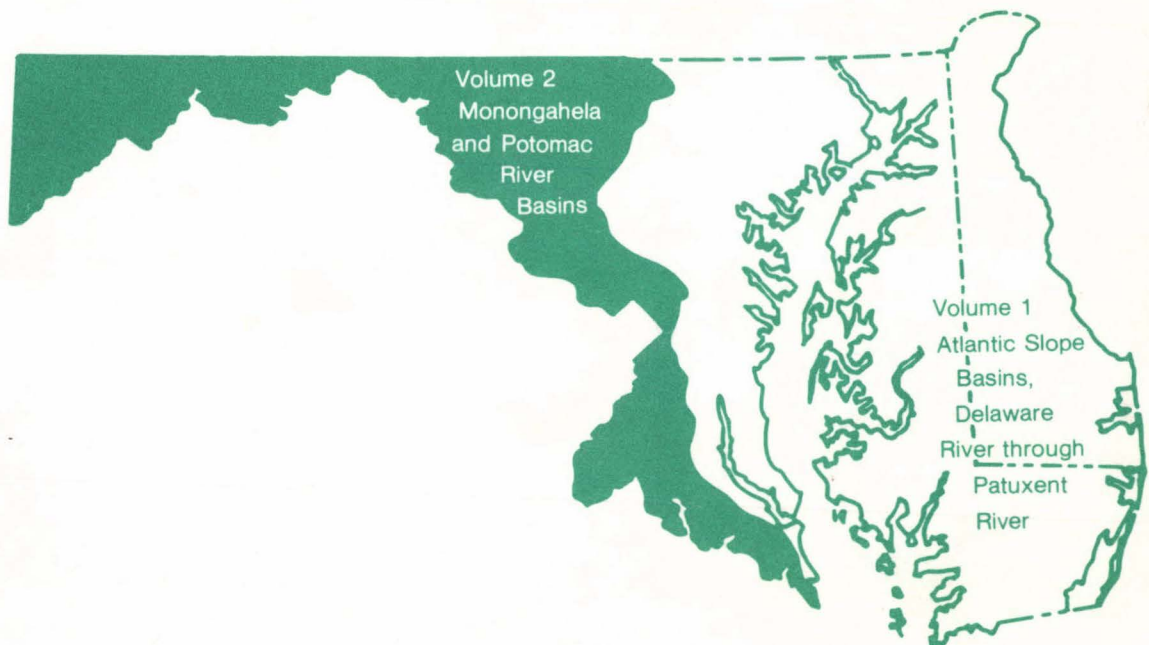




Water Resources Data Maryland and Delaware Water Year 1990

Volume 2. Monongahela and Potomac River Basins



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MD-DE-90-2
Prepared in cooperation with the States of Maryland and Delaware
and with other agencies

CALENDAR FOR WATER YEAR 1990

1989

OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7				1	2	3	4						1	2
8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9
15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16
22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
29	30	31					26	27	28	29	30			24	25	26	27	28	29	30
														31						

1990

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6					1	2	3					1	2	3
7	8	9	10	11	12	13	4	5	6	7	8	9	10	4	5	6	7	8	9	10
14	15	16	17	18	19	20	11	12	13	14	15	16	17	11	12	13	14	15	16	17
21	22	23	24	25	26	27	18	19	20	21	22	23	24	18	19	20	21	22	23	24
28	29	30	31				25	26	27	28				25	26	27	28	29	30	31

APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7			1	2	3	4	5						1	2
8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9
15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16
22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23
29	30						27	28	29	30	31			24	25	26	27	28	29	30

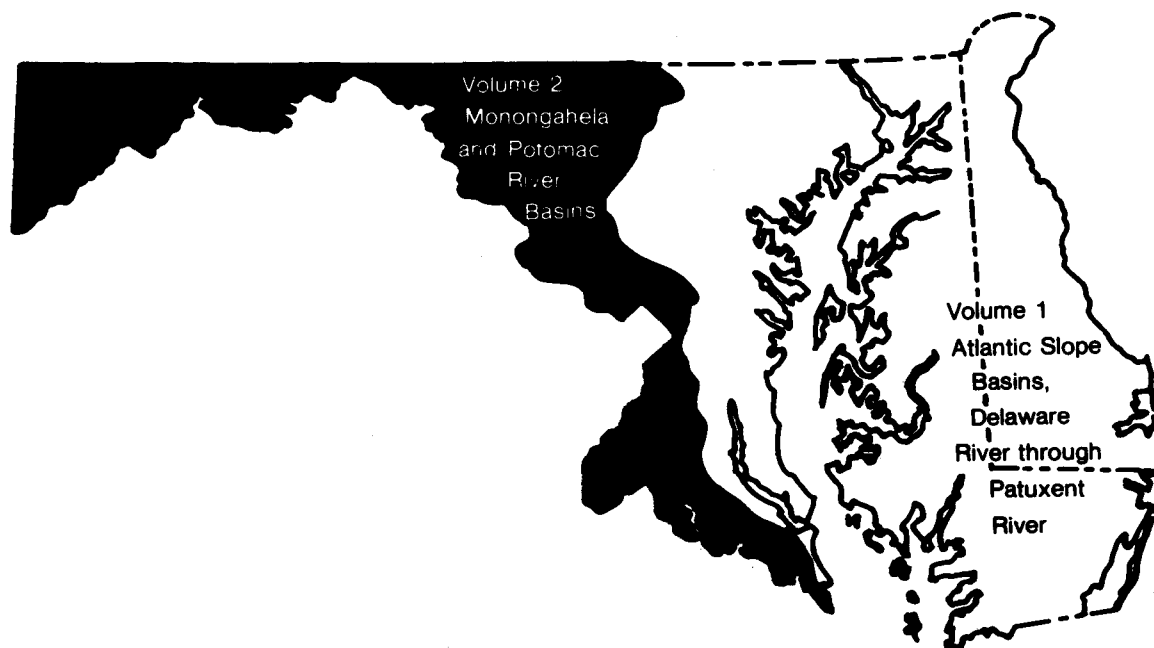
JULY							AUGUST							SEPTEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7				1	2	3	4							1
8	9	10	11	12	13	14	5	6	7	8	9	10	11	2	3	4	5	6	7	8
15	16	17	18	19	20	21	12	13	14	15	16	17	18	9	10	11	12	13	14	15
22	23	24	25	26	27	28	19	20	21	22	23	24	25	16	17	18	19	20	21	22
29	30	31					26	27	28	29	30	31		23	24	25	26	27	28	29
														30						



Water Resources Data Maryland and Delaware Water Year 1990

Volume 2. Monongahela and Potomac River Basins

by R.W. James, Jr., J.F. Hornlein, R.H. Simmons, and M.J. Smigaj



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MD-DE-90-2
Prepared in cooperation with the States of Maryland and Delaware
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., Secretary

U.S. GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to
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U.S. Geological Survey
208 Carroll Building
8600 La Salle Road
Towson, Maryland 21204

PREFACE

This volume of the annual hydrologic data report of Maryland and Delaware is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the 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.

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

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D. P. Brower	L. B. Maclin	M. E. Wieczorek
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This report was prepared under the general supervision of H. J. Freiburger, District Chief, Mid-Atlantic District, and S. P. Sauer, Regional Hydrologist, Northeastern Region, and in cooperation with the States of Maryland and Delaware and with other agencies.

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17. Document Analysis a. Descriptors *Maryland, *Delaware, *District of Columbia, * Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water levels, Water analyses. b. Identifiers/Open-Ended Terms c. COSATI Field/Group				
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CONTENTS

	Page
Preface.....	iii
List of surface-water stations, in downstream order, for which records are published.....	vi
List of ground-water wells, by county, for which records are published.....	vii
List of discontinued surface-water stations, in downstream order, for which records have been published.....	ix
Introduction.....	1
Cooperation.....	1
Summary of hydrologic conditions.....	2
Streamflow.....	2
Ground-water levels.....	2
Special networks and programs.....	4
Explanation of records.....	4
Station identification numbers.....	4
Downstream order system.....	4
Latitude-longitude system.....	5
Records of stage and water discharge.....	5
Data collection and computation.....	6
Data presentation.....	7
Identifying estimated daily discharge.....	8
Accuracy of the records.....	8
Other records available.....	9
Records of surface-water quality.....	9
Classification of records.....	9
Arrangement of records.....	9
On-site measurements and sample collection.....	9
Water temperature.....	10
Sediment.....	10
Laboratory measurements.....	10
Data presentation.....	11
Remark codes.....	11
Records of ground-water levels.....	12
Data collection and computation.....	12
Data presentation.....	12
Records of ground-water quality.....	13
Data collection and computation.....	13
Data presentation.....	13
Access to WATSTORE data.....	13
Definition of terms.....	14
Publications on Techniques of Water-Resources Investigations.....	21
Station records, surface water.....	31
Discharge at partial-record stations and miscellaneous sites.....	119
Crest-stage partial-record stations.....	119
Station records, ground water.....	120
Ground-water spring discharge.....	120
Ground-water levels.....	121
Quality of ground water.....	225
Index.....	244

ILLUSTRATIONS

Figure 1. Comparison of discharge at representative gaging stations during 1990 water year with median discharge for the period 1951-80.....	3
2. System for numbering wells and miscellaneous sites (latitude and longitude)....	5
3. Map of Maryland and Delaware showing location of surface-water and water- quality stations.....	24
4. Map of Maryland and Delaware showing location of crest-stage partial-record stations and ground-water observation wells.....	26
5. Map of Maryland and Delaware showing location of project ground-water observation wells.....	28

[Letter after station name designates type of data: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment, (e) elevation and contents]

NORTH ATLANTIC SLOPE BASINS

Station No. Page

POTOMAC RIVER BASIN

North Branch Potomac River:

Laurel Run at Dobbin Road near Wilson, MD (d).....	01594930	32
North Fork Sand Run near Wilson, MD (d).....	01594936	33
McMillan Fork near Fort Pendelton, MD (d,c,t).....	01594950	34
North Branch Potomac River at Steyer, MD (d).....	01595000	40
Stony River near Mt. Storm, WV (d,t).....	01595200	41
Savage River near Barton, MD (d).....	01596500	44
Savage River below Savage River Dam, near Bloomington, MD (d).....	01597500	45
North Branch Potomac River at Luke, MD (d).....	01598500	46
Georges Creek at Franklin, MD (d).....	01599000	47
Wills Creek near Cumberland, MD (d).....	01601500	48
North Branch Potomac River near Cumberland, MD (d).....	01603000	49
South Branch Potomac River near Springfield, WV (d).....	01608500	50
Potomac River at Paw Paw, WV (d).....	01610000	51
Potomac River at Hancock, MD (d).....	01613000	52
Conococheague Creek at Fairview, MD (d).....	01614500	53
Marsh Run at Grimes, MD (d).....	01617800	54
Potomac River at Shepherdstown, WV (d,c).....	01618000	55
Antietam Creek:		
Beaver Creek:		
Albert Powell Fish Hatchery Spring at Beaver Creek, MD (d).....	01619320	58
Antietam Creek near Sharpsburg, MD (d).....	01619500	59
Shenandoah River at Millville, WV (d,c).....	01636500	60
Catoctin Creek near Middletown, MD (d).....	01637500	63
Potomac River at Point of Rocks, MD (d,t,s).....	01638500	64
Monocacy River at Bridgeport, MD (d,c,t,s).....	01639000	67
Toms Creek at Emmitsburg, MD (d).....	01639375	71
Big Pipe Creek (head of Double Pipe Creek) at Bruceville, MD (d).....	01639500	72
Hunting Creek:		
Hunting Creek near Foxville, MD (d,c,t).....	01640965	73
Hunting Creek tributary near Foxville, MD (d,c,t).....	01640970	79
Hunting Creek at Jimtown, MD (d).....	01641000	85
Fishing Creek:		
Fishing Creek tributary near Lewistown, MD (d,c,t).....	01641510	86
Monocacy River at Jug Bridge, near Frederick, MD (d).....	01643000	94
Monocacy River at Reich's Ford Bridge, near Frederick, MD (t,s).....	01643020	95
Bennett Creek at Park Mills, MD (d).....	01643500	97
Seneca Creek at Dawsonville, MD (d).....	01645000	98
Potomac River near Washington, DC (d).....	01646500	99
Potomac River at Chain Bridge at Washington, DC (c,s).....	01646580	104
Rock Creek at Sherrill Drive, Washington, DC (d).....	01648000	107
Northeast Branch Anacostia River (head of Anacostia River)		
at Riverdale, MD (d).....	01649500	108
Northwest Branch Anacostia River near Hyattsville, MD (d).....	01651000	109
Piscataway Creek at Piscataway, MD (d).....	01653600	110
Zekiah Swamp (head of Wicomico River) near Newtown, MD (d).....	01660920	111
St. Clement Creek (head of St. Clement Bay) near Clements, MD (d).....	01661050	112
St. Marys River at Great Mills, MD (d).....	01661500	113

OHIO RIVER BASINMONONGAHELA RIVER BASIN

Monongahela River:

Youghiogheny River near Oakland, MD (d).....	03075500	114
Deep Creek Reservoir near Oakland, MD (e).....	03076000	115
Youghiogheny River at Friendsville, MD (d).....	03076500	116
Bear Creek at Friendsville, MD (d).....	03076600	117
Casselman River at Grantsville, MD (d).....	03078000	118

Discharge at partial-record stations and miscellaneous sites.....	119
Crest-stage partial-record stations.....	119

GROUND-WATER SPRING DISCHARGE

Page

MARYLAND:**FREDERICK COUNTY**

Spring 391846077370501 Local number FR Fb 12..... 120

GROUND-WATER LEVELS

ALLEGANY COUNTY

Well 394024078273401 Local number AL Ah 1..... 121
 Well 393930078460901 Local number AL Bd 2..... 122
 Well 393009079025201 Local number AL Ca 19..... 123

