79	.91	.95	.76	.92	214	3.16	.74	1.63	38.0
(WY)	1999	1993	1993	1998	1997	1995	1993	1993	1993	1996	1999	1995
MIN	.024	.092	.057	.031	.018	.00	.00	.018	.00	.00	.00	.00
(WY)	1969	1965	1965	1968	1965	1965	1965	1968	1968	1965	1965	1965

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1964 - 1999	
ANNUAL TOTAL	598.70		515.21			
ANNUAL MEAN	1.64		1.41		.86	
HIGHEST ANNUAL MEAN					3.43	1995
LOWEST ANNUAL MEAN					.00	1965
HIGHEST DAILY MEAN	83	Sep 21	66	Dec 6	802	Sep 16 1995
LOWEST DAILY MEAN	.11	Aug 5	.12	Aug 9	.00	Mar 1 1965
ANNUAL SEVEN-DAY MINIMUM	.19	May 8	.15	Aug 7	.00	Mar 1 1965
INSTANTANEOUS PEAK FLOW			1580	Dec 6	10500	Sep 16 1995
INSTANTANEOUS PEAK STAGE			5.80	Dec 6	7.28	Sep 16 1995
ANNUAL RUNOFF (AC-FT)	1190		1020		621	
ANNUAL RUNOFF (CFSM)	.70		.61		.36	
ANNUAL RUNOFF (INCHES)	9.56		8.23		4.99	
10 PERCENT EXCEEDS	2.2		2.1		1.2	
50 PERCENT EXCEEDS	.52		.53		.35	
90 PERCENT EXCEEDS	.21		.21		.11	

e Estimated

50274000 TURPENTINE RUN AT MOUNT ZION, ST. THOMAS, VI--Continued



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 Cruz Bay.

DRAINAGE AREA.--0.37 mi^2 (0.96 km^2).

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. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	e.35	e.09	e.15	e.09	.04	e.02	e.04	e.05	.02	.00	.02
2	.03	e.17	.10	e.13	e.08	.05	e.01	e.04	e.05	.02	.00	.02
3	.03	e.09	.90	e.12	e.09	.04	e.01	e.04	e.04	.02	.00	.01
4	.02	.07	3.1	e.12	e.09	.04	e.01	e.04	e.04	.01	.00	.01
5	.02	.06	.83	e.11	e.07	.04	e.01	e.04	e.03	.01	.00	.01
6	.02	.05	2.5	e.10	e.08	.04	e.01	e.04	e.03	.01	.00	.01
7	.02	.04	1.8	e.09	e.07	.06	e.01	e.04	e.03	.01	.01	.01
8	.03	.04	e.59	e.08	e.05	.06	e.05	e.04	e.03	.02	.01	.01
9	.02	.05	.45	e.07	e.07	.07	e.09	e.04	e.02	.02	.01	.00
10	.02	.05	.35	e.09	e.07	.07	e.07	e.04	e.02	.01	.01	.00
11	.02	3.1	.26	e.08	e.06	.04	e.04	e.04	e.02	.01	.02	.00
12	.02	1.3	.24	e.07	e.07	.04	e.03	e.05	e.10	.00	.02	.00
13	.02	3.5	e.23	e.05	e.07	.04	e.02	e.04	e.03	.01	.02	.00
14	.02	e.40	.22	e.04	e.06	.04	e.03	e.03	e.04	.01	.03	.00
15	.02	e.23	.21	e.06	e.08	.04	e.03	e.03	e.03	.01	.03	.00
16	.02	e.17	.29	e.07	e.06	.04	e.04	e.03	e.04	.01	.02	.00
17	.02	.12	.27	e.06	e.07	e.03	e.06	e.03	e.04	.01	.02	.00
18	.02	e.13	.23	e.06	e.06	e.02	e.07	e.03	e.04	.01	.01	.01
19	.02	e.08	e.21	e.06	e.06	e.02	e.07	e.04	e.04	.01	.01	.01
20	.02	.07	e.21	e.08	e.06	e.02	e.07	e.04	e.04	.01	.01	.01
21	.03	.07	e.29	e.06	e.04	e.02	e.09	e.04	e.03	.01	.01	.01
22	.04	.06	e.19	e.05	e.04	e.01	e.11	e.04	.03	.01	.01	.01
23	.35	.05	e.34	e.04	e.04	e.01	e.09	e.04	.03	.02	.02	.01
24	1.6	.07	e.21	e.05	e.04	e.01	e.07	e.09	.03	.02	.01	.01
25	.15	.04	e.27	e.06	.04	e.05	e.07	e.05	.03	.03	.01	.01
26	.13	.04	e.19	e.05	.04	e.04	e.06	e.05	.03	.04	.01	.01
27	e.06	.04	e.20	e.06	.05	e.02	e.05	e.05	.03	.04	.01	.01
28	.06	.06	e.20	e.07	.04	e.02	e.05	e.05	.03	.04	.01	.02
29	1.4	.32	e.21	e.07	---	e.02	e.05	e.06	.04	.02	.01	.01
30	4.7	.07	e.16	e.06	---	e.03	e.04	e.07	.03	.02	.01	.01
31	.68	---	e.16	e.07	---	e.03	---	e.06	---	.02	.01	---
TOTAL	9.65	10.89	15.50	2.33	1.74	1.10	1.43	1.36	1.07	0.51	0.35	0.24
MEAN	.31	.36	.50	.075	.062	.035	.048	.044	.036	.016	.011	.008
MAX	4.7	3.5	3.1	.15	.09	.07	.11	.09	.10	.04	.03	.02
MIN	.02	.04	.09	.04	.04	.01	.01	.03	.02	.00	.00	.00
AC-FT	19	22	31	4.6	3.5	2.2	2.8	2.7	2.1	1.0	.7	.5
CFSM	.84	.98	1.35	.20	.17	.10	.13	.12	.10	.04	.03	.02
IN.	.97	1.09	1.56	.23	.17	.11	.14	.14	.11	.05	.04	.02

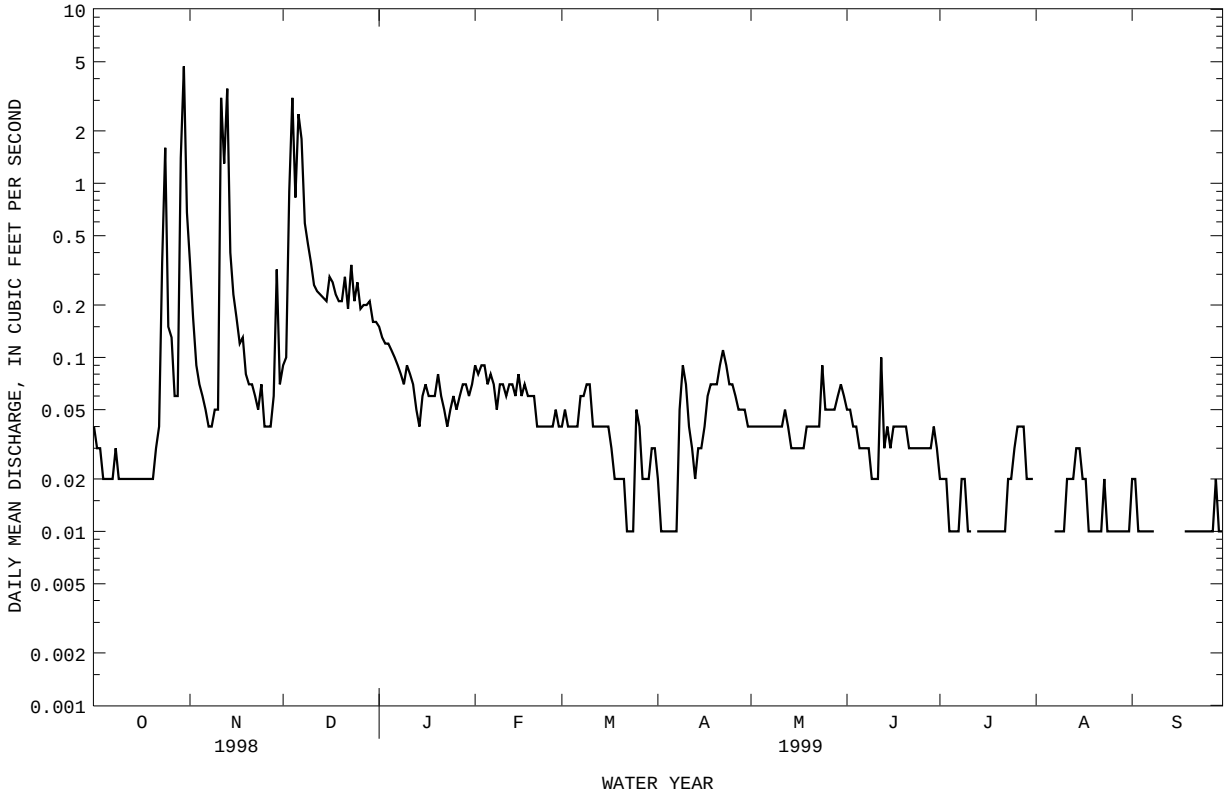
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1999, BY WATER YEAR (WY)

MEAN	.085	.33	.056	.019	.011	.008	.26	.081	.012	.011	.014	.30
MAX	.42	2.52	.50	.075	.062	.035	4.03	.89	.036	.041	.082	2.35
(WY)	1998	1985	1999	1999	1999	1999	1983	1986	1999	1996	1983	1989
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1992	1992	1987	1992	1992	1986	1995	1994	1991	1987	1991	1991

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1963 - 1999	
ANNUAL TOTAL	52.87		46.17			
ANNUAL MEAN	.14		.13		.080	
HIGHEST ANNUAL MEAN					.35	1983
LOWEST ANNUAL MEAN					.000	1967
HIGHEST DAILY MEAN	7.9	Sep 21	4.7	Oct 30	110	Apr 18 1983
LOWEST DAILY MEAN	.00	Feb 18	.00	Jul 12	.00	Jan 3 1964
ANNUAL SEVEN-DAY MINIMUM	.00	Feb 18	.00	Sep 9	.00	Sep 6 1964
INSTANTANEOUS PEAK FLOW			36	Oct 24	946	Apr 18 1983
INSTANTANEOUS PEAK STAGE			2.35	Oct 24	5.33	Apr 18 1983
ANNUAL RUNOFF (AC-FT)	105		92		58	
ANNUAL RUNOFF (CFSM)	.39		.34		.22	
ANNUAL RUNOFF (INCHES)	5.32		4.64		2.94	
10 PERCENT EXCEEDS	.21		.20		.05	
50 PERCENT EXCEEDS	.01		.04		.01	
90 PERCENT EXCEEDS	.00		.01		.00	

e Estimated

50295000 GUINEA GUT AT BETHANY, ST. JOHN, VI--Continued



50345000 JOLLY HILL GUT 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 mi^2 (5.44 km^2).

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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.26	3.2	2.0	1.7	e.66	.41	e.09	e.09	.09	.03	.00	.01
2	.26	3.5	7.0	2.1	e.61	.40	e.09	e.11	.07	.02	.00	e.01
3	.22	3.2	6.5	1.6	e.58	.37	e.08	e.11	.07	.01	.00	.00
4	.17	3.0	8.4	1.5	e.58	.36	e.09	e.11	.07	.01	.00	.00
5	.16	2.9	13	1.5	e.56	.34	e.08	e.11	.07	.01	.00	e.17
6	.17	2.8	11	1.4	e.55	.32	e.07	e.10	.07	.01	.00	.33
7	.17	2.5	11	1.2	e.53	.31	e.08	e.11	.07	.01	.00	e.07
8	.16	2.3	9.1	1.2	e.52	e.26	e.08	e.10	.07	.02	.00	.04
9	.16	2.3	8.4	1.1	e.50	e.26	e.10	e.11	.06	.02	.00	.04
10	.15	2.1	7.6	1.1	e.51	e.24	e.09	e.12	.05	.01	.00	.04
11	.13	2.3	7.2	1.3	e.51	e.24	e.09	e.15	.04	.01	.00	.05
12	.13	2.1	6.7	1.0	e.49	e.19	e.09	e.13	.04	.01	.00	.05
13	.12	1.9	6.3	.97	e.49	e.18	e.08	e.12	.04	.01	.00	e.32
14	e.12	2.1	6.1	.93	e.49	e.15	e.08	.11	.04	.02	.00	e.11
15	.12	1.8	5.5	1.0	e.49	e.14	e.10	.11	.03	.01	.00	e.07
16	.12	1.6	5.2	1.1	e.49	e.12	e.10	.11	.03	.01	.00	.06
17	.12	1.5	4.9	.92	e.49	e.11	e.11	.11	.03	.01	.00	.06
18	.10	1.4	4.5	.86	e.46	.11	e.10	.09	.03	.01	.00	e.06
19	e.09	1.3	4.2	.78	e.47	.10	e.10	.09	.03	.00	.00	e.06
20	.09	1.3	4.0	.76	e.47	.10	e.09	.09	.04	.01	.00	e.06
21	.12	1.2	3.9	.77	e.48	.10	e.09	.08	.03	.00	.00	e.05
22	27	1.2	3.7	.76	e.48	.10	e.10	.08	.03	.00	.00	e.05
23	20	1.1	3.5	.73	e.47	e.10	e.09	.08	.02	.01	.03	e.05
24	7.1	1.4	3.3	.73	e.48	e.09	e.10	.08	.02	.01	e.01	.04
25	4.3	1.1	3.1	.70	e.48	e.09	e.10	.08	.02	.01	.01	e.04
26	3.2	.97	2.8	.69	.46	e.09	e.10	.08	.02	.00	.01	e.04
27	e2.9	.93	2.6	.65	.46	e.08	e.10	.07	.02	.00	e.01	.05
28	2.9	1.6	2.4	.64	.43	e.08	e.11	.07	.01	.01	e.01	e.40
29	2.5	3.3	2.1	.61	---	e.08	e.10	.07	.01	.00	e.01	e.35
30	2.8	1.8	1.9	.60	---	e.09	e.09	.08	.02	.00	.00	e.31
31	2.4	---	1.8	.61	---	e.09	---	.08	---	.00	.00	---
TOTAL	78.24	59.70	169.7	31.51	14.19	5.70	2.77	3.03	1.24	0.29	0.09	2.99
MEAN	2.52	1.99	5.47	1.02	.51	.18	.092	.098	.041	.009	.003	.10
MAX	27	3.5	13	2.1	.66	.41	.11	.15	.09	.03	.03	.40
MIN	.09	.93	1.8	.60	.43	.08	.07	.07	.01	.00	.00	.00
AC-FT	155	118	337	63	28	11	5.5	6.0	2.5	.6	.2	5.9
CFSM	1.20	.95	2.61	.48	.24	.09	.04	.05	.02	.00	.00	.05
IN.	1.39	1.06	3.01	.56	.25	.10	.05	.05	.02	.01	.00	.05