CARROLL COUNTY

Well 394008077005601 Local number CL Ad 47..... 124

CHARLES COUNTY

Well 383524077111802 Local number CH Bb 17..... 125-126
 Well 383524077094401 Local number CH Bc 5..... 127-128
 Well 383631077083501 Local number CH Bc 6..... 129
 Well 383633077083001 Local number CH Bc 24..... 130-131
 Well 383554077085601 Local number CH Bc 71..... 132
 Well 383709077061001 Local number CH Bc 74..... 133
 Well 383819076555501 Local number CH Be 43..... 134-135
 Well 383853076532601 Local number CH Bf 101..... 136-137
 Well 383508076540703 Local number CH Bf 151..... 138-139
 Well 383746076482901 Local number CH Bg 12..... 140
 Well 383652076495701 Local number CH Bg 13..... 141
 Well 383422077114601 Local number CH Cb 7..... 142-143
 Well 383313077125401 Local number CH Cb 11..... 144
 Well 383315077131401 Local number CH Cb 28..... 145
 Well 383407077120501 Local number CH Cb 35..... 146
 Well 383328077114201 Local number CH Cb 38..... 147
 Well 383332077111501 Local number CH Cb 39..... 148
 Well 383308077110301 Local number CH Cb 40..... 149
 Well 383236076563901 Local number CH Ce 37..... 150-151
 Well 383340076511601 Local number CH Cf 33..... 152
 Well 382607077002601 Local number CH Dd 33..... 153
 Well 382927076552301 Local number CH De 45..... 154
 Well 382103076560201 Local number CH Ee 16..... 155
 Well 382456076562201 Local number CH Ee 90..... 156

FREDERICK COUNTY

Well 394200077190701 Local number FR Af 27..... 157
 Well 393733077274801 Local number FR Bd 96..... 158
 Well 393156077135701 Local number FR Cg 1..... 159
 Well 392517077190401 Local number FR Df 35..... 160
 Well 392257077095601 Local number FR Eh 11..... 161

GARRETT COUNTY

Well 394017078581701 Local number GA Ag 1..... 162
 Well 393749079190301 Local number GA Bc 1..... 163
 Well 391559079260901 Local number GA Fa 25..... 164
 Well 391559079260902 Local number GA Fa 26..... 165
 Well 391511079265001 Local number GA Fa 27..... 166
 Well 391512079270901 Local number GA Fa 28..... 167
 Well 391512079270902 Local number GA Fa 29..... 168
 Well 391539079254601 Local number GA Fa 31..... 169-170
 Well 391539079254602 Local number GA Fa 32..... 171
 Well 391539079254603 Local number GA Fa 33..... 172
 Well 391539079254604 Local number GA Fa 34..... 173-174
 Well 391501079260001 Local number GA Fa 38..... 175
 Well 391530079244401 Local number GA Fb 22..... 176-177
 Well 391530079244402 Local number GA Fb 23..... 178
 Well 391530079244403 Local number GA Fb 24..... 179-180
 Well 391530079244404 Local number GA Fb 25..... 181-182
 Well 391513079243601 Local number GA Fb 26..... 183
 Well 391513079243602 Local number GA Fb 27..... 184-185
 Well 391513079243603 Local number GA Fb 28..... 186
 Well 391513079243604 Local number GA Fb 29..... 187-188
 Well 391513079243605 Local number GA Fb 30..... 189-190
 Well 391715079223102 Local number GA Fb 36..... 191
 Well 391515079223103 Local number GA Fb 37..... 192
 Well 391515079223104 Local number GA Fb 38..... 193-194
 Well 391515079223105 Local number GA Fb 39..... 195
 Well 391420079264901 Local number GA Ga 16..... 196

MONTGOMERY COUNTY

Well 391314077224201 Local number MO Cc 14..... 197
 Well 390802077283801 Local number MO Db 68..... 198
 Well 390434076573002 Local number MO Eh 20..... 199

PRINCE GEORGES COUNTY

Well 390151076561501 Local number PG Bc 16..... 200
 Well 384423077004501 Local number PG Fb 36..... 201
 Well 384230076555601 Local number PG Fc 17..... 202
 Well 384131076533301 Local number PG Fd 41..... 203

GROUND-WATER LEVELS--CONTINUED

Page

ST. MARYS COUNTY

Well 382838076470101	Local number SM Bb	15.....	204
Well 382838076470102	Local number SM Bb	22.....	205
Well 381616076364701	Local number SM Dd	46.....	206
Well 381616076364702	Local number SM Dd	49.....	207
Well 381807076380001	Local number SM Dd	50.....	208
Well 381616076364703	Local number SM Dd	62.....	209
Well 381615076364701	Local number SM Dd	63.....	210
Well 381527076283101	Local number SM Df	71.....	211
Well 381052076253001	Local number SM Ef	80.....	212
Well 380834076303401	Local number SM Fe	30.....	213-214
Well 380834076303402	Local number SM Fe	31.....	215
Well 380711076222201	Local number SM Fg	45.....	216

WASHINGTON COUNTY

Well 394154078103501	Local number WA Ac	1.....	217
Well 393638078001301	Local number WA Be	2.....	218
Well 393851077343001	Local number WA Bk	25.....	219-220
Well 393414077461801	Local number WA Ch	106.....	221-222
Well 393402077434201	Local number WA Ci	82.....	223
Well 392904077371501	Local number WA Dj	2.....	224

QUALITY OF GROUND WATER

MARYLAND:ALLEGANY COUNTY

Well 393438078420601	Local number AL Ce	4.....	226
----------------------	--------------------	--------	-----

CHARLES COUNTY

Well 383505077101006	Local number CH Bb	6.....	227-232
Well 383505077101007	Local number CH Bb	7.....	227-232
Well 383505077101009	Local number CH Bb	9.....	227-232
Well 383552077100401	Local number CH Bb	12.....	227-232
Well 383524077111802	Local number CH Bb	17.....	227-232
Well 383533077104002	Local number CH Bb	19.....	227-232
Well 383507077094903	Local number CH Bc	3.....	227-232
Well 383524077094401	Local number CH Bc	5.....	227-232
Well 383631077083501	Local number CH Bc	6.....	227-232
Well 383545077095501	Local number CH Bc	23.....	227-232
Well 383540077090701	Local number CH Bc	49.....	227-232
Well 383606077092101	Local number CH Bc	67.....	227-232
Well 383610077081001	Local number CH Bc	68.....	227-232
Well 383554077085702	Local number CH Bc	70.....	227-232
Well 383548077091101	Local number CH Bc	72.....	227-232
Well 383709077061001	Local number CH Bc	74.....	227-232
Well 383422077114601	Local number CH Cb	7.....	227-232
Well 383354077121501	Local number CH Cb	9.....	227-232
Well 383313077125401	Local number CH Cb	18.....	227-232
Well 383448077105202	Local number CH Cb	19.....	227-232
Well 383315077131401	Local number CH Cb	28.....	227-232
Well 383451077102601	Local number CH Cb	29.....	227-232
Well 383427077121001	Local number CH Cb	34.....	227-232
Well 383407077120501	Local number CH Cb	35.....	227-232
Well 383328077114201	Local number CH Cb	38.....	227-232
Well 383332077111501	Local number CH Cb	39.....	227-232
Well 383308077110301	Local number CH Cb	40.....	227-232
Well 382103076560201	Local number CH Ee	16.....	227-232
Well 382456076562201	Local number CH Ee	90.....	227-232

FREDERICK COUNTY

Well 394200077190701	Local number FR Af	27.....	234-236
Well 393218077271001	Local number FR Cd	38.....	234-236
Well 392552077262201	Local number FR Dd	178.....	234-236
Well 392517077190401	Local number FR Df	35.....	234-236
Well 391846077370501	Local number FR Fb	12.....	234-236

GARRETT COUNTY

Well 392420079221701	Local number GA Eb	72.....	237
----------------------	--------------------	---------	-----

MONTGOMERY COUNTY

Well 390802077283801	Local number MO Db	68.....	238-239
----------------------	--------------------	---------	---------

PRINCE GEORGES COUNTY

Well 385920076571701	Local number PG Bc	37.....	240-241
----------------------	--------------------	---------	---------

ST. MARYS COUNTY

Well 381052076253001	Local number SM Ef	80.....	242
----------------------	--------------------	---------	-----

WASHINGTON COUNTY

Well 394223078182101	Local number WA Ab	3.....	243
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DISCONTINUED STREAMFLOW STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS HAVE BEEN PUBLISHED ix

[Letter after station name designates type of data: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment, (e) elevation and contents]

NORTH ATLANTIC SLOPE BASINS

Station Number

POTOMAC RIVER BASIN

North Branch Potomac River:

South Fork Sand Run near Wilson, MD (d,c,t).....01594934
 North Branch Potomac River at Kitzmiller (d,c,t).....01595500
 North Branch Potomac River at Bloomington, MD (d).....01596000
 North Branch Potomac River at Barnum, WV (d,c,t).....01595800

Savage River:

Crabtree Creek near Swanton, MD (d,c).....01597000
 Savage River at Bloomington, MD (d).....01598000
 North Branch Potomac River at Pinto, MD (d,c,t).....01600000
 Willis Creek below Hyndman, PA (d).....01601000
 North Branch Potomac River at Cumberland, MD (d).....01602500
 Evitts Creek near Centerville, PA (d).....01603500
 Evitts Creek near Cumberland, MD (d).....01604000
 Town Creek near Oldtown, MD (d).....01609000
 Sawpit Run near Oldtown, MD (d).....01609500
 Sideling Hill Creek at Bellegrove, MD (d,c).....01610155
 Little Tonoloway Creek near Hancock, MD (d,c).....01612500
 Antietam Creek near Waynesboro, MD (d,c).....01619000

Catoclin Creek:

Little Catoclin Creek at Harmony, MD (d).....01637000
 Catoclin Creek near Jefferson, MD (d).....01638000

Monocacy River:

Big Pipe Creek (head of Double Pipe Creek):
 Little Pipe Creek at Avondale, MD (d).....01640000
 Owens Creek near Foxville, MD (d).....01640456
 Owens Creek at Lantz, MD (d).....01640500
 Hunting Creek near Thurmont, MD (d).....01640975
 Fishing Creek near Lewistown, MD (d).....01641500
 Monocacy River near Frederick, MD (d,c).....01642000
 Linganore Creek near Frederick, MD (d,c).....01642500

Seneca Creek:

Great Seneca Creek near Gaithersburg, MD (d).....01644500
 Watts Branch at Rockville, MD (d).....01645200
 Potomac River at Great Falls, MD (c,m,t).....01645500
 Little Falls Branch near Bethesda, MD (d).....01646550

Rock Creek:

North Branch Rock Creek:
 Williamsburg Run near Olney, MD (d,s).....01647685
 North Branch Rock Creek near Norbeck, MD (d,s).....01647720
 Manor Run near Norbeck, MD (d,s).....01647725
 North Branch Rock Creek near Rockville, MD (d,s).....01647740
 Rock Creek at Q Street, Washington, DC (d).....01649000

Northeast Branch Anacostia River:

Northwest Branch Anacostia River:

Browns Creek:
 Nursery Run at Cloverly, MD (d,s).....01650085
 North Creek:
 Batchellors Run at Oakdale, MD (d,s).....01650190
 Bel Pre Creek at Lay Hill, MD (d,s).....01650450
 Lutes Run at Lutes, MD (d,s).....01650470
 Northwest Branch Anacostia River near Colesville, MD (d,s).....01650500

Anacostia River:

Beaverdam Branch Anacostia River at Kenilworth Avenue, Washington, DC (d).....01652000
 Henson Creek (head of Broad Creek) at Oxon Hill, MD (d).....01653500
 Potomac River at Indian Head, MD (c,t).....01655480
 Mattawoman Creek near Pomonkey, MD (d).....01658000

Wicomico River:

Chaptico Creek at Chaptico, MD (d).....01661000
 Potomac River at Piney Point, MD (c,t).....01661475

OHIO RIVER BASINMONONGAHELA RIVER BASIN

Monongahela River:

Youghiogheny River:

South Branch Casselman River near Bittenger, MD (d,c,s).....03077940
 Casselman River:
 Big Piney Run near Salisbury, PA (d).....03078500

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WATER RESOURCES DATA - MARYLAND AND DELAWARE, 1990

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State agencies, obtains a large amount of data pertaining to the water resources of Maryland and Delaware 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 State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Maryland and Delaware."

This report series includes records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This volume contains records for water discharge at 44 gaging stations; stage and contents at 1 reservoir; water quality at 11 gaging stations and 40 wells; and water levels at 85 observation wells. Also included are data for 3 crest-stage partial-record stations. Locations of these sites are shown on figures 3, 4, and 5. Additional water data were collected at various sites not involved in the systematic data-collection program. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Maryland and Delaware.

This series of annual reports for Maryland and Delaware began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Maryland and Delaware were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 6A and 6B." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from Books and Open-File Reports Section, Federal Center, Bldg. 41, Box 25425, Denver, CO 80225.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report MD-DE-90-2." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. 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, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephone (301) 828-1535.

COOPERATION

The U.S. Geological Survey and agencies of the State of Maryland have had cooperative agreements for the collection of water-resource records from 1896 to 1909 and since 1924. Similar cooperative agreements have been had between the Survey and agencies of the State of Delaware since 1943. Organizations that assisted in collecting the data in this report through cooperative agreements with the Survey are:

Maryland Geological Survey, K. N. Weaver, director.

Delaware Geological Survey, R. R. Jordan, State geologist.

Maryland State Highway Administration, M. S. Caltrider, administrator.

Maryland Department of Environment; Toxics, Environmental Science and Health, Dr. Max Eisenberg, assistant secretary.

District of Columbia Department of Public Works, William B. Johnson, director.

Assistance with funds or services was given by the U.S. Army Corps of Engineers for collecting records at 17 gaging stations and 4 water-quality stations throughout Maryland and Delaware.

The following organizations aided in collecting records:

Delaware: State Department of Natural Resources and Environmental Control,
Water Resources Agency for New Castle County.

Maryland: Maryland Water Resources Administration, Washington Suburban Sanitary
Commission, Upper Potomac River Commission, Baltimore City.