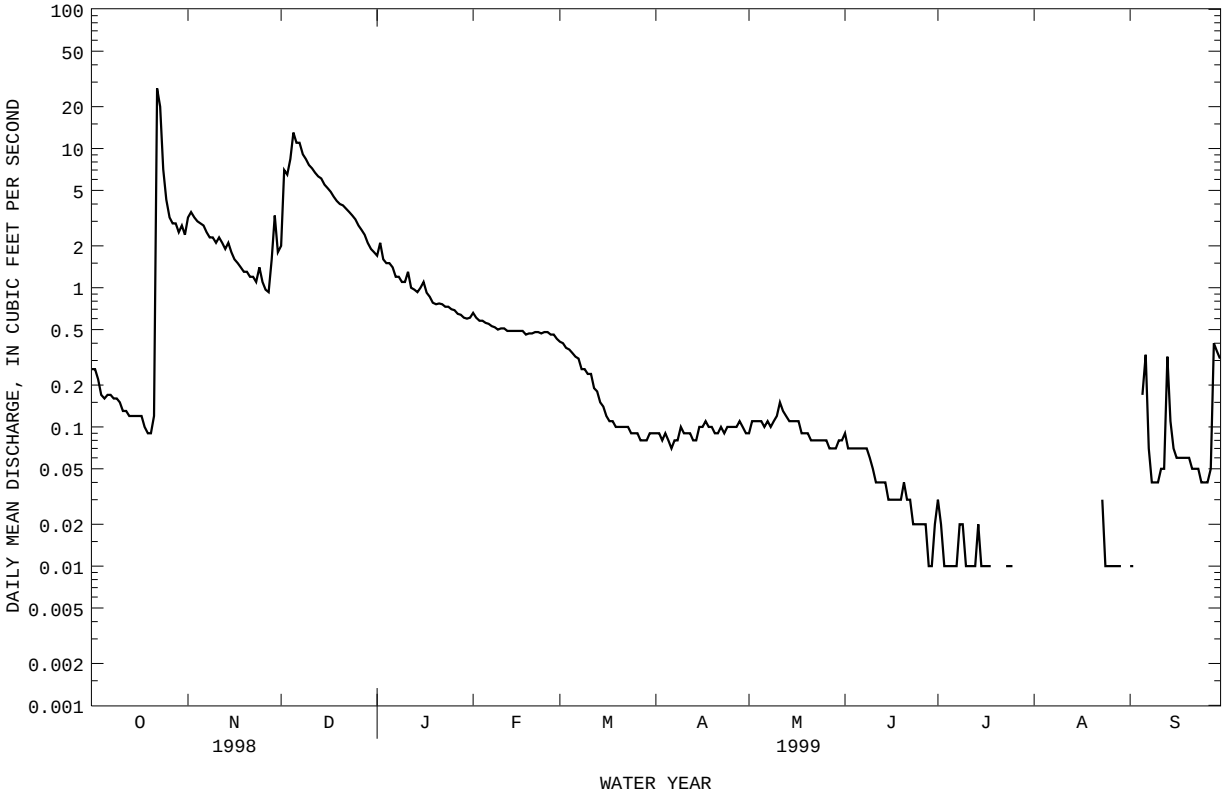
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1999, BY WATER YEAR (WY)

MEAN	.98	.82	.82	.32	.20	.095	.065	.087	.15	.073	.026	.67
MAX	5.92	2.33	5.47	1.02	.55	.34	.23	.46	1.43	.52	.18	3.80
(WY)	1996	1988	1999	1999	1988	1990	1990	1992	1987	1987	1987	1995
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1987	1992	1992	1992	1989	1989	1989	1989	1989	1989	1989	1991

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1964 - 1999	
ANNUAL TOTAL	318.88		369.45			
ANNUAL MEAN	.87		1.01		.25	
HIGHEST ANNUAL MEAN					1.01	1999
LOWEST ANNUAL MEAN					.0003	1965
HIGHEST DAILY MEAN	27	Oct 22	27	Oct 22	62	Sep 10 1996
LOWEST DAILY MEAN	.00	Jan 1	.00	Jul 19	.00	Jan 26 1964
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Jul 29	.00	Jan 26 1964
INSTANTANEOUS PEAK FLOW			265	Oct 22	937	Sep 15 1995
INSTANTANEOUS PEAK STAGE			3.52	Oct 22	5.38	Sep 15 1995
ANNUAL RUNOFF (AC-FT)	632		733		184	
ANNUAL RUNOFF (CFSM)	.42		.48		.12	
ANNUAL RUNOFF (INCHES)	5.65		6.54		1.64	
10 PERCENT EXCEEDS	2.9		2.9		.71	
50 PERCENT EXCEEDS	.00		.11		.04	
90 PERCENT EXCEEDS	.00		.01		.00	

e Estimated

50345000 JOLLY HILL GUT AT JOLLY HILL, ST. CROIX, VI--Continued



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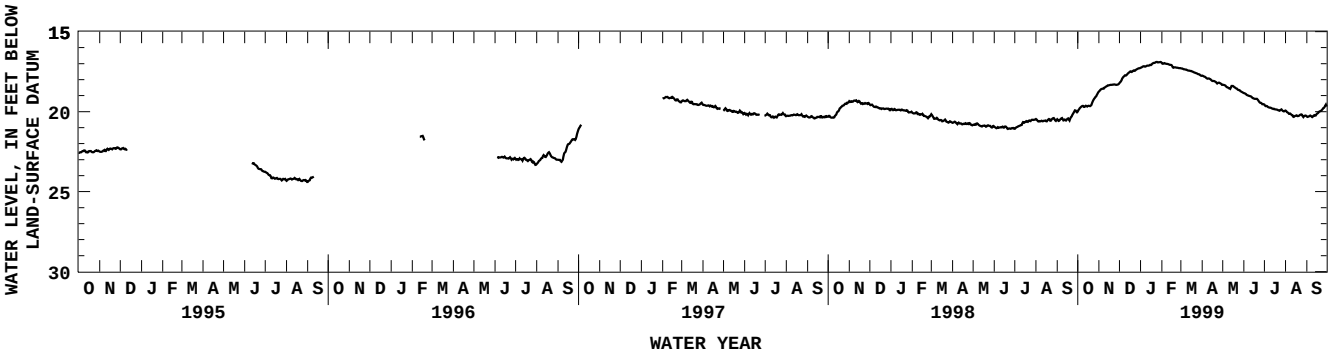
Ground-Water Records for U.S. Virgin Islands

174225064472000. Local number, 2.
LOCATION.--Lat 17°42'25", long 64°47'20", Hydrologic Unit 21020002, 0.90 mi southeast of the Experimental Station, 0.6 mi southwest of Christiansted Plaza, and 0.18 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64. Owner: US 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).
INSTRUMENTATION.--Digital water level recorder--60-minute punch.
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.
REMARKS.--Recording observation well. Water level affected by nearby pumping well.
PERIOD OF RECORD.--June 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 16.87 ft (5.14 m), below land-surface datum, Jan. 24, 25, 1999; 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 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.05	18.76	18.24	17.26	16.91	17.28	17.75	18.34	18.84	19.55	19.93	20.27
2	19.94	18.72	18.19	17.24	17.01	17.30	17.75	18.30	18.84	19.58	19.93	20.34
3	19.88	18.67	18.15	17.24	17.00	17.30	17.76	18.34	18.87	19.65	20.00	20.31
4	19.82	18.62	18.08	17.20	17.00	17.31	17.80	18.34	18.87	19.66	20.05	20.31
5	19.76	18.58	17.99	17.18	16.97	17.35	17.81	18.35	18.94	19.64	20.05	20.30
6	19.72	18.59	17.90	17.17	16.97	17.35	17.84	18.39	18.96	19.68	20.13	20.24
7	19.68	18.53	17.84	17.16	17.01	17.35	17.87	18.45	18.98	19.73	20.14	20.24
8	19.65	18.59	17.80	17.21	17.01	17.37	17.92	18.48	18.99	19.72	20.13	20.29
9	19.63	18.53	17.76	17.16	17.02	17.37	17.94	18.49	19.02	19.76	20.13	20.35
10	19.67	18.49	17.72	17.15	17.02	17.39	17.93	18.52	19.02	19.75	20.22	20.32
11	19.74	18.46	17.75	17.13	17.03	17.40	17.93	18.55	19.04	19.76	20.19	20.28
12	19.68	18.42	17.72	17.13	17.06	17.44	17.93	18.54	19.05	19.80	20.26	20.24
13	19.65	18.41	17.65	17.13	17.08	17.44	17.97	18.61	19.09	19.80	20.34	20.20
14	19.62	18.37	17.61	17.11	17.07	17.44	17.98	18.40	19.15	19.83	20.32	20.29
15	19.70	18.36	17.58	17.09	17.08	17.45	18.05	18.40	19.15	19.83	20.26	20.19
16	19.65	18.35	17.54	17.06	17.09	17.46	18.07	18.40	19.18	19.82	20.28	20.15
17	19.63	18.34	17.49	17.11	17.19	17.47	18.09	18.40	19.20	19.87	20.22	20.11
18	19.64	18.33	17.48	17.02	17.27	17.49	18.09	18.46	19.21	19.84	20.24	20.09
19	19.65	18.32	17.52	16.99	17.24	17.51	18.09	18.48	19.20	19.88	20.27	20.03
20	19.66	18.32	17.53	16.96	17.23	17.54	18.11	18.50	19.20	19.86	20.28	19.99
21	19.61	18.32	17.46	16.95	17.24	17.55	18.13	18.55	19.21	19.90	20.26	19.97
22	19.56	18.31	17.43	16.95	17.23	17.56	18.16	18.55	19.26	19.91	20.23	19.96
23	19.40	18.31	17.42	16.93	17.26	17.59	18.25	18.59	19.34	19.94	20.19	19.92
24	19.32	18.29	17.47	16.89	17.25	17.59	18.22	18.66	19.36	19.94	20.17	19.87
25	19.24	18.31	17.40	16.89	17.26	17.61	18.19	18.64	19.46	19.89	20.18	19.82
26	19.17	18.32	17.37	16.91	17.27	17.65	18.19	18.65	19.44	19.87	20.21	19.76
27	19.11	18.33	17.35	16.92	17.28	17.66	18.20	18.70	19.46	19.85	20.36	19.76
28	19.06	18.31	17.32	16.91	17.28	17.67	18.23	18.75	19.52	19.96	20.31	19.68
29	19.02	18.31	17.30	16.91	---	17.69	18.25	18.75	19.55	19.94	20.27	19.56
30	18.91	18.30	17.29	16.90	---	17.74	18.30	18.78	19.53	20.02	20.24	19.56
31	18.84	---	17.29	16.90	---	17.76	---	18.80	---	19.95	20.25	---
MEAN	19.54	18.43	17.63	17.06	17.12	17.49	18.03	18.52	19.16	19.81	20.19	20.08