Organizations that provided data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

Streamflow at the start of the 1990 water year was in the excessive (upper 25 percent of the record) range throughout the bi-State area following above-normal rainfall (2 to 6 inches) during September 1989. During October 1989, flows remained in the excessive range following continuing above-normal rainfall (2 to 6 inches). During November 1989, flows in western Maryland and on the Eastern Shore of Maryland remained in the excessive range, whereas flows in central and southern Maryland decreased to the normal range following below-normal rainfall (1 to 2 inches). Because of continuing below-normal rainfall (1.5 to 2.5 inches) throughout the bi-State area during December 1989, flows in western Maryland and the Eastern Shore of Maryland decreased to the normal range whereas flows in central and southern Maryland decreased to the deficient range (lower 25 percent of the record). During January 1990, flows in central and southern Maryland remained in the normal range. Flows in the remainder of the bi-State area moved from the deficient into the normal range following above-normal rainfall (1.5 to 2 inches). Flow conditions changed little during February, but in March, flows throughout the bi-State area decreased to the deficient range following below-normal rainfall (1 to 3 inches). Above-normal rainfall averaging 1.5 inches increased flows into the normal range during April. Flows remained in the normal range for May through September.

During the 1990 water year, flows at the four index stations used (Potomac River near Washington, D.C. and Seneca Creek at Dawsonville in central Maryland, North Branch Potomac River at Paw Paw, W. Va., in western Maryland, and Choptank River at Greensboro on the Eastern Shore of Maryland) were in the normal range. A new record minimum monthly mean was set at the North Branch Potomac River at Paw Paw index site. The new monthly record is about 30 percent less than that set in 1988. At the Choptank River at Greensboro index site, a record maximum daily discharge was recorded.

Monthly and annual mean discharges in water year 1990 are compared to long-term averages (reference period 1951-80) for two representative streamflow-gaging stations in figure 1. Data for the station, Potomac River at Point of Rocks in central Maryland, reflect runoff conditions in the Potomac River basin, excluding the Coastal Plain. Data for the station, Choptank River at Greensboro on the Eastern Shore of Maryland, reflect runoff from a 113 mi² (square mile) area, of which 21.6 mi² is in Delaware in the central part of the Delmarva peninsula.

Average freshwater inflow to the Chesapeake Bay was estimated to be 76,300 ft³/s (cubic feet per second), on the basis of flows of the James, Potomac, and Susquehanna Rivers. This equals the long-term average during the reference period 1951-90. Flows for the first 5 months averaged 94 percent above normal. For the remaining 7 months, flows averaged in the normal range. No new record monthly means were set during the water year.

The combined storage in the three major water-supply reservoirs in the Baltimore City Municipal System (combined usable capacity of 85,340 million gallons) increased from 92 percent of capacity in September 1989, to 95 percent of capacity at the end of September 1990.

Ground-Water Levels

Ground-water levels in water-table and artesian observation wells, in Maryland and Delaware fluctuate with response to precipitation and ground-water withdrawal. Water-table levels in Maryland and Delaware were above normal at the start of the 1990 water year and remained above normal the entire water year. The elevated water levels resulted from above-average precipitation during the water year. No record maximum or minimum ground-water levels occurred during the water year. In the bi-State areas where artesian aquifers are the main source of municipal water supply, the water levels continued to decline in most of the area. Water-level conditions are summarized below for each of the physiographic provinces in the bi-state area:

Appalachian Plateau.-- Water-table levels were above normal at the beginning of the 1990 water year and declined slightly during March and June. During the remainder of the water year, water-levels recovered and were higher at the end of the water year than at the beginning of the water year.

Valley and Ridge.-- Water-table levels were above normal at the beginning of the water year, reached the maximum level in February, and then declined gradually during the remainder of the water year. Water-table levels at the end of the water year were slightly below those at the beginning of the water year, but levels remained above normal.

Blue Ridge.-- Water-table levels were above normal at the beginning of the water year and remained above normal throughout the water year.

Piedmont.-- Water-table levels were above normal at the beginning of the water year and remained above normal throughout the water year.

Coastal Plain.-- Water-table levels were above normal at the beginning of the water year and remained above normal throughout the water year except in southern Charles and Somerset Counties, Maryland, where levels declined during the last quarter of the water year. Water-table levels did not fluctuate substantially because of persistent saturated conditions. At the following locations in Maryland, artesian aquifers (identified in parentheses), experienced record low water levels, because of increased ground-water withdrawals: Elkton (Potomac), Leonardtown (Aquia), Lexington Park (Aquia), northern Ocean City (Manokin), Prince Frederick (Aquia), and Solomons Island (Aquia).

WATER RESOURCES DATA — MARYLAND AND DELAWARE, 1990

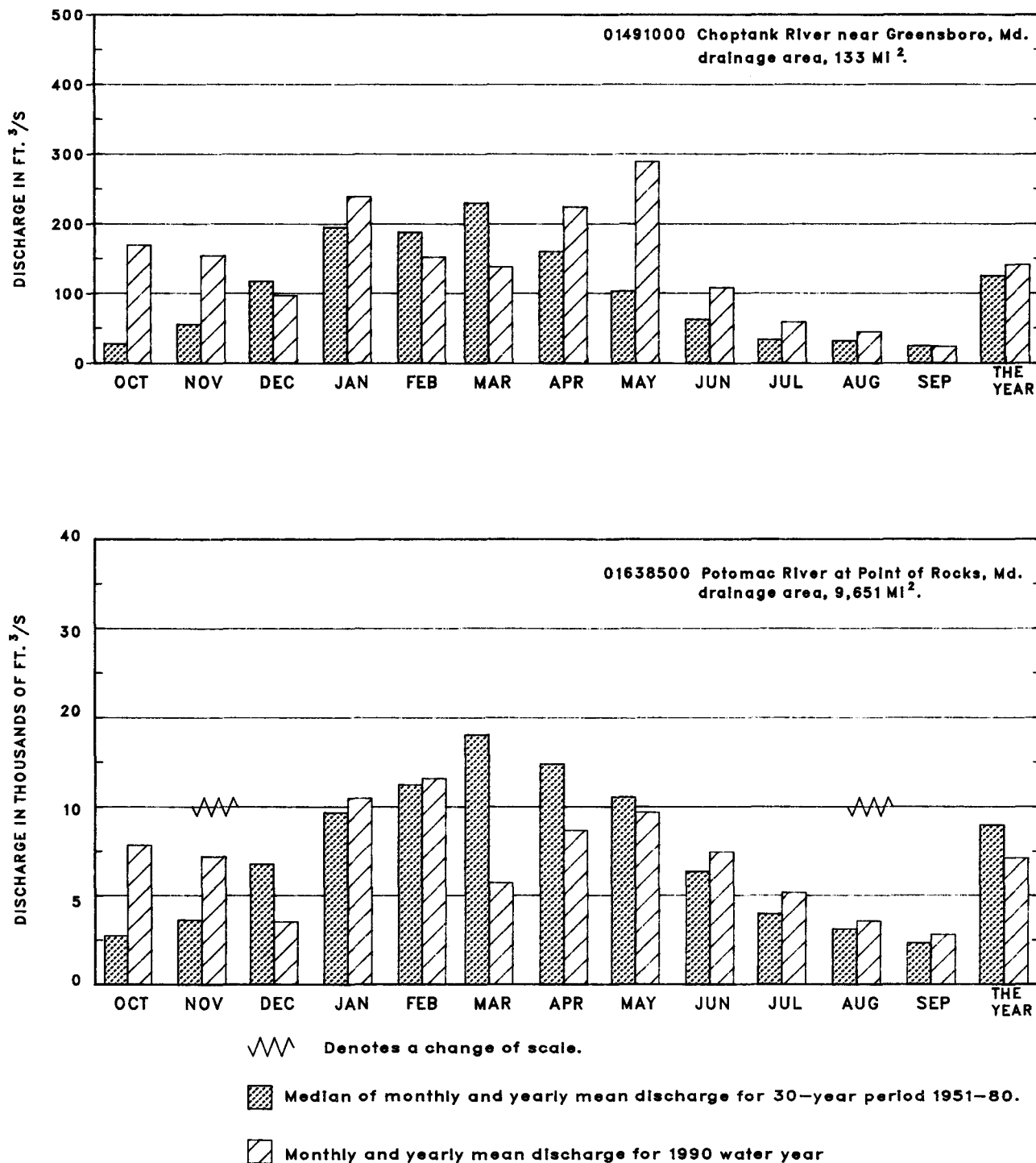


FIGURE 1. COMPARISON OF DISCHARGE AT TWO LONG-TERM REPRESENTATIVE GAGING STATIONS DURING THE 1990 WATER YEAR WITH MEDIAN DISCHARGE FOR INDICATED PERIOD.

SPECIAL NETWORKS AND PROGRAMS

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

Radiochemical Program 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 THE RECORDS

The surface-water and ground-water records published in this report are for the 1990 water year that began October 1, 1989, and ended September 30, 1990. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, 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 and 4. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

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

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 mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of indentation shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. 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. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 01477800, which appears just to the left of the station name, includes the two-digit Part number "01" plus the six-digit downstream-order number "477800." The Part number designates the major river basin; for example, Part "01" is the North Atlantic slope basin.

Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure 2 below.)

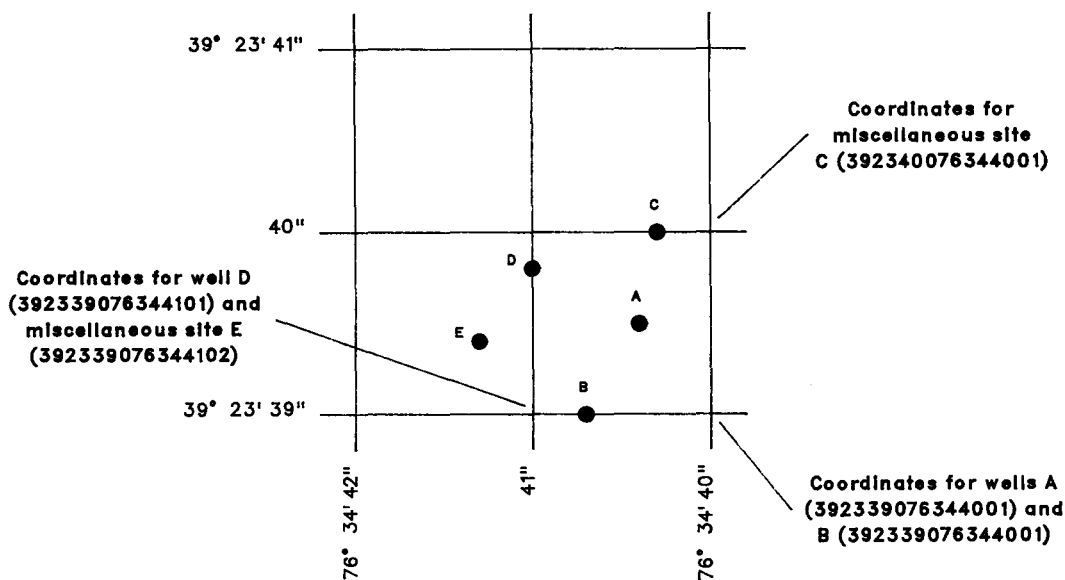


Figure 2. System for numbering wells and miscellaneous sites (latitude and longitude)

Wells in Maryland are also identified on the basis of a second numbering system established by the Maryland Geological Survey. The first two letters of the well number are the county prefix (for example, AL for Allegany). The second part of the well number consists of two letters that designate a 5-minute quadrangle within the county; the first letter (a capital letter) denotes a 5-minute segment of latitude and the second letter (lower case) denotes a 5-minute segment of longitude. The wells are numbered sequentially within each 5-minute quadrangle. For example, well AL Ah 1 is the first well inventoried within the Ah 5-minute quadrangle in Allegany County. Baltimore City well numbers are based on 1-mile grids, with reference to the Washington Monument as the center. Thus, well 7S4E-1 is in grid cell 7 miles south and 4 miles east of the Washington Monument and is the first well inventoried in that grid cell. Wells in Delaware are identified by a numbering system instituted by the Delaware Geological Survey. The State is divided into 5-minute quadrangles of latitude and longitude. The quadrangles are lettered north to south with capital letters. Each 5-minute quadrangle is further subdivided into 25 1-minute blocks which are numbered from north to south from 1 to 5 and are numbered from west to east from 1 to 5. Wells within these 1-minute blocks are assigned numbers in the sequence in which they are inventoried. The identity of a well is established by prefixing the sequence number with an upper and lower case letter followed by two numbers to designate the 5-minute and 1-minute blocks, respectively, in which the well is located. For example, well number Cb41-03 is the third well to be scheduled in the 1-minute block 41 that has coordinate "Cb41".

Records of Stage and Water Discharge

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

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all complete-record and crest-stage partial-record stations for which data are given in this report are shown in figures 3 and 4.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist 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. Measurements of discharge are made with current meters using methods adopted 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. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

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

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and content. 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 resurveys may be necessary to redefine the relationship. Even when this is done, the contents computed may become increasingly in error as the lapsed time since the last survey increases. 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 frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

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

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. 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 reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see glossary), 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 computation, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

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

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

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

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

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

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

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

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

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

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 their true values; "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 $1 \text{ ft}^3/\text{s}$; to the nearest tenth between 1.0 and $10 \text{ ft}^3/\text{s}$; to whole numbers between 10 and $1,000 \text{ ft}^3/\text{s}$; and to 3 significant figures for more than $1,000 \text{ ft}^3/\text{s}$. 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.

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

Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables is on file in the Maryland and Delaware offices of the Mid-Atlantic District. 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 offices whose addresses are given on the back of the title page of this report.

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 3.

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 measurements 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. All of these references are listed under "PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS" which appears at the end of the introductory text. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey Maryland and Delaware offices.

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 (hourly values) may be obtained from the Geological Survey Maryland 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 Maryland and Delaware Offices.