WTR YR 1999 MEAN 18.60 HIGHEST 16.87 JAN. 24, 25, 1999 LOWEST 20.37 AUG. 27, 30, 1999

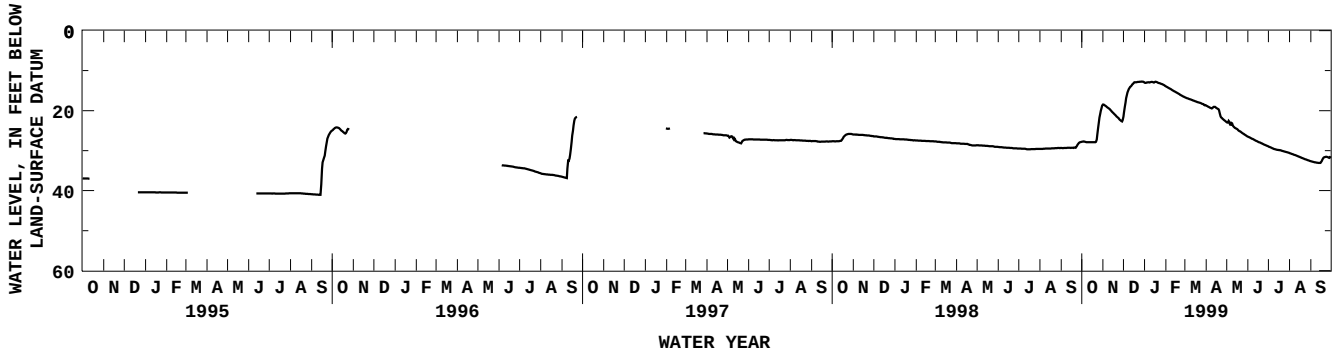


174243064475100. Local number, 3.
LOCATION.--Lat 17°42'43", long 64°47'51", Hydrologic Unit 21020002, 0.75 mi northwest of the Alexander Hamilton Airport entrance on Hwy 64, 6.45 mi southwest of Christiansted Plaza, and 0.57 mi southwest of the Experimental Station. Owner: US Virgin Islands Government, 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).
INSTRUMENTATION.--Digital water level recorder--60-minute punch.
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, 12.65 ft (3.25 m), below land-surface datum, Dec. 29, 1998; lowest water level recorded, 41.05 ft (12.5 m), below land-surface datum, Sept. 15, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.80	18.53	22.02	12.96	13.85	16.60	18.69	22.87	26.43	28.90	30.57	32.60
2	27.75	18.45	21.03	13.02	13.95	16.69	18.73	22.92	26.54	29.00	30.65	32.64
3	27.73	18.54	19.76	13.08	14.05	16.77	18.90	23.07	26.61	29.07	30.70	32.70
4	27.71	18.63	18.46	12.99	14.15	16.84	18.93	22.84	26.67	29.15	30.78	32.74
5	27.71	18.78	17.41	12.95	14.25	16.93	19.05	22.27	26.78	29.22	30.82	32.80
6	27.74	18.89	16.41	12.95	14.35	16.97	19.18	23.35	26.87	29.27	30.89	32.85
7	27.83	19.07	15.72	12.91	14.45	17.03	19.25	23.62	26.98	29.37	30.96	32.90
8	27.87	19.17	15.17	12.95	14.55	17.11	19.30	23.45	27.06	29.43	31.02	32.93
9	27.87	19.28	14.75	12.94	14.66	17.14	19.41	22.71	27.13	29.52	31.09	32.97
10	27.88	19.41	14.42	12.90	14.76	17.22	19.47	23.65	27.22	29.59	31.14	33.00
11	27.88	19.57	14.15	12.87	14.86	17.28	19.31	23.87	27.28	29.65	31.21	33.03
12	27.87	19.71	13.99	12.79	14.96	17.36	19.12	24.01	27.43	29.69	31.28	33.04
13	27.87	19.92	13.81	12.84	15.06	17.41	19.03	24.23	27.52	29.74	31.34	33.07
14	27.88	20.12	13.51	12.87	15.16	17.50	19.04	24.32	27.57	29.81	31.41	33.09
15	27.88	20.31	13.36	13.05	15.26	17.53	19.10	24.41	27.63	29.81	31.49	33.10
16	27.88	20.46	13.27	12.91	15.36	17.63	19.33	24.52	27.73	29.84	31.57	33.02
17	27.88	20.63	12.90	12.77	15.46	17.68	19.40	24.65	27.85	29.87	31.64	32.78
18	27.88	20.89	12.90	12.80	15.56	17.71	19.50	24.82	27.90	29.89	31.70	32.42
19	27.88	20.97	12.90	12.85	15.66	17.79	19.60	24.99	27.95	29.90	31.77	32.06
20	27.88	21.17	12.93	12.92	15.76	17.89	19.65	25.11	28.06	29.94	31.85	31.81
21	27.88	21.38	12.88	13.01	15.86	17.92	20.19	25.20	28.13	30.02	31.92	31.67
22	27.87	21.53	12.87	13.07	15.96	17.98	21.33	25.22	28.20	30.06	31.99	31.59
23	27.69	21.67	12.79	13.13	16.07	18.06	21.59	25.42	28.28	30.10	32.07	31.54
24	26.70	21.80	12.83	13.19	16.17	18.08	21.76	25.59	28.37	30.15	32.13	31.53
25	25.27	22.02	12.80	13.25	16.28	18.12	21.93	25.68	28.46	30.21	32.20	31.58
26	23.50	22.22	12.76	13.31	16.34	18.23	22.12	25.77	28.53	30.26	32.25	31.60
27	22.25	22.40	12.78	13.37	16.45	18.30	22.25	25.92	28.60	30.30	32.30	31.71
28	21.27	22.53	12.72	13.45	16.53	18.34	22.38	26.01	28.67	30.36	32.37	31.77
29	20.41	22.67	12.73	13.55	---	18.43	22.55	26.12	28.76	30.41	32.44	31.83
30	19.70	22.75	12.76	13.65	---	18.72	22.65	26.24	28.83	30.46	32.50	31.65
31	18.97	---	12.81	13.75	---	18.58	---	26.35	---	30.51	32.56	---
MEAN	26.39	20.45	14.50	13.07	15.21	17.61	20.09	24.49	27.67	29.79	31.57	32.40

WTR YR 1999 MEAN 22.81 HIGHEST 12.65 DEC. 29, 1998 LOWEST 33.10 SEPT. 15, 1999

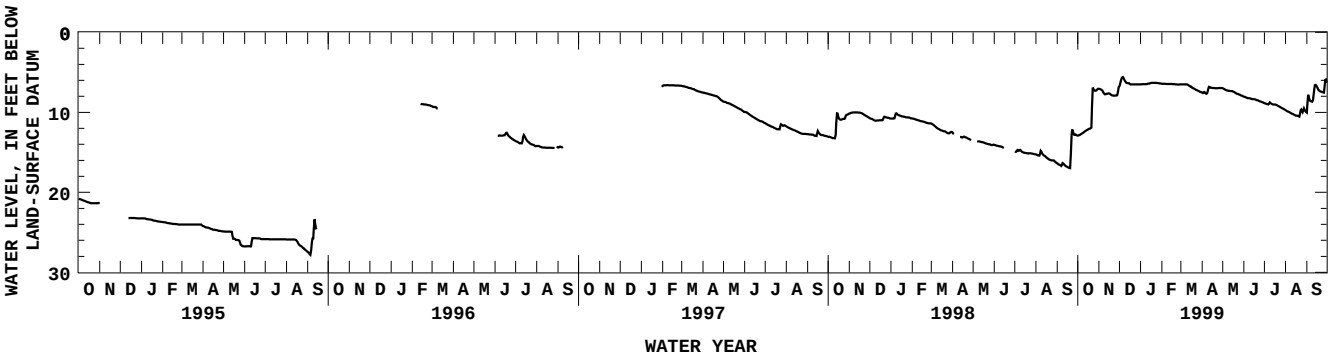


174316064480800. Local number, 13.
LOCATION.--Lat 17°43'16", long 64°48'08", Hydrologic Unit 21020002, 5.25 mi east of Fort Frederick at Frederickstead, 0.95 mi southeast of Holy Cross Church, and 0.65 mi northeast of Adventure Ruins. Owner: US Virgin Islands Water and Power Authority, Name: WAPA-17 at Adventure well field.
AQUIFER.--Kingshill Limestone.
WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-95.0 ft (0-29.0 m), screened 10-40.0 ft (3.05-12.2 m). Depth 95.0 ft (29.0 m).
INSTRUMENTATION.--Digital water level recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is about 75.0 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, 0.27 ft (0.08 m), below land-surface datum, Sept. 10, 1996; lowest water level recorded, 27.88 ft (8.50 m), below land-surface datum, Sept. 6, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.89	7.06	6.74	6.51	6.43	6.51	7.51	6.97	8.01	8.84	9.70	10.00
2	12.91	7.07	6.69	6.51	6.44	6.51	7.57	7.01	8.05	8.87	9.75	10.06
3	12.86	7.07	6.31	6.48	6.44	6.51	7.62	7.06	8.07	8.89	9.81	7.78
4	12.84	7.12	5.90	6.48	6.44	6.51	7.47	7.11	8.13	8.93	9.87	7.84
5	12.82	7.18	5.65	6.48	6.44	6.51	7.48	7.15	8.14	8.96	9.90	8.32
6	12.73	7.23	5.63	6.48	6.44	6.51	7.55	7.20	8.19	8.97	9.93	8.53
7	12.69	7.33	5.55	6.49	6.44	6.51	7.65	7.24	8.23	8.99	9.97	8.59
8	12.64	7.51	5.81	6.49	6.45	6.51	7.70	7.27	8.24	9.00	10.03	8.62
9	12.58	7.65	6.00	6.49	6.45	6.51	7.56	7.28	8.24	8.74	10.07	8.66
10	12.52	7.72	6.08	6.49	6.45	6.51	7.30	7.33	8.24	8.79	10.12	8.66
11	12.45	7.76	6.27	6.45	6.46	6.52	6.82	7.33	8.26	8.91	10.17	8.27
12	12.39	7.69	6.31	6.40	6.46	6.59	6.82	7.33	8.32	8.91	10.22	7.49
13	12.32	7.69	6.34	6.40	6.46	6.67	6.87	7.34	8.34	9.00	10.25	6.69
14	12.27	7.67	6.35	6.40	6.46	6.69	6.92	7.34	8.34	9.02	10.29	6.52
15	12.21	7.62	6.36	6.40	6.46	6.76	6.94	7.34	8.35	9.02	10.36	6.63
16	12.17	7.62	6.36	6.34	6.46	6.80	6.95	7.37	8.35	9.02	10.39	6.74
17	12.10	7.62	6.50	6.31	6.47	6.80	6.97	7.42	8.35	9.03	10.42	6.89
18	12.06	7.73	6.50	6.31	6.48	6.97	6.97	7.44	8.38	9.03	10.42	7.14
19	12.04	7.79	6.50	6.31	6.48	6.97	6.97	7.49	8.43	9.06	10.43	7.22
20	12.00	7.86	6.50	6.31	6.48	7.02	6.97	7.57	8.47	9.11	10.47	7.34
21	11.98	7.88	6.50	6.32	6.50	7.06	6.98	7.62	8.49	9.17	10.51	7.37
22	11.81	7.90	6.50	6.32	6.50	7.09	6.98	7.65	8.51	9.23	10.54	7.40
23	6.86	7.91	6.50	6.32	6.50	7.18	6.98	7.69	8.55	9.26	9.96	7.43
24	6.96	7.93	6.51	6.32	6.52	7.20	6.99	7.73	8.60	9.30	9.51	7.46
25	7.17	7.89	6.51	6.32	6.52	7.24	6.99	7.74	8.64	9.35	9.80	7.49
26	7.27	7.89	6.51	6.33	6.52	7.28	6.95	7.80	8.65	9.40	9.93	7.52
27	7.30	7.89	6.51	6.34	6.52	7.32	6.96	7.82	8.69	9.46	10.03	7.53
28	7.30	7.92	6.51	6.37	6.51	7.38	6.96	7.89	8.72	9.51	9.41	6.26
29	7.26	7.71	6.51	6.37	---	7.42	6.96	7.91	8.75	9.54	9.60	5.64
30	7.15	6.99	6.51	6.39	---	7.45	6.97	7.94	8.79	9.60	9.82	6.16
31	7.06	---	6.51	6.40	---	7.48	---	7.95	---	9.64	9.92	---
MEAN	10.89	7.60	6.32	6.40	6.47	6.87	7.14	7.46	8.38	9.11	10.05	7.61