Sediment

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

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

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

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

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratory in Arvada, Colorado. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratory 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. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

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:

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

Records of Ground-Water Levels

Water-level data from the Maryland and Delaware Observation-Well Networks and observation wells from 13 ground-water projects are reported. These data are intended to provide historical water-level information for ground-water management and identify ground-water conditions in project areas. The observation well networks were established to observe ground-water level fluctuations through time and to identify areas of man-induced stress on the ground-water flow system. The locations of these observation wells in Maryland and Delaware are shown in figure 4. The locations of project wells are shown in figure 5.

Data Collection and Computation

Measurements of water levels are made in many types of water wells under various conditions. These methods of measurement are standardized to incorporate continuous precision. The equipment and measuring techniques used at each observation well ensures that the measurements at each well are of consistent accuracy and reliability.

The water-level data tables and hydrographs are presented in alphabetical order by counties. The primary identification number is the state well number that appears in the upper left hand corner (see Latitude-Longitude System section on page 5). The secondary identification number is the 15-digit number.

Water levels are measured manually by steel tape or by an electric sensing device approximately every 4 to 6 weeks; some wells are equipped with continuous graph or punch tape water-level recorders to observe daily fluctuations. The water levels are reported to the nearest hundredth of a foot above or below land-surface datum (lsd) or sea level. Land-surface datum is a datum plane that is approximately at land surface at each well. The elevation of the land-surface datum and the height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels for wells equipped with graphic or digital recorders report the daily maximum and minimum values.

Data Presentation

A description of each observation well precedes the water-level tables and hydrographs. The following information is given in the description:

WELL NUMBER.--(See Latitude -Longitude System section on page 5.)

SITE ID.--A 15-digit number: the first 6 digits are the latitude, the next 7 digits are the longitude, and the last 2 digits refer to the sequence number for identifying one or more wells at a particular latitude and longitude. The Site ID is the best location at the time of inventory. The actual latitude and longitude may be slightly different as a result of more up-to-date knowledge of location. The Site ID is basically used as an identification number and not an exact location.

PERMIT NUMBER.--The permit number is the state permit number required for drilling wells in Maryland. Upon completion of the well, the driller must submit a completion report which documents specific data on the construction of the well.

LOCATION.--The location is the latitude and longitude in the appropriate designation of degrees, minutes, and seconds. The hydrologic unit is a code for the river basin where the well is located (U.S. Geological Survey, 1974: Hydrologic Unit Map). Also a brief local description of the location is given along with the well-owner's name.

AQUIFER.--The aquifer is the geologic formation from which the well receives its water supply. Each aquifer is identified by its geologic age and its U. S. Geological Survey data base system code.

WELL CHARACTERISTICS.--This describes the type of well, the physical characteristics of the well, and the known construction information.

INSTRUMENTATION.--This provides information on the frequency of measurement of water levels and the equipment used.

DATUM.--This lists the altitude of land surface above sea level at the well to the nearest 10 feet as determined from a 7-1/2 minute quadrangle topographic map, or to the nearest hundredth of a foot as determined from surveying. The measuring point (MP) is the distance above or below the land-surface datum of the point at which the measurements are made.

REMARKS.--This section gives important miscellaneous data relevant to the well site.

PERIOD OF RECORD.--The period of record lists the beginning and ending month and year of water-level record or "current year" if the records are to be continued into the following year.

EXTREMES FOR PERIOD OF RECORD.--The extremes for period identify the date or dates of highest and lowest water-level measurements.

A table of water levels follows the station description for each well. Water levels are reported in feet above or below land-surface datum or sea level, with all taped measurements of water levels listed. Wells equipped with graphic or digital recorders report a daily maximum and minimum value, as well as monthly maximum and minimum values. A 5-year hydrograph follows each water-level table.

Records of Ground-Water Quality

Records of ground-water quality in this 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 at the end of the introductory text. The values reported in this 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 were obtained by trained personnel. The wells sampled were pumped long enough to assure that the water collected came directly from the aquifer and had 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 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 or spring number (Local Identifier). The prime identification number for wells or springs sampled is the 15-digit (site ID) number derived from the latitude-longitude locations. The site ID includes a two digit sequence number for use at locations having multiple sites. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

ACCESS TO WATSTORE DATA

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

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from the offices whose addresses are given on the back of the title page.

General inquiries about WATSTORE may be directed to:

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

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.

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

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

Algae are mostly aquatic single-celled, colonial, or multi-celled 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.

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

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

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

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms 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 also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as Gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C 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.

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

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 micro-organisms, such as bacteria.

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

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500⁸⁰°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m³), and periphyton and benthic organisms in grams per square meter (g/m²).

Dry mass refers to the mass of residue present after drying in an oven at 105⁸⁰°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. The 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.

Bottom material: See Bed material.

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

Cubic-foot-per-second day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

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 natural water color 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.

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

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

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

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

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

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

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

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

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

Dissolved refers to that material in a representative water sample which passes through a 0.45 μm 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-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 the 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 0.492 to reflect the change.

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

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

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

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

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate (CaCO_3).

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.

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

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

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

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

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

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

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

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

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 both 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.

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

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.

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

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

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

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:

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

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic 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.

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

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.

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

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} 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.

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 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.

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.

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 by the plants (carbon method).

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

Milligrams of oxygen per area or volume per unit time [mg O₂/(m².time)] for periphyton and macrophytes and [mg O₂/(m³.time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Radiochemical program 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.

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

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

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

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

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

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

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

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

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

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

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either 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, as measured by dry mass or volume, that passes a section during a given time.

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

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

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 about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

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

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

Substrate is the physical surface upon which an organism lives.

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

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

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

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

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

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

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

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical 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
Class.....	Insecta
Order.....	Ephemeroptera
Family.....	Ephemeridae
<u>Genus.....</u>	<u>Hexagenia</u>
<u>Species.....</u>	<u>Hexagenia limbata</u>

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

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

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

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

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

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

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

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.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1985, is called the "1985 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.

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

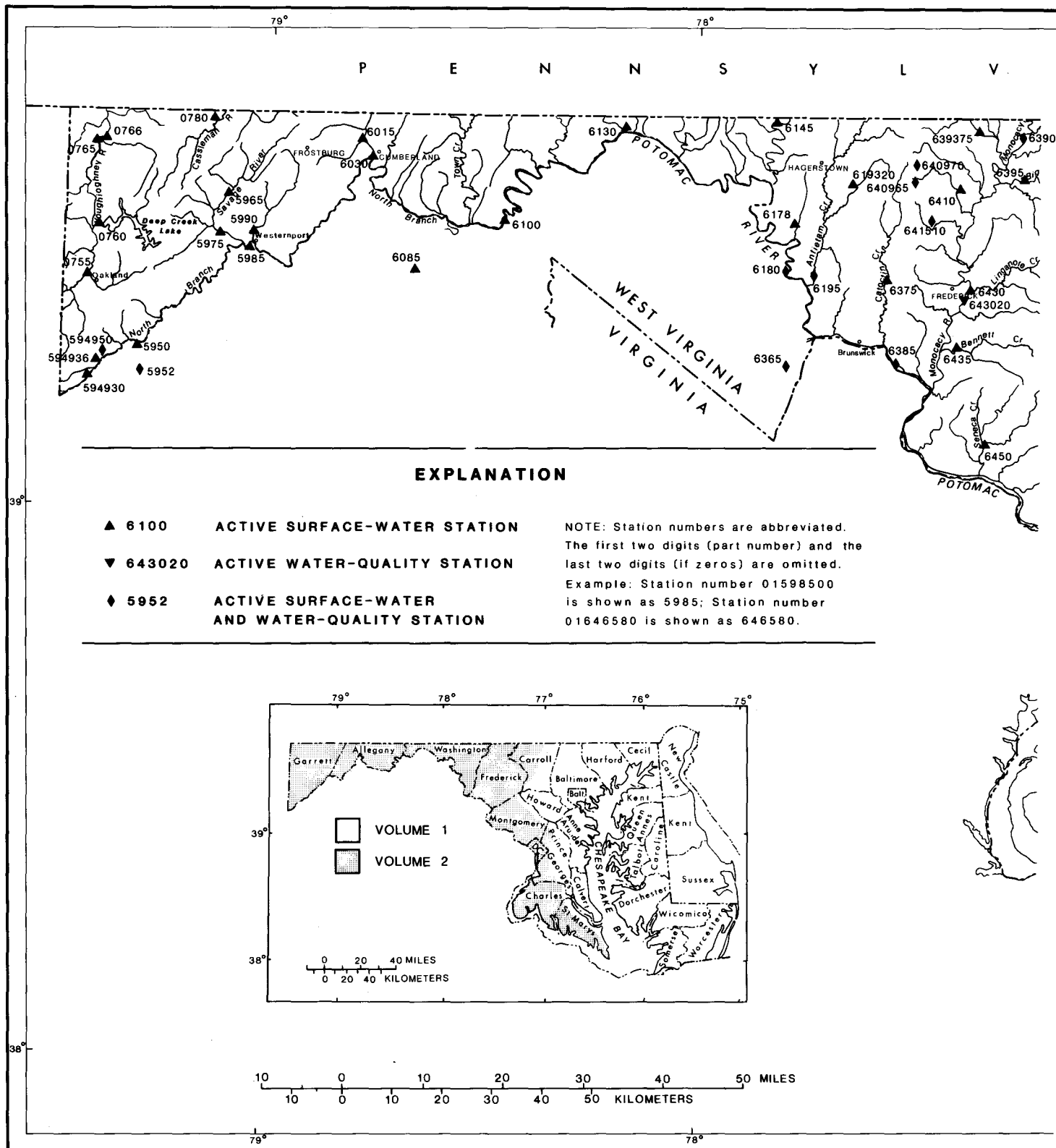
The reports listed below are for sale by the U.S. Geological Survey, Books and Open-File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

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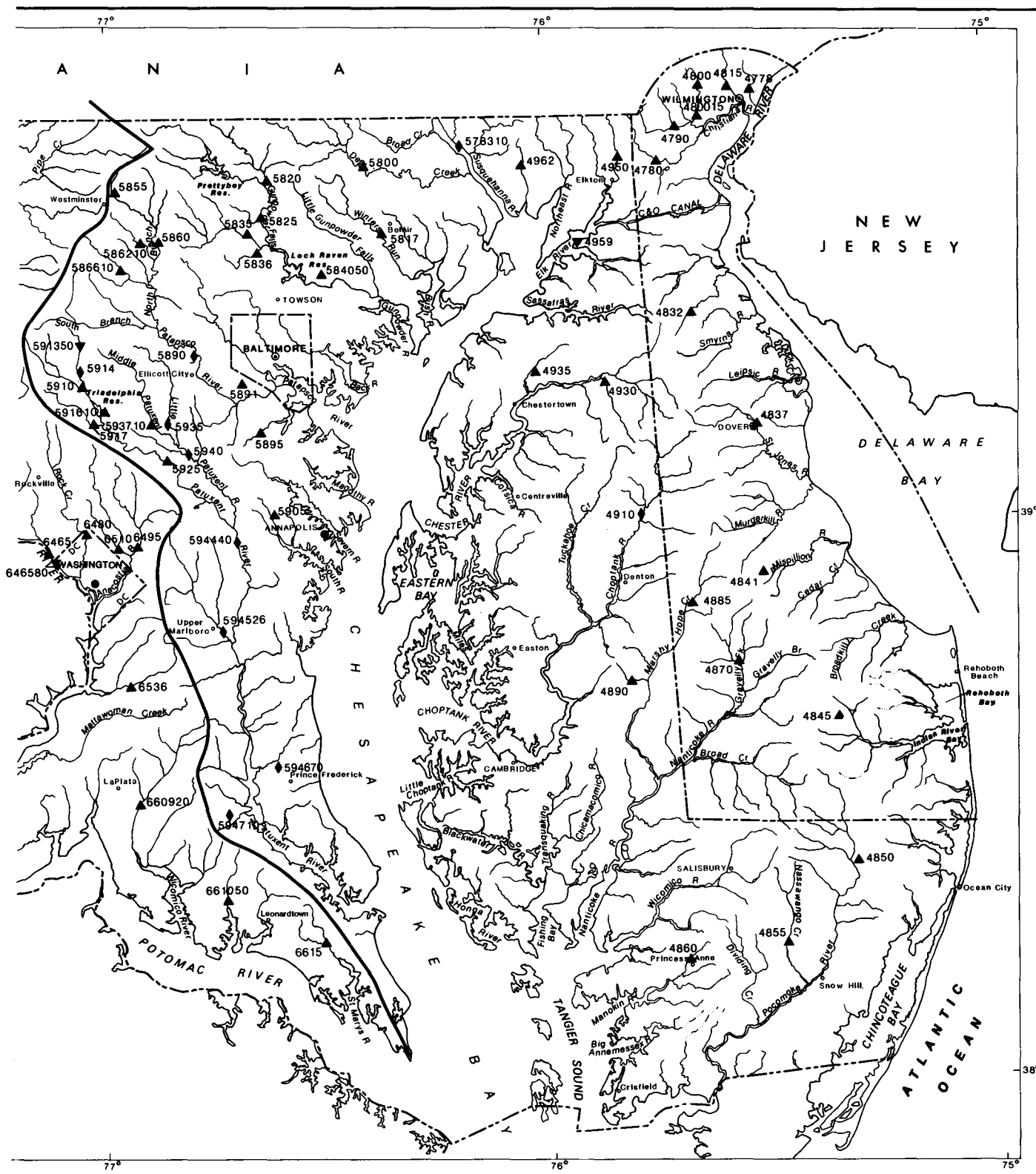
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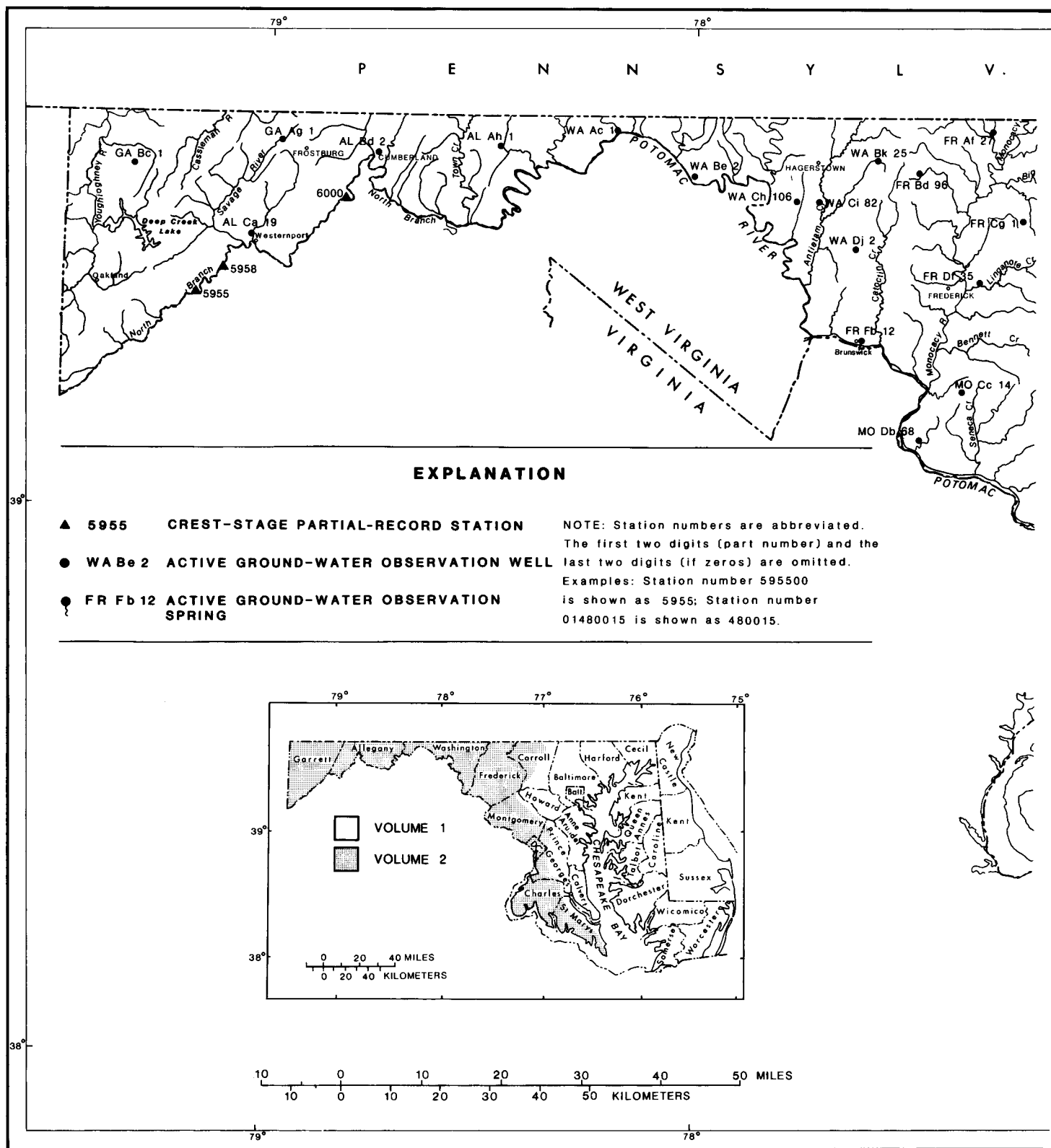
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Base map modified from U.S. Geological Survey 1:500,000