WTR YR 1999 MEAN 7.87 HIGHEST 5.31 SEPT. 28, 1999 LOWEST 12.911 OCT. 1, 2, 1998

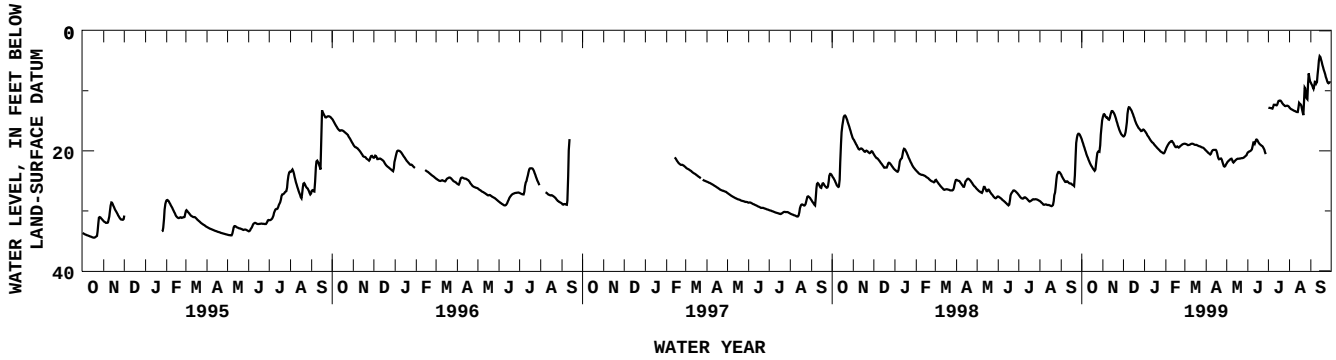


182038064550300. Local number, 6.
LOCATION.--Lat 18°20'38", long 64°55'03", Hydrologic Unit 21020001, 1.12 mi east of Charlotte Amalie, 0.75 mi southwest of Winterberg Peak, and 1.08 mi southeast of Canaan. Owner: US Virgin Islands Government, Name: Grade School 3.
AQUIFER.--Volcanic breccia.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 70.0 ft (21.3 m).
INSTRUMENTATION.--Digital water level recorder--60-minute punch.
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 (10.8 m), below land-surface datum, July 21, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.93	14.63	17.60	16.56	19.88	18.81	19.93	22.17	20.26	12.80	12.72	8.48
2	18.26	14.01	17.63	16.71	19.63	18.82	20.03	21.98	20.23	12.82	12.86	8.77
3	18.61	13.84	17.51	16.89	19.35	18.86	20.14	21.81	20.14	12.82	12.97	8.96
4	18.96	13.93	17.23	17.06	19.14	18.91	20.26	21.68	20.08	12.83	13.07	9.23
5	19.30	14.16	16.58	17.26	18.93	19.00	20.36	21.60	20.04	12.88	13.12	9.54
6	19.67	14.45	15.92	17.47	18.75	19.06	20.47	21.51	19.98	12.90	13.20	9.80
7	20.02	14.39	14.47	17.65	18.62	19.04	20.57	21.37	19.79	12.96	13.25	8.49
8	20.37	14.44	13.24	17.82	18.52	18.99	20.62	21.32	19.72	12.98	13.31	8.47
9	20.72	14.66	12.76	18.00	18.42	18.94	20.32	21.31	18.69	12.32	13.36	8.58
10	21.04	14.82	12.69	18.21	18.30	18.88	20.04	21.71	18.49	12.31	13.41	8.95
11	21.35	14.79	12.82	18.36	18.41	18.83	19.90	21.98	18.71	12.31	13.47	8.05
12	21.62	14.28	13.01	18.50	18.62	18.82	19.83	21.92	18.91	12.36	13.51	6.62
13	21.87	13.83	13.21	18.61	18.75	18.81	19.84	21.76	18.15	12.41	13.54	5.61
14	22.14	13.39	13.48	18.72	19.05	18.86	19.86	21.63	18.14	12.44	13.54	4.25
15	22.38	13.34	13.78	18.86	19.30	18.94	19.84	21.52	18.11	12.11	11.86	4.19
16	22.56	13.44	14.06	19.02	19.44	19.00	19.84	21.42	18.35	11.71	12.13	4.55
17	22.76	13.59	14.40	19.15	19.34	19.00	20.12	21.34	18.60	11.66	12.17	5.00
18	22.97	13.81	14.73	19.26	19.27	19.00	20.63	21.31	18.79	11.61	12.26	5.46
19	23.13	14.09	15.07	19.38	19.29	19.04	21.12	21.32	18.91	11.61	12.58	5.90
20	23.27	14.42	15.38	19.52	19.47	19.10	21.42	21.30	19.01	11.70	13.20	6.26
21	23.38	14.80	15.62	19.63	19.41	19.16	21.40	21.28	19.10	11.90	13.78	6.65
22	22.92	15.20	15.86	19.74	19.29	19.21	21.31	21.26	19.17	12.07	14.33	7.05
23	21.59	15.60	16.07	19.86	19.20	19.25	21.22	21.24	19.25	12.25	10.14	7.47
24	20.60	15.96	16.22	19.99	19.10	19.27	21.37	21.22	19.43	12.33	8.76	7.87
25	20.18	16.29	16.35	20.11	18.99	19.35	21.71	21.20	19.65	12.46	10.46	8.21
26	20.06	16.63	16.49	20.20	18.91	19.42	22.08	21.17	19.99	12.55	11.07	8.55
27	20.08	16.91	16.66	20.26	18.88	19.45	22.49	21.07	20.38	12.54	11.38	8.80
28	20.15	17.17	16.76	20.34	18.83	19.49	22.64	20.96	20.72	12.51	11.39	8.68
29	18.02	17.33	16.61	20.41	---	19.55	22.58	20.87	---	12.48	6.76	8.51
30	16.62	17.44	16.46	20.41	---	19.67	22.39	20.78	---	12.51	7.44	8.66
31	15.28	---	16.44	20.18	---	19.81	---	20.67	---	12.59	8.37	---
MEAN	20.57	14.85	15.33	18.84	19.04	19.11	20.81	21.41	19.31	12.38	12.05	7.52

WTR YR 1999 MEAN 16.75 HIGHEST 4.12 SEPT. 15, 1999 LOWEST 23.41 OCT. 21, 1998



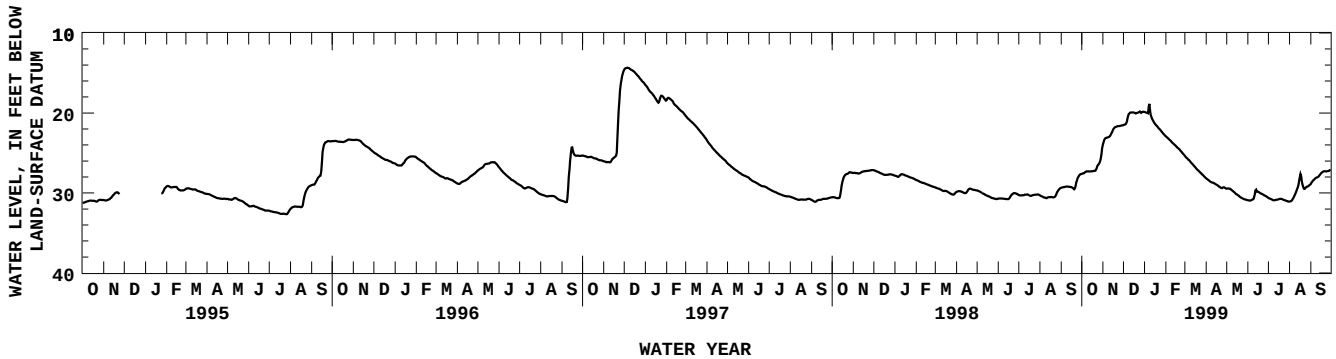
ST. THOMAS, U.S. VIRGIN ISLANDS

182038064580000. Local number, 8.
LOCATION.--Lat 18°20'38", long 64°58'00", Hydrologic Unit 21020001, 2.08 mi northwest of Charlotte Amalie, 0.50 mi northeast of Harry S. Truman Airport entrance on Hwy 302, and 1.15 mi southwest of Dorothea. Owner: US Virgin Islands Water and Power Authority, Name: Kirwan Terrace, VIEO-6.
AQUIFER.--Alluvial deposits, volcanic rock.
WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-56 in (0-17.1 m), screened 56-76.0 ft (17.1-23.2 m). Depth 76.0 ft (23.2 m).
INSTRUMENTATION.--Digital water level recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is about 35.0 ft (10.7 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.00 ft (0.91 m), above land-surface datum.
REMARKS.--Recording observation well. Drilled on July 1, 1991.
PERIOD OF RECORD.--October 2, 1991 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 14.3 ft (4.37 m), below land-surface datum, Dec. 6, 7, 1996; lowest water level recorded, 32.7 ft (9.96 m), below land-surface datum, July 27, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.63	24.14	21.53	19.86	22.88	25.31	28.13	29.46	30.89	30.59	31.08	28.92
2	27.59	23.75	21.51	19.87	22.95	25.42	28.20	29.45	30.91	30.65	31.05	28.79
3	27.56	23.46	21.45	19.93	23.04	25.52	28.26	29.44	30.94	30.68	31.04	28.65
4	27.55	23.27	21.43	19.95	23.10	25.61	28.33	29.44	30.94	30.71	31.01	28.55
5	27.53	23.16	21.35	19.97	23.17	25.69	28.41	29.45	30.95	30.74	30.90	28.43
6	27.43	23.11	21.24	20.01	23.26	25.78	28.47	29.47	30.92	30.78	30.77	28.36
7	27.39	23.08	20.92	20.06	23.35	25.88	28.53	29.47	30.87	30.83	30.62	28.27
8	27.32	23.06	20.43	18.30	23.44	25.91	28.60	29.61	30.82	30.88	30.47	28.18
9	27.31	23.04	20.19	19.41	23.51	26.04	28.67	29.67	30.81	30.91	30.28	28.13
10	27.31	23.01	20.07	20.08	23.62	26.15	28.69	29.71	30.71	30.91	30.09	28.06
11	27.31	22.97	19.99	20.40	23.72	26.23	28.72	29.77	30.40	30.90	29.87	28.04
12	27.31	22.85	19.94	20.64	23.79	26.34	28.73	29.86	30.01	30.87	29.64	27.99
13	27.29	22.71	19.94	20.83	23.86	26.44	28.77	29.93	29.36	30.86	29.43	27.94
14	27.31	22.53	19.92	20.98	23.94	26.55	28.83	30.02	29.81	30.85	29.15	27.83
15	27.32	22.39	19.93	21.14	24.02	26.64	28.88	30.09	29.83	30.81	28.72	27.71
16	27.30	22.17	19.92	21.28	24.11	26.72	28.93	30.16	29.83	30.80	28.24	27.59
17	27.27	21.99	19.94	21.40	24.19	26.82	28.97	30.21	29.88	30.78	27.69	27.49
18	27.27	21.87	19.98	21.49	24.28	26.93	29.03	30.28	29.93	30.75	27.61	27.42
19	27.24	21.80	20.05	21.58	24.38	27.03	29.09	30.35	29.98	30.72	28.27	27.36
20	27.23	21.74	20.05	21.67	24.43	27.12	29.16	30.41	30.03	30.73	28.79	27.31
21	27.25	21.73	20.02	21.78	24.50	27.19	29.22	30.48	30.08	30.75	29.16	27.29
22	27.19	21.67	19.97	21.89	24.60	27.29	29.28	30.54	30.11	30.78	29.40	27.28
23	26.99	21.64	19.97	22.00	24.72	27.36	29.34	30.60	30.16	30.83	29.54	27.29
24	26.75	21.62	19.90	22.07	24.81	27.44	29.39	30.65	30.21	30.87	29.46	27.30
25	26.53	21.66	19.85	22.17	24.92	27.53	29.38	30.70	30.27	30.89	29.33	27.29
26	26.43	21.63	19.80	22.30	25.03	27.62	29.32	30.74	30.32	30.91	29.24	27.27
27	26.29	21.60	20.03	22.36	25.12	27.70	29.29	30.77	30.36	30.95	29.20	27.26
28	26.15	21.59	19.95	22.49	25.21	27.79	29.30	30.80	30.40	30.99	29.19	27.24
29	25.89	21.56	19.89	22.60	---	27.88	29.36	30.82	30.46	31.02	29.14	27.16
30	25.45	21.54	19.85	22.70	---	27.96	29.41	30.85	30.52	31.05	29.05	27.12
31	24.67	---	19.85	22.80	---	28.04	---	30.87	---	31.07	28.99	---
MEAN	27.00	22.41	20.29	21.10	24.00	26.71	28.89	30.13	30.36	30.83	29.56	27.78