Figure 3. Location of surface-water and water-quality stations in Maryland and Delaware.





Base map modified from U.S. Geological Survey 1:500,000

Figure 4. Location of crest-gage partial-record stations and ground-water observation well in Maryland and Delaware.



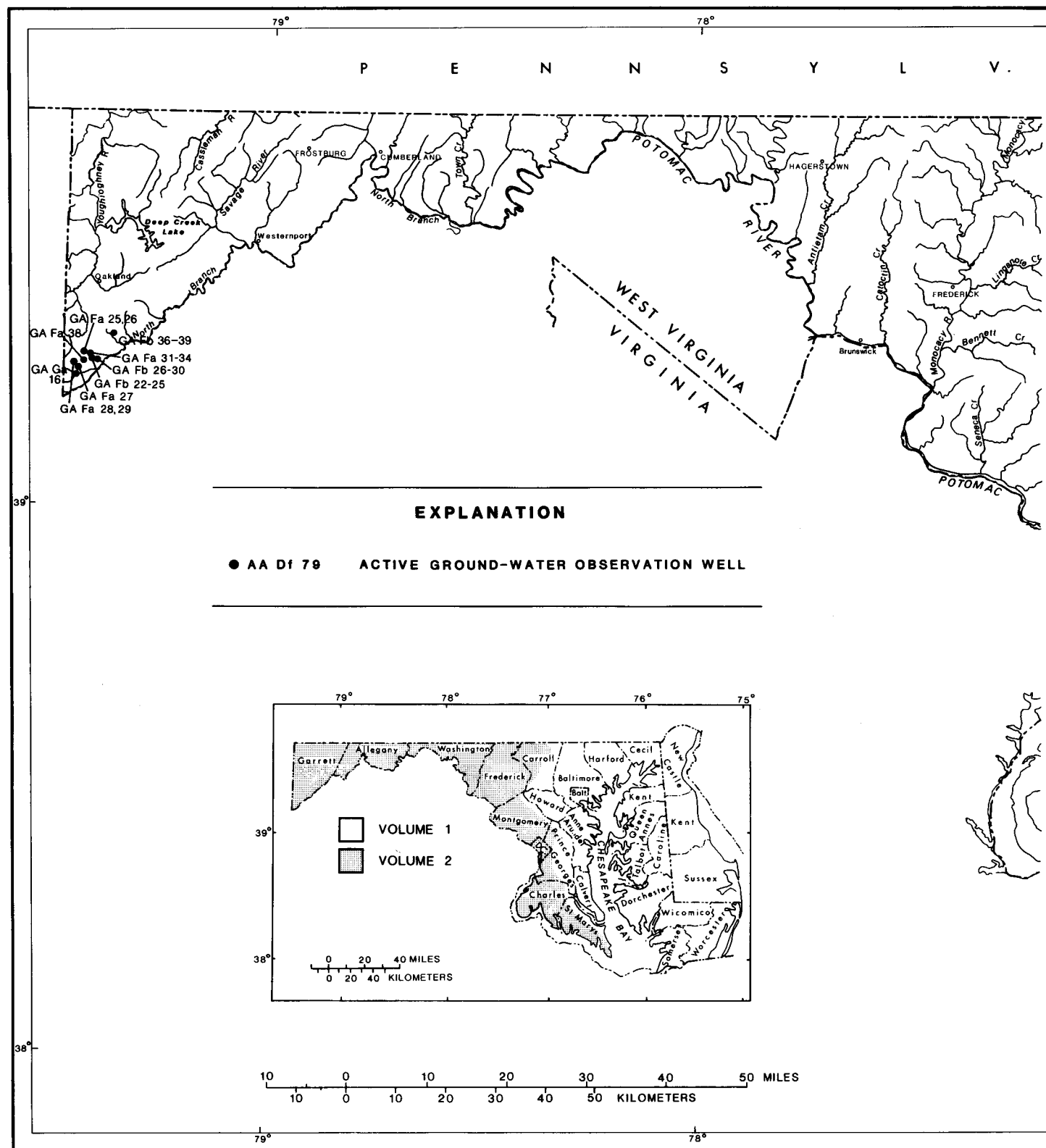
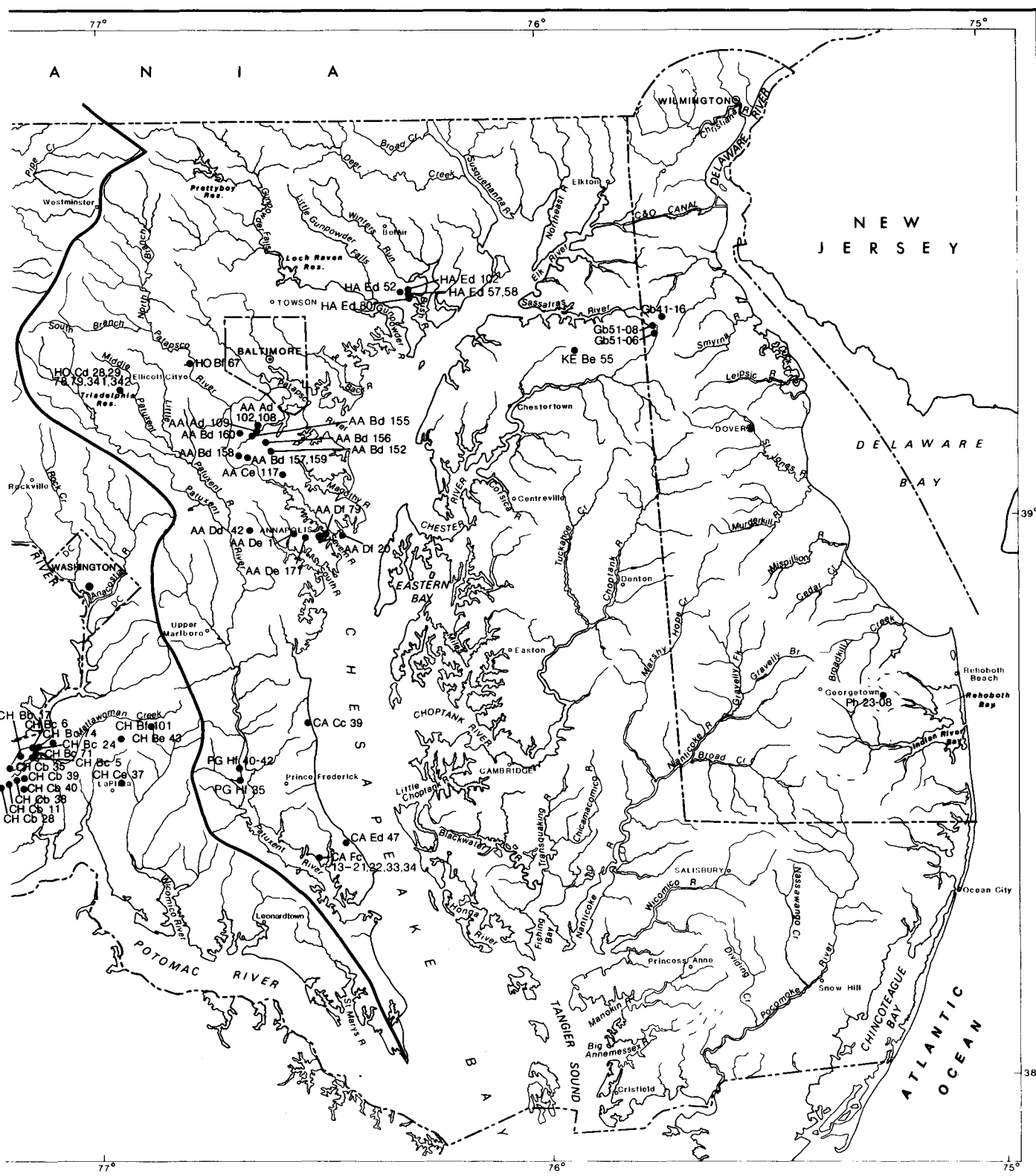


Figure 5. Location of project ground-water observation wells in Maryland and Delaware.



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SURFACE-WATER RECORDS

REMARK CODES.--The following remark codes may appear with the water-quality data in this section.

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
E	Estimated
>	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.

NOTE: In March 1989 the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

HYDROLOGIC DATA STATION RECORDS

NORTH ATLANTIC SLOPE BASINS

POTOMAC RIVER BASIN

01594930 LAUREL RUN AT DOBBIN ROAD NEAR WILSON, MD

LOCATION.--Lat 39°14'37", long 79°25'43", Garrett County, Hydrologic Unit 02070002, on left bank at downstream side of bridge (abandoned) on Dobbin Road, 0.6 mi south of intersection of Kempton Road, 1.2 mi from mouth, and 3.0 mi southwest of Wilson.

DRAINAGE AREA.--8.23 mi².

PERIOD OF RECORD.--May 1980 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 2,600 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for Nov. 10-29 (doubtful record) and Dec. 9-31 (ice effect), which are fair. Natural flow of stream affected by inflow from deep coal mine dewatering process. Several measurements of water temperature were made during the year. Water-quality records for some prior years have been collected at this location.

AVERAGE DISCHARGE.--10 years, 23.9 ft³/s, 39.44 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 863 ft³/s, Nov. 5, 1985, gage height, 10.10 ft, from rating curve extended above 450 ft³/s on basis of runoff comparisons with nearby stations; minimum discharge, 1.7 ft³/s, Aug. 17, 18, 1988.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 1	0215	406	5.55	May 26	1245	554	6.85
Jan. 29	2330	176	3.81	June 9	2130	*619	*7.50

Minimum daily discharge, 4.1 ft³/s, Sept. 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	13	22	186	38	16	17	13	31	63	7.7	4.4
2	16	10	20	53	33	16	21	12	26	41	7.2	4.7
3	12	9.4	18	38	35	19	21	15	25	24	6.6	5.0
4	10	8.9	18	42	45	19	20	21	30	17	6.3	4.1
5	9.6	8.6	16	57	39	17	22	54	22	40	6.7	4.5
6	17	8.5	19	42	33	16	29	39	17	39	7.9	4.9
7	39	8.1	32	34	30	15	28	31	16	23	6.6	7.2
8	26	13	22	29	26	14	25	25	16	18	5.9	6.9
9	26	30	e20	25	30	15	28	21	136	15	5.5	7.2
10	21	e25	e17	29	74	16	35	27	160	17	5.2	8.9
11	21	e20	e16	25	48	15	63	23	53	17	5.1	7.1
12	17	e18	e15	23	39	15	44	18	36	29	4.9	7.0
13	16	e16	e14	23	34	14	36	20	27	70	5.1	9.3
14	14	e15	e13	24	31	13	30	21	21	46	5.9	10
15	13	e14	e13	19	26	12	31	16	19	53	4.7	26
16	12	e70	e12	30	25	12	26	16	15	46	4.5	11
17	30	e60	e12	37	23	13	24	27	13	32	4.4	12
18	25	e45	e12	57	19	13	22	20	13	24	4.4	7.6
19	62	e33	e11	41	18	11	19	17	15	19	5.0	9.5
20	41	e28	e11	48	16	12	18	15	11	18	5.3	20
21	34	e23	e11	61	14	12	43	16	10	24	7.4	11
22	27	e19	e11	45	14	13	41	15	9.4	23	17	19
23	22	e17	e10	36	14	13	33	13	12	24	43	20
24	19	e16	e10	30	15	13	27	11	10	18	20	15
25	16	e15	e10	28	13	13	23	10	8.9	15	9.9	11
26	15	e30	e9.6	35	12	12	20	263	7.5	13	6.3	9.3
27	14	e38	e9.6	26	15	13	17	158	6.9	11	5.2	8.1
28	13	e50	e9.6	26	19	12	16	71	6.3	9.8	4.9	7.1
29	11	e30	e9.4	61	---	12	16	62	12	9.0	4.9	6.6
30	11	26	e12	94	---	11	15	53	45	8.5	5.1	6.5
31	11	---	e85	49	---	13	---	39	---	8.2	4.5	---
TOTAL	633.6	717.5	520.2	1353	778	430	810	1162	830.0	814.5	243.1	290.9
MEAN	20.4	23.9	16.8	43.6	27.8	13.9	27.0	37.5	27.7	26.3	7.84	9.70
MAX	62	70	85	186	74	19	63	263	160	70	43	26
MIN	9.6	8.1	9.4	19	12	11	15	10	6.3	8.2	4.4	4.1
CFSM	2.48	2.91	2.04	5.30	3.38	1.69	3.28	4.55	3.36	3.19	.95	1.18
IN.	2.86	3.24	2.35	6.12	3.52	1.94	3.66	5.25	3.75	3.68	1.10	1.31

CAL YR 1989 TOTAL 8981.0 MEAN 24.6 MAX 181 MIN 5.0 CFSM 2.99 IN. 40.59
WTR YR 1990 TOTAL 8582.8 MEAN 23.5 MAX 263 MIN 4.1 CFSM 2.86 IN. 38.79

e Estimated

01594936 NORTH FORK SAND RUN NEAR WILSON, MD

LOCATION.--Lat 39°15'36", long 79°24'36", Garrett County, Hydrologic Unit 02070002, on right bank, 0.1 mi north-west of Wilson-Corunna Road, 0.1 mi upstream from mouth and 0.8 mi northwest of Wilson.

DRAINAGE AREA.--1.91 mi².

PERIOD OF RECORD.--May 1980 to current year.

GAGE.--Water-stage recorder and steel weir plate. Elevation of gage is 2,515 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good above 0.5 ft³/s and fair below except those for Sept. 22-30 (backwater from beavers), which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior years have been collected at this location.

AVERAGE DISCHARGE.--10 years, 4.60 ft³/s, 32.71 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 895 ft³/s, May 31, 1985, gage height, 10.47 ft, from rating curve extended above 90 ft³/s on basis of contracted-opening measurement of peak flow; minimum discharge, 0.01 ft³/s, July 18 and Aug. 9, 1988, gage height, 1.34 ft, result of beaver activity upstream.

EXTREMES FOR CURRENT PERIOD.--Peak discharges greater than base discharge of 40 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 31	2345	65	3.59	June 9	1930	165	4.70
Jan. 29	2145	43	3.28	July 13	0630	57	3.51
May 26	1015	*213	*5.13				

Minimum discharge, 0.42 ft³/s, Aug. 16, 18, 19, Sept. 4-6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	2.8	4.2	25	7.4	3.4	3.1	2.5	6.6	6.7	1.2	.65
2	2.8	2.3	3.7	10	6.4	3.4	4.3	2.4	5.1	3.4	1.0	.49
3	2.2	2.1	3.4	6.7	8.0	4.1	3.8	2.9	6.4	2.3	.89	.60
4	1.8	2.0	3.1	11	12	4.0	3.6	5.3	8.8	1.8	.78	.55
5	1.6	1.8	2.9	15	8.7	3.3	4.7	18	6.0	5.2	.90	.43
6	2.7	1.7	3.8	9.5	6.6	3.0	5.2	9.9	4.8	4.7	1.2	.47
7	7.2	1.6	6.9	6.9	5.7	2.8	4.9	6.6	4.5	2.7	.95	1.1
8	4.1	3.0	4.1	5.6	4.9	2.6	5.1	5.1	3.9	2.2	.68	.77
9	3.9	7.2	3.5	4.8	7.5	2.9	6.0	4.2	30	1.8	.63	.64
10	3.2	5.5	3.3	5.9	18	2.9	6.5	6.0	18	1.7	.60	.79
11	3.2	4.5	3.0	5.0	9.8	2.7	14	5.4	8.2	4.3	.52	.56
12	2.8	3.6	2.8	4.7	7.4	2.6	8.4	4.1	5.5	5.2	.53	.59
13	2.4	3.1	2.6	4.0	6.5	2.4	6.3	4.1	4.3	25	.53	1.3
14	2.2	2.9	2.3	3.5	5.8	2.3	5.2	3.9	3.6	11	.90	.93
15	2.0	3.0	2.2	3.5	4.8	2.2	5.2	3.3	3.3	12	.55	3.3
16	1.9	15	2.1	7.8	4.7	2.2	4.3	3.4	2.8	9.3	.47	1.7
17	5.6	8.6	1.8	9.2	4.3	2.3	4.0	6.7	2.4	5.3	.55	1.9
18	4.5	5.9	1.7	13	3.6	2.2	3.7	4.9	2.2	3.9	.49	1.1
19	14	4.7	1.5	8.7	3.4	2.0	3.2	3.7	2.7	3.0	.48	1.5
20	7.5	4.5	1.6	12	3.0	2.0	2.9	3.3	2.1	3.0	.53	2.8
21	5.8	3.9	1.5	15	2.7	2.1	10	3.2	1.8	3.5	.81	1.9
22	4.8	3.3	1.3	9.6	2.7	2.1	8.2	3.0	1.7	4.2	3.4	e2.5
23	3.9	3.1	1.3	7.0	2.7	2.0	5.5	2.8	2.1	4.1	10	e3.1
24	3.4	2.9	1.3	5.6	2.9	2.0	4.7	2.4	1.8	3.3	3.3	e2.4
25	3.0	2.7	1.2	5.1	2.6	2.0	3.9	2.2	1.6	2.8	2.0	e1.9
26	2.8	7.6	1.2	6.2	2.2	2.0	3.4	70	1.3	2.2	1.4	e1.5
27	2.6	6.5	1.1	4.8	3.4	2.1	3.1	30	1.2	2.0	1.2	e1.2
28	2.4	8.1	1.1	4.7	3.7	2.0	2.9	17	1.1	1.7	.87	1.1
29	2.2	6.1	1.0	14	---	2.0	2.9	18	2.2	1.5	.79	e1.0
30	2.1	4.9	1.3	17	---	2.0	2.9	14	4.8	1.4	.93	e.95
31	2.4	---	e15	9.9	---	2.4	---	9.2	---	1.3	.65	---
TOTAL	113.3	134.9	87.8	270.7	161.4	78.0	151.9	277.5	150.8	142.5	39.73	39.72
MEAN	3.65	4.50	2.83	8.73	5.76	2.52	5.06	8.95	5.03	4.60	1.28	1.32
MAX	14	15	15	25	18	4.1	14	70	30	25	10	3.3
MIN	1.6	1.6	1.0	3.5	2.2	2.0	2.9	2.2	1.1	1.3	.47	.43
CFSM	1.91	2.35	1.48	4.57	3.02	1.32	2.65	4.69	2.63	2.41	.67	.69
IN.	2.21	2.63	1.71	5.27	3.14	1.52	2.96	5.40	2.94	2.78	.77	.77

CAL YR 1989 TOTAL 1820.46 MEAN 4.99 MAX 41 MIN .69 CFSM 2.61 IN. 35.46
WTR YR 1990 TOTAL 1648.25 MEAN 4.52 MAX 70 MIN .43 CFSM 2.36 IN. 32.10

e Estimated

POTOMAC RIVER BASIN

01594950 MCMILLAN FORK NEAR FORT PENDLETON, MD

LOCATION.--Lat 39°16'36", long 79°23'26", Garrett County, Hydrologic Unit 02070002, on left bank upstream side of culvert on private driveway off Wilson-Corona Road, 1.7 mi southwest of Fort Pendleton, 1.0 mi south of Bayard, WV, and 200 ft upstream from mouth.

DRAINAGE AREA.--2.30 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1986 to September 1990.

GAGE.--Water-stage recorder and sacrete bag control. Elevation of gage is 2,441.94 ft above National Geodetic Vertical Datum of 1929 (Garrett County bench mark).

REMARKS.--Water-discharge records good except those for estimated daily discharges (ice effect) which are fair

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined, May 26, 1990, gage height, 4.91 ft (backwater) minimum discharge, 0.09 ft³/s, Aug. 4, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 40 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 31	2300	67	2.88	June 9	1945	71	2.96
Jan. 29	2145	41	2.24	July 13	0715	62	2.78
May 26	1400	*Unknown	a*4.91				

a Backwater

Minimum discharge, 0.40 ft³/s, Aug. 17-19, Sept. 4, 5, 12, gage height, 0.28 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	3.4	6.0	30	9.8	3.9	4.4	3.1	9.6	5.0	1.1	.49
2	3.1	2.9	5.4	15	8.8	3.9	5.8	3.0	7.5	2.8	.96	.50
3	2.5	2.8	e5.0	11	10	4.7	5.7	3.5	6.7	1.9	.88	.52
4	2.1	2.6	e4.5	15	13	4.7	5.6	6.1	6.6	1.4	.82	.44
5	1.9	2.4	3.9	19	11	4.4	6.3	20	5.1	3.5	1.0	.42
6	3.0	2.3	4.8	14	9.2	4.3	6.7	13	4.3	3.2	1.2	.48
7	6.1	2.2	6.7	11	8.0	3.9	6.6	9.4	4.0	2.2	.90	.84
8	4.5	3.9	5.1	9.2	6.7	3.7	6.9	7.4	3.7	1.8	.75	.62
9	4.4	6.6	e4.6	7.8	9.3	4.2	7.9	6.2	14	1.5	.70	.72
10	4.0	5.9	e4.3	8.3	19	4.1	9.1	7.5	11	1.6	.67	.72
11	4.0	5.4	e4.0	7.2	13	3.9	16	6.4	7.1	3.5	.63	.49
12	3.5	4.9	e3.7	6.8	10	3.7	12	5.6	5.7	4.1	.62	.47
13	3.2	4.4	e3.4	e5.5	8.8	3.4	9.4	5.7	4.8	27	.66	.90
14	3.0	4.1	e3.1	e5.0	7.7	3.3	7.9	5.2	4.2	13	.81	.70
15	2.8	4.1	e3.0	4.9	6.6	3.1	7.3	4.6	3.8	14	.57	2.2
16	2.5	15	e2.9	8.6	6.3	3.0	6.1	4.8	3.3	11	.49	.99
17	6.5	9.7	e2.8	11	5.6	3.1	5.6	7.3	2.9	8.1	.45	.97
18	5.1	8.0	e2.7	18	4.9	2.9	4.9	6.0	2.7	6.3	.40	.67
19	15	6.7	e2.6	12	4.6	2.7	4.3	5.3	2.8	5.0	.52	1.1
20	9.8	6.4	e2.5	14	4.0	2.7	4.0	4.8	2.3	4.4	.58	1.7
21	8.2	5.6	e2.4	17	3.7	2.6	8.7	4.6	2.1	4.3	.73	.99
22	6.8	4.9	e2.2	13	3.6	2.7	8.0	4.2	1.9	4.3	1.9	1.8
23	5.8	4.5	e2.2	10	3.7	2.6	6.8	3.8	2.4	3.9	7.1	2.8
24	5.1	4.1	e2.0	8.3	3.7	2.6	6.1	3.3	1.8	3.2	2.4	1.8
25	4.6	3.8	e1.8	7.6	4.4	2.6	5.5	3.0	1.6	2.5	1.4	1.4
26	4.2	8.2	e1.7	7.6	4.4	2.7	4.8	e110	1.2	2.1	.97	1.2
27	3.8	7.5	e1.6	6.3	5.5	2.7	4.3	39	1.1	1.9	.81	1.1
28	3.5	9.2	e1.6	6.0	4.4	2.7	3.8	22	1.0	1.6	.72	.87
29	3.3	7.9	e1.6	16	---	2.7	3.9	21	1.8	1.5	.65	.78
30	3.1	6.9	e3.4	19	---	2.7	3.6	18	2.9	1.3	.62	.80
31	3.6	---	e20	12	---	3.3	---	13	---	1.3	.53	---
TOTAL	141.6	166.3	121.5	356.1	209.7	103.5	198.0	376.8	129.9	149.2	32.54	29.48
MEAN	4.57	5.54	3.92	11.5	7.49	3.34	6.60	12.2	4.33	4.81	1.05	.98
MAX	15	15	20	30	19	4.7	16	110	14	27	7.1	2.8
MIN	1.9	2.2	1.6	4.9	3.6	2.6	3.6	3.0	1.0	1.3	.40	.42
CFSM	1.99	2.41	1.70	4.99	3.26	1.45	2.87	5.28	1.88	2.09	.46	.43
IN.	2.29	2.69	1.97	5.76	3.39	1.67	3.20	6.09	2.10	2.41	.53	.48

CAL YR 1989 TOTAL 2198.85 MEAN 6.02 MAX 49 MIN .87 CFSM 2.62 IN. 35.56
WTR YR 1990 TOTAL 2014.62 MEAN 5.52 MAX 110 MIN .40 CFSM 2.40 IN. 32.58

e Estimated

01594950 MCMILLAN FORK NEAR FORT PENDLETON, MD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1987 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1986 to current year.

pH: November 1986 to current year.