WTR YR 1999 MEAN 26.60 HIGHEST 17.92 JAN. 8, 1999 LOWEST 31.09 AUG. 1, 2, 1999

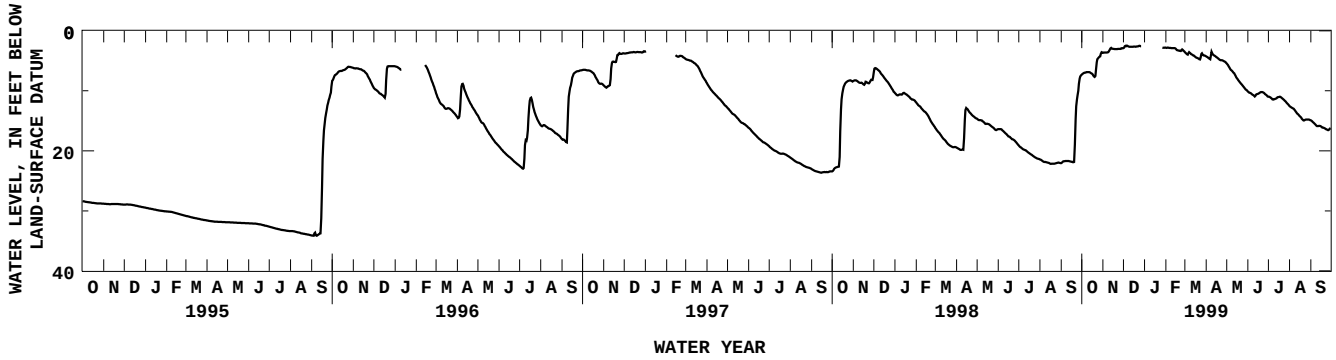


181956064464500. Local number, 11.
LOCATION.--Lat 18°19'56", long 64°46'45", Hydrologic Unit 21020001, 1.05 mi southeast of Cruz Bay plaza, 0.25 mi southeast of Bethany Church, and 0.48 mi southeast of Margaret Hill. Owner: US Virgin Islands Government, Name: Guinea Gut Well.
AQUIFER.--Louisenhoj Formation (Donnelly, 1959).
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 85.0 ft (25.9 m).
INSTRUMENTATION.--Digital water level recorder--60-minute punch.
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, 2.34 ft (0.71 m), below land-surface datum, Dec. 7, 1998; lowest water level recorded, 34.18 ft (10.4 m), below land-surface datum, Sept. 6, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.36	3.61	2.88	---	2.78	3.49	4.23	5.38	10.04	10.99	12.49	14.91
2	7.26	3.64	2.91	---	2.83	3.62	4.27	5.48	10.16	10.95	12.62	14.94
3	7.16	3.63	2.71	---	2.84	3.71	4.35	5.63	10.28	10.99	12.69	15.02
4	7.06	3.63	2.44	---	2.78	3.86	4.43	5.80	10.33	11.06	12.74	15.13
5	7.00	3.63	2.58	---	2.81	3.93	4.54	6.01	10.34	11.13	12.83	15.26
6	6.97	3.61	2.53	---	2.83	4.00	4.63	6.19	10.42	11.25	12.88	15.36
7	6.97	3.62	2.42	---	2.86	3.46	4.71	6.40	10.51	11.36	12.96	15.46
8	6.91	3.60	2.56	---	2.85	3.62	4.78	6.56	10.63	11.48	13.04	15.59
9	6.88	3.55	2.61	---	2.86	3.68	3.30	6.60	10.69	11.41	13.20	15.72
10	6.87	3.58	2.64	---	2.87	3.82	3.70	6.79	10.76	11.39	13.35	15.83
11	6.86	3.16	2.67	---	2.88	3.90	3.88	6.92	10.87	11.39	13.51	15.89
12	6.87	3.12	2.67	---	2.91	3.98	4.02	7.01	11.02	11.29	13.69	15.86
13	6.88	2.80	2.67	---	2.88	4.05	4.08	7.13	10.69	11.28	13.80	15.87
14	6.96	2.90	2.67	---	2.87	4.11	4.17	7.37	10.56	11.18	13.93	15.80
15	7.04	2.98	2.67	---	2.90	4.17	4.23	7.60	10.53	11.06	14.06	15.85
16	7.11	3.00	2.62	---	2.99	4.29	4.33	7.80	10.50	11.03	14.19	15.91
17	7.16	3.02	2.60	---	3.12	4.36	4.42	7.98	10.46	11.02	14.28	15.98
18	7.34	3.01	2.63	---	3.26	4.45	4.47	8.12	10.38	10.98	14.39	16.09
19	7.54	3.04	2.64	---	3.22	4.48	4.60	8.31	10.30	11.00	14.55	16.14
20	7.68	3.05	2.65	---	3.30	4.54	4.67	8.44	10.23	11.07	14.73	16.14
21	7.71	3.05	2.60	---	3.32	4.62	4.77	8.59	10.21	11.19	14.86	16.18
22	7.32	3.04	2.61	---	3.31	4.68	4.88	8.76	10.20	11.27	14.96	16.25
23	5.67	3.03	2.57	---	3.31	4.76	4.92	8.86	10.22	11.36	14.96	16.33
24	4.80	2.99	2.55	---	3.44	4.79	4.90	9.01	10.26	11.47	14.83	16.41
25	4.67	3.02	2.45	---	3.11	4.12	4.91	9.15	10.37	11.58	14.81	16.45
26	4.46	3.02	2.57	---	3.10	3.59	4.93	9.29	10.46	11.69	14.78	16.54
27	4.36	3.01	2.58	2.77	3.28	3.91	5.04	9.45	10.57	11.81	14.78	16.56
28	4.29	2.98	2.56	2.79	3.38	4.05	5.08	9.59	10.65	11.96	14.81	16.51
29	4.21	2.85	---	2.82	---	4.11	5.13	9.73	10.75	12.09	14.79	16.33
30	3.50	2.92	---	2.83	---	4.09	5.23	9.84	10.91	12.20	14.78	16.24
31	3.67	---	---	2.82	---	4.16	---	9.89	---	12.34	14.83	---
MEAN	6.34	3.20	2.62	2.81	3.03	4.08	4.52	7.73	10.48	11.36	13.97	15.88

WTR YR 1999 MEAN 7.57 HIGHEST 2.37 DEC. 7, 1998 LOWEST 16.58 SEPT. 26, 27, 1999



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CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
	Length	
inch (in.)	2.54×10^{1}	millimeter
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter
mile (mi)	1.609×10^{0}	kilometer
	Area	
acre	4.047×10^{3}	square meter
	4.047×10^{-1}	square hectometer
	4.047×10^{-3}	square kilometer
square mile (mi^2)	2.590×10^{0}	square kilometer
	Volume	
gallon (gal)	3.785×10^{0}	liter
	3.785×10^{0}	cubic decimeter
	3.785×10^{-3}	cubic meter
million gallons (Mgal)	3.785×10^{3}	cubic meter
	3.785×10^{-3}	cubic hectometer
cubic foot (ft^3)	2.832×10^{1}	cubic decimeter
	2.832×10^{-2}	cubic meter
cubic-foot-per-second day [(ft^3/s) d]	2.447×10^{3}	cubic meter
	2.447×10^{-3}	cubic hectometer
acre-foot (acre-ft)	1.233×10^{3}	cubic meter
	1.233×10^{-3}	cubic hectometer
	1.233×10^{-6}	cubic kilometer
	Flow	
cubic foot per second (ft^3/s)	2.832×10^{1}	liter per second
	2.832×10^{1}	cubic decimeter per second
	2.832×10^{-2}	cubic meter per second
gallon per minute (gal/min)	6.309×10^{-2}	liter per second
	6.309×10^{-2}	cubic decimeter per second
	6.309×10^{-5}	cubic meter per second
million gallons per day (Mgal/d)	4.381×10^{1}	cubic decimeter per second
	4.381×10^{-2}	cubic meter per second
	Mass	
ton (short)	9.072×10^{-1}	megagram or metric ton

Sea level: In this report “sea level” refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

U.S. DEPARTMENT OF THE INTERIOR
U.S. Geological Survey
GSA Center, 651 Federal Drive, Suite 400-15
Guaynabo, PR 00965