WATER TEMPERATURE: November 1986 to current year.

INSTRUMENTATION.--Water-quality monitor since November 1986. Digital recorder set for one-hour-interval punches.

REMARKS.--Periods of missing record due to monitor malfunction or probes buried by sediment. Records represent water temperature at sensor within 0.5°C.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 281 microsiemens, Sept. 4, 1988; minimum, 58 microsiemens, Dec. 1, 2, 1987, Mar. 6, 24, 25, 1988.

pH: Maximum, 7.8 units, Aug. 28, 1988; minimum, 4.9 units, Nov. 21, 22, 1988.

WATER TEMPERATURE: Maximum, 22.0°C, Aug. 18, 1988; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT PERIOD.--

SPECIFIC CONDUCTANCE: Maximum, 154 microsiemens, Sept. 15; 66 microsiemens, Apr. 4.

pH: Maximum, 7.3 units, Dec. 27-30, Sept. 30; minimum, 5.6 units, May 26.

WATER TEMPERATURE: Maximum, 19.5°C, Aug. 28; minimum, 0.0°C, on many days during winter periods.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	91	87	90	98	89	95	83	81	82	85	73	76
2	110	91	100	95	91	92	86	83	84	87	77	82
3	96	92	93	94	92	93	89	85	87	95	87	91
4	94	92	93	95	92	94	89	87	88	105	94	97
5	94	91	92	95	94	94	90	88	89	124	83	89
6	102	89	92	95	94	94	97	88	89	85	83	84
7	108	87	99	96	94	95	105	84	93	85	83	84
8	87	82	84	108	91	96	85	82	83	88	85	86
9	88	83	85	112	91	99	87	85	86	90	86	87
10	84	81	82	91	76	82	88	85	86	91	87	89
11	88	84	86	79	70	73	87	86	86	89	86	88
12	86	84	85	70	69	70	90	86	87	91	86	88
13	86	85	86	71	69	70	90	88	89	86	83	84
14	88	86	86	73	70	72	90	89	89	84	82	83
15	88	86	86	75	72	73	92	88	90	84	82	83
16	89	86	87	85	68	74	98	90	93	96	84	87
17	109	86	96	70	68	69	101	97	99	84	76	79
18	90	84	86	71	68	70	103	96	100	76	72	74
19	97	78	84	73	70	71	111	97	108	75	72	73
20	82	78	80	77	73	75	109	98	105	88	75	79
21	88	82	84	77	75	75	100	98	99	84	77	79
22	88	86	87	77	76	77	102	99	101	80	78	79
23	93	88	91	79	77	78	102	100	101	83	80	81
24	96	93	95	79	77	79	104	101	102	86	82	84
25	96	94	95	80	79	80	104	102	103	87	86	86
26	94	93	94	92	80	85	105	102	103	92	86	88
27	94	92	93	84	77	80	107	105	106	90	86	87
28	93	92	92	93	80	85	107	104	105	90	84	86
29	94	92	93	81	79	80	107	105	107	84	77	83
30	95	93	94	82	80	81	116	104	109	82	74	76
31	95	88	93	---	---	---	114	85	105	81	73	77
MONTH	110	78	90	112	68	82	116	81	95	124	72	84

POTOMAC RIVER BASIN

01594950 MCMILLAN FORT NEAR FORT PENDLETON, MD--CONTINUED

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	86	73	78	84	80	82	93	76	81	86	83	84
2	81	77	78	87	81	84	81	71	75	86	85	86
3	86	78	82	96	84	88	73	69	70	93	83	87
4	85	77	80	95	75	81	69	66	68	101	82	88
5	79	77	78	77	75	76	79	69	71	101	91	94
6	79	77	78	78	76	76	73	70	71	95	92	93
7	79	77	78	78	76	77	75	72	73	93	90	92
8	85	79	81	79	76	77	83	72	74	95	91	93
9	95	82	86	82	77	79	82	71	75	99	94	96
10	89	75	79	82	78	79	72	71	71	104	98	100
11	78	75	76	80	77	78	78	72	75	101	99	100
12	80	76	78	80	78	79	75	73	75	100	98	99
13	87	79	82	80	78	79	78	75	77	101	98	99
14	85	82	83	81	79	80	82	78	79	102	99	100
15	87	84	86	82	81	81	86	81	84	101	99	100
16	87	84	86	83	81	82	87	85	86	101	97	100
17	87	84	85	87	82	83	90	85	87	99	90	94
18	86	84	85	88	84	85	89	86	87	90	84	86
19	85	84	84	84	82	83	86	85	85	84	83	84
20	84	82	83	87	82	85	85	84	85	84	83	83
21	83	82	82	88	83	86	100	80	86	84	83	84
22	82	80	81	91	83	87	80	75	76	88	83	85
23	83	81	82	84	81	82	78	76	77	88	86	86
24	85	81	83	84	78	81	78	77	78	88	86	87
25	86	82	84	85	83	84	81	78	79	88	87	87
26	87	82	85	85	82	84	82	80	81	87	69	78
27	85	77	81	89	82	85	84	81	83	69	67	68
28	82	78	80	83	78	80	86	84	84	77	69	73
29	---	---	---	79	77	78	87	83	84	81	75	77
30	---	---	---	78	76	77	87	84	86	79	76	78
31	---	---	---	80	75	77	---	---	---	81	78	79
MONTH	95	73	82	96	75	81	100	66	79	104	67	88
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	84	80	82	119	86	101	101	98	99	126	124	125
2	84	82	83	104	98	100	101	97	99	126	125	125
3	83	79	81	109	100	104	102	98	100	128	125	126
4	86	76	80	112	106	109	104	99	101	127	122	125
5	81	78	79	126	90	107	104	97	101	125	121	123
6	81	80	80	---	---	---	113	103	109	127	119	123
7	82	79	81	---	---	---	113	109	110	148	114	135
8	83	81	82	---	---	---	110	106	108	149	137	143
9	88	72	84	---	---	---	111	107	109	137	121	129
10	71	67	68	---	---	---	113	109	111	136	122	129
11	70	68	69	---	---	---	114	110	112	136	130	133
12	71	68	70	---	---	---	116	113	114	137	122	129
13	73	71	72	---	---	---	120	112	115	140	120	129
14	75	71	73	---	---	---	134	112	127	140	111	135
15	78	74	76	---	---	---	131	123	126	154	110	139
16	78	76	77	---	---	---	125	120	122	142	130	138
17	81	76	78	---	---	---	123	117	120	141	131	137
18	83	79	80	99	97	97	119	116	118	137	132	134
19	84	78	82	100	99	100	120	114	118	133	125	130
20	85	83	84	102	93	99	148	119	134	138	133	136
21	86	82	84	101	94	97	134	111	126	134	129	131
22	86	84	85	103	92	97	143	99	128	133	122	127
23	99	86	93	100	94	96	136	101	121	131	120	125
24	92	88	90	95	94	94	136	123	130	120	116	118
25	92	89	90	95	93	94	145	136	140	116	114	115
26	91	88	89	95	93	94	145	135	140	115	112	113
27	91	87	89	96	92	94	135	129	131	114	112	113
28	91	87	89	97	92	95	134	128	130	115	112	113
29	91	82	88	97	93	95	135	130	133	116	112	114
30	111	81	100	98	94	96	130	128	129	116	112	114
31	---	---	---	100	94	97	128	126	127	---	---	---
MONTH	111	67	82	---	---	---	148	97	119	154	110	127

POTOMAC RIVER BASIN

37

01594950 MCMILLAN FORT NEAR FORT PENDLETON, MD--CONTINUED

pH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.2	7.0	7.1	7.0	7.0	7.0	6.9	6.9	6.9	6.6	6.5	6.5
2	7.0	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.8	6.6	6.7
3	7.1	7.0	7.1	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.8	6.9
4	7.1	7.1	7.1	7.0	7.0	7.0	7.0	6.9	6.9	7.0	6.6	6.9
5	7.1	7.1	7.1	7.0	7.0	7.0	7.0	6.9	7.0	6.9	6.4	6.7
6	7.1	6.9	7.1	7.0	7.0	7.0	7.0	6.9	7.0	6.9	6.8	6.9
7	6.9	6.8	6.9	7.1	7.0	7.1	7.0	6.9	6.9	7.0	6.9	6.9
8	6.9	6.8	6.9	7.1	6.9	7.1	7.0	6.9	6.9	7.0	6.7	6.9
9	6.9	6.8	6.9	6.9	6.9	6.9	7.0	6.9	7.0	7.1	6.8	7.0
10	6.9	6.8	6.8	6.9	6.8	6.9	7.0	6.9	7.0	7.1	6.9	6.9
11	6.8	6.8	6.8	6.9	6.9	6.9	7.1	7.0	7.0	7.1	6.9	7.0
12	6.8	6.5	6.7	6.9	6.8	6.9	7.1	7.1	7.1	7.1	6.9	6.9
13	6.6	6.5	6.6	6.9	6.8	6.9	7.1	7.1	7.1	7.1	6.8	7.0
14	6.5	6.5	6.5	6.9	6.8	6.9	7.1	7.1	7.1	7.1	7.0	7.1
15	6.6	6.5	6.6	6.9	6.8	6.9	7.1	7.1	7.1	7.1	7.1	7.1
16	6.7	6.6	6.6	6.9	6.7	6.7	7.1	7.0	7.1	7.2	7.0	7.1
17	6.7	6.6	6.7	6.7	6.7	6.7	7.1	7.1	7.1	7.0	6.9	7.0
18	6.8	6.7	6.7	6.7	6.7	6.7	7.1	7.1	7.1	6.9	6.7	6.8
19	6.8	6.6	6.7	6.8	6.7	6.7	7.1	7.1	7.1	6.9	6.8	6.8
20	6.9	6.8	6.8	6.8	6.8	6.8	7.2	7.1	7.1	7.0	6.9	6.9
21	6.9	6.9	6.9	6.8	6.8	6.8	7.2	7.2	7.2	6.9	6.9	6.9
22	7.0	6.9	6.9	6.8	6.8	6.8	7.2	7.2	7.2	7.0	6.9	6.9
23	7.0	7.0	7.0	6.8	6.8	6.8	7.2	7.2	7.2	7.1	7.0	7.0
24	7.0	7.0	7.0	6.9	6.8	6.8	7.2	7.1	7.2	7.1	7.0	7.1
25	7.0	6.9	7.0	6.9	6.8	6.8	7.2	7.2	7.2	7.1	7.1	7.1
26	7.0	6.9	7.0	6.8	6.7	6.8	7.2	7.2	7.2	7.1	7.1	7.1
27	6.9	6.8	6.9	6.9	6.7	6.7	7.3	7.2	7.3	7.1	7.1	7.1
28	6.9	6.8	6.9	6.9	6.8	6.8	7.3	7.3	7.3	7.1	7.1	7.1
29	7.0	6.9	6.9	6.8	6.8	6.8	7.3	7.3	7.3	7.1	6.8	7.0
30	6.9	6.9	6.9	6.9	6.8	6.8	7.3	7.1	7.2	6.9	6.8	6.8
31	7.0	6.9	7.0	---	---	---	7.1	6.4	6.9	7.0	6.9	6.9
MONTH	7.2	6.5	6.9	7.1	6.7	6.9	7.3	6.4	7.1	7.2	6.4	6.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	7.0	7.0	7.0	7.1	7.0	7.1	6.8	6.8	6.8	6.9	6.8	6.8
2	7.1	7.0	7.0	7.1	7.1	7.1	6.8	6.7	6.8	6.9	6.8	6.9
3	7.1	7.0	7.0	7.1	7.0	7.1	6.8	6.7	6.7	6.9	6.8	6.9
4	7.0	6.9	6.9	7.1	7.0	7.0	6.7	6.7	6.7	6.9	6.6	6.8
5	7.0	6.9	6.9	7.1	7.0	7.0	6.7	6.7	6.7	6.6	6.5	6.5
6	7.0	7.0	7.0	7.0	7.0	7.0	6.7	6.7	6.7	6.6	6.5	6.6
7	7.0	6.9	6.9	7.0	7.0	7.0	6.7	6.7	6.7	6.7	6.6	6.6
8	7.0	6.9	6.9	7.1	7.0	7.0	6.7	6.7	6.7	6.7	6.7	6.7
9	7.0	6.8	6.9	7.1	7.0	7.0	6.7	6.7	6.7	6.8	6.7	6.7
10	6.9	6.7	6.7	7.0	6.9	7.0	6.7	6.6	6.7	6.8	6.7	6.7
11	6.8	6.7	6.7	7.0	6.9	7.0	6.6	6.6	6.6	6.8	6.7	6.8
12	6.8	6.8	6.8	7.0	6.9	7.0	6.7	6.6	6.6	6.8	6.8	6.8
13	6.9	6.8	6.9	7.0	6.9	7.0	6.7	6.6	6.7	6.8	6.8	6.8
14	6.9	6.9	6.9	7.0	6.9	6.9	6.7	6.7	6.7	6.9	6.8	6.8
15	6.9	6.9	6.9	7.0	6.9	6.9	6.8	6.7	6.7	6.9	6.8	6.9
16	6.9	6.9	6.9	6.9	6.9	6.9	6.7	6.7	6.7	6.9	6.9	6.9
17	6.9	6.9	6.9	6.9	6.8	6.9	6.7	6.7	6.7	6.9	6.9	6.9
18	7.0	6.9	6.9	7.0	6.9	6.9	6.7	6.7	6.7	6.9	6.8	6.9
19	7.0	6.9	6.9	7.0	6.9	7.0	6.7	6.7	6.7	7.0	6.9	6.9
20	7.0	6.9	6.9	7.0	6.9	6.9	6.7	6.7	6.7	7.0	6.9	6.9
21	7.0	6.9	7.0	7.0	6.9	7.0	6.7	6.5	6.6	6.9	6.9	6.9
22	7.0	7.0	7.0	7.0	6.9	6.9	6.6	6.5	6.6	6.9	6.8	6.9
23	7.0	7.0	7.0	7.0	6.9	7.0	6.5	6.4	6.5	6.8	6.7	6.8
24	7.1	7.0	7.0	7.0	6.9	6.9	6.5	6.4	6.4	6.8	6.7	6.7
25	7.0	6.9	7.0	7.0	6.9	7.0	6.5	6.4	6.4	6.8	6.7	6.7
26	7.0	7.0	7.0	7.0	6.9	7.0	6.5	6.4	6.4	6.7	5.6	6.0
27	7.0	6.9	7.0	7.0	6.9	6.9	6.5	6.4	6.5	6.2	5.8	6.0
28	7.1	7.0	7.0	6.9	6.9	6.9	6.7	6.5	6.6	6.4	6.0	6.2
29	---	---	---	6.9	6.9	6.9	6.7	6.6	6.7	6.4	5.9	6.0
30	---	---	---	6.9	6.9	6.9	6.8	6.6	6.7	6.6	6.2	6.4
31	---	---	---	6.9	6.8	6.9	---	---	---	6.5	6.2	6.4
MONTH	7.1	6.7	6.9	7.1	6.8	7.0	6.8	6.4	6.6	7.0	5.6	6.7

POTOMAC RIVER BASIN

01594950 MCMILLAN FORT NEAR FORT PENDLETON, MD--CONTINUED

pH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	6.5	6.2	6.4	7.0	6.7	6.8	7.0	7.0	7.0	7.0	6.9	7.0
2	6.6	6.5	6.5	6.9	6.8	6.9	7.1	7.0	7.0	7.1	6.9	7.0
3	6.7	6.5	6.6	7.0	6.8	6.9	7.0	6.9	7.0	7.1	7.0	7.0
4	6.7	6.7	6.7	7.0	7.0	7.0	7.0	6.9	7.0	7.1	7.0	7.0
5	6.8	6.7	6.7	7.1	6.7	6.9	7.0	6.9	6.9	7.2	7.0	7.1
6	6.8	6.7	6.8	---	---	---	7.0	6.9	6.9	7.2	6.9	7.1
7	6.7	6.6	6.7	---	---	---	7.0	7.0	7.0	7.1	6.9	7.0
8	6.6	6.5	6.6	---	---	---	7.0	7.0	7.0	7.1	7.0	7.1
9	6.7	6.3	6.5	---	---	---	7.0	6.9	7.0	7.1	7.0	7.1
10	6.5	6.4	6.4	---	---	---	7.0	6.9	7.0	7.1	7.1	7.1
11	6.5	6.4	6.4	---	---	---	7.0	6.9	6.9	7.1	7.1	7.1
12	6.6	6.5	6.5	---	---	---	6.9	6.9	6.9	7.1	7.1	7.1
13	6.6	6.5	6.5	---	---	---	6.9	6.8	6.9	7.1	7.1	7.1
14	6.7	6.6	6.6	---	---	---	6.8	6.8	6.8	7.2	6.9	7.1
15	6.8	6.5	6.7	---	---	---	6.8	6.8	6.8	7.0	6.8	6.9
16	6.8	6.7	6.8	---	---	---	6.8	6.8	6.8	7.1	7.0	7.1
17	6.8	6.8	6.8	---	---	---	6.9	6.8	6.8	7.1	7.0	7.1
18	6.9	6.8	6.8	6.6	6.5	6.6	6.9	6.8	6.8	7.1	7.1	7.1
19	6.9	6.8	6.9	6.6	6.5	6.6	6.9	6.7	6.8	7.1	7.0	7.1
20	6.9	6.8	6.9	6.7	6.6	6.6	6.9	6.7	6.8	7.1	7.0	7.0
21	6.9	6.9	6.9	6.7	6.6	6.6	6.8	6.7	6.8	7.1	7.0	7.1
22	7.0	6.9	6.9	6.7	6.5	6.6	6.8	6.5	6.7	7.1	7.0	7.0
23	6.9	6.9	6.9	6.7	6.6	6.6	6.6	6.2	6.4	7.0	6.9	7.0
24	7.0	6.9	6.9	6.7	6.6	6.7	6.6	6.5	6.5	7.1	7.0	7.0
25	7.0	6.9	7.0	6.7	6.6	6.7	6.7	6.6	6.6	7.1	7.0	7.1
26	7.0	6.9	7.0	6.7	6.6	6.7	6.7	6.6	6.7	7.1	7.1	7.1
27	7.1	6.9	7.0	6.8	6.7	6.8	6.8	6.7	6.8	7.1	7.1	7.1
28	7.1	7.0	7.0	6.9	6.7	6.8	6.9	6.8	6.8	7.2	7.1	7.1
29	7.1	6.9	7.0	6.9	6.8	6.9	6.9	6.8	6.9	7.2	7.1	7.2
30	7.0	6.8	6.9	6.9	6.8	6.9	7.0	6.9	6.9	7.3	7.2	7.2
31	---	---	---	7.0	6.9	6.9	7.0	6.9	6.9	---	---	---
MONTH	7.1	6.2	6.7	---	---	---	7.1	6.2	6.8	7.3	6.8	7.1

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	12.5	12.0	12.0	10.0	6.5	8.5	3.5	2.5	3.0	2.5	1.5	2.0
2	14.0	12.5	13.0	7.0	5.5	6.5	4.0	2.0	3.0	3.0	2.0	2.5
3	14.0	12.0	13.5	6.0	4.5	5.5	2.5	.0	1.0	4.0	2.0	3.0
4	12.0	9.0	10.0	5.5	3.0	4.5	1.5	.0	.5	4.5	3.0	3.5
5	10.0	8.0	9.0	6.5	3.5	5.0	3.0	1.5	2.5	4.5	2.5	4.0
6	11.0	9.5	10.5	8.5	6.0	7.5	4.5	3.0	3.5	4.5	3.5	4.0
7	10.5	9.5	10.0	9.0	7.0	8.0	4.0	2.5	3.0	4.0	3.0	3.5
8	9.5	7.5	8.5	9.5	8.5	9.0	2.5	.5	1.0	3.5	2.5	3.0
9	8.0	6.5	7.5	9.5	6.5	8.5	1.0	.0	.5	3.5	2.5	3.0
10	8.5	5.5	7.0	6.5	5.5	6.0	2.0	.0	1.0	4.0	2.0	3.0
11	10.0	8.0	9.0	7.5	4.5	6.0	2.0	.5	1.5	4.0	2.0	3.0
12	11.0	7.0	9.0	8.0	6.5	7.5	2.0	1.0	2.0	2.5	.5	1.5
13	13.0	10.0	11.5	8.5	5.5	7.0	1.5	.5	1.5	.5	.0	.5
14	13.5	10.5	12.0	9.5	7.0	8.5	.5	.0	.5	2.0	.0	1.0
15	13.5	11.0	12.0	10.5	9.0	10.0	.0	.0	.0	3.0	1.5	2.5
16	13.5	10.5	12.0	10.5	5.5	8.0	.0	.0	.0	4.0	3.0	3.5
17	14.0	13.0	13.5	5.5	3.5	4.5	.0	.0	.0	5.5	3.0	4.5
18	13.5	9.5	11.5	4.5	3.0	4.0	.0	.0	.0	6.5	5.0	6.0
19	9.5	9.0	9.5	5.0	2.5	3.5	.0	.0	.0	5.0	3.5	4.5
20	9.5	7.0	8.0	7.0	5.0	6.0	.0	.0	.0	6.0	4.0	5.0
21	7.5	6.0	7.0	5.5	2.5	4.0	.0	.0	.0	6.5	4.5	5.5
22	8.5	7.0	7.5	3.0	2.0	2.5	.0	.0	.0	5.0	3.5	4.5
23	9.0	5.5	7.0	2.0	1.5	2.0	.0	.0	.0	5.5	4.0	5.0
24	10.0	6.5	8.0	2.0	1.0	1.5	.0	.0	.0	6.5	5.5	6.0
25	10.0	7.0	8.5	3.5	.5	2.0	.0	.0	.0	7.0	5.5	6.5
26	9.5	6.5	8.0	5.5	3.5	5.0	.0	.0	.0	5.5	2.0	3.5
27	9.0	6.0	7.5	6.0	4.0	5.0	.0	.0	.0	4.0	2.0	3.0
28	9.0	6.0	7.5	8.0	6.0	7.0	.5	.0	.5	4.5	3.0	4.0
29	9.5	6.5	8.0	6.0	2.5	4.0	.5	.0	.5	3.0	2.5	3.0
30	10.0	7.5	8.5	3.0	2.0	2.5	.5	.0	.0	4.5	3.0	3.5
31	11.5	9.0	10.0	---	---	---	1.5	.0	.5	5.0	3.0	4.0
MONTH	14.0	5.5	9.6	10.5	.5	5.6	4.5	.0	.8	7.0	.0	3.6

POTOMAC RIVER BASIN

39

01594950 MCMILLAN FORT NEAR FORT PENDLETON, MD--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.5	2.5	4.0	3.0	.5	1.5	10.0	8.0	8.5	12.5	10.5	11.5
2	8.0	5.0	6.5	3.0	1.5	2.5	9.0	7.0	8.0	11.5	9.5	10.5
3	7.5	6.0	6.5	4.5	2.5	3.5	7.0	4.0	5.5	11.0	9.0	10.0
4	7.0	4.5	6.0	3.0	1.0	2.0	4.0	2.5	3.5	11.0	9.5	10.0
5	5.0	3.5	4.0	4.5	1.0	2.5	7.5	4.0	5.5	11.0	8.5	10.5
6	5.5	3.5	4.5	4.0	2.0	3.0	6.0	3.0	4.5	10.0	8.0	9.0
7	5.5	4.5	5.0	3.0	.5	2.0	4.0	2.0	3.0	12.5	7.5	9.5
8	7.0	5.0	5.5	4.0	.5	2.5	6.5	2.5	4.0	14.0	8.5	11.0
9	7.0	4.5	5.5	5.5	3.5	4.5	8.0	3.0	5.0	13.5	9.5	11.5
10	6.5	4.0	5.5	9.0	5.5	7.0	8.0	5.0	6.5	12.0	9.0	11.0
11	5.5	3.5	4.5	8.5	6.5	7.5	7.5	5.0	6.0	12.0	7.5	9.5
12	4.5	3.5	4.0	11.5	7.0	9.0	6.0	4.0	5.0	9.5	7.0	8.5
13	6.0	3.0	4.5	12.5	9.5	11.0	8.0	3.0	5.0	11.5	9.5	10.5
14	7.5	5.5	6.5	11.5	8.0	10.0	8.5	4.5	6.5	14.0	9.0	11.0
15	7.0	6.0	6.5	12.0	8.5	10.5	9.5	7.0	8.0	14.0	9.5	12.0
16	9.0	7.0	8.0	11.5	10.0	11.0	10.5	5.5	7.5	14.0	11.5	12.5
17	7.5	2.5	4.5	11.0	8.5	10.0	7.5	5.0	6.5	14.0	11.5	12.5
18	4.0	.5	2.5	8.5	5.5	7.0	7.5	3.5	5.0	12.5	9.5	11.0
19	5.0	3.5	4.5	6.5	4.0	5.5	8.0	3.0	5.5	13.0	9.5	11.5
20	3.5	1.5	2.0	4.0	1.5	3.0	8.5	6.5	7.5	13.0	11.0	12.0
21	4.0	.0	2.0	4.5	1.0	2.5	9.0	8.0	8.5	12.5	11.5	12.0
22	7.5	2.5	5.0	7.0	2.0	4.5	12.0	6.5	9.0	11.5	9.5	10.0
23	7.5	4.5	7.0	7.5	5.5	6.5	12.5	6.5	9.5	11.5	8.0	9.5
24	4.5	.0	2.5	5.5	2.0	3.5	13.5	7.5	10.5	12.0	9.0	10.5
25	.0	.0	.0	4.0	2.5	3.0	13.0	8.5	11.0	11.5	8.5	10.0
26	.0	.0	.0	4.5	2.0	3.0	15.5	10.0	12.5	12.0	11.0	11.5
27	.0	.0	.0	4.5	1.5	2.5	12.5	10.0	11.5	11.0	10.0	10.5
28	3.0	.0	1.5	5.0	1.0	3.0	14.5	9.5	12.0	10.5	9.5	10.0
29	---	---	---	4.5	4.0	4.5	12.5	11.0	11.5	10.0	9.5	10.0
30	---	---	---	7.0	4.0	5.5	14.0	10.0	12.0	11.5	9.0	10.0
31	---	---	---	8.0	5.5	7.0	---	---	---	12.0	8.0	10.0
MONTH	9.0	.0	4.2	12.5	.5	5.2	15.5	2.0	7.5	14.0	7.0	10.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	13.5	8.0	10.5	16.5	15.5	16.0	16.0	14.5	15.0	17.0	14.0	15.5
2	14.0	10.0	12.0	16.5	13.5	15.0	15.5	12.5	14.5	18.5	16.0	17.0
3	14.0	12.0	13.0	16.5	13.0	14.5	16.0	13.0	15.0	17.5	16.0	17.0
4	12.5	10.0	11.5	18.5	14.5	16.5	16.5	14.5	15.5	16.5	14.5	15.5
5	12.5	9.0	10.5	18.5	17.0	18.0	17.0	16.0	16.5	17.0	14.5	15.5
6	14.5	10.0	12.0	---	---	---	17.0	16.0	16.5	19.0	16.5	17.5
7	13.5	13.0	13.0	---	---	---	16.5	14.5	15.5	18.0	17.0	17.5
8	15.5	12.0	13.5	---	---	---	15.5	13.0	14.5	17.0	16.0	16.5
9	15.5	14.0	14.5	---	---	---	16.0	14.0	15.0	17.5	16.0	17.0
10	14.0	12.5	13.5	---	---	---	17.0	15.0	16.0	17.5	16.0	17.0
11	14.0	11.5	12.5	---	---	---	16.5	15.0	16.0	17.0	14.5	16.0
12	13.0	10.0	11.5	---	---	---	17.0	14.5	16.0	17.5	16.5	17.0
13	15.0	11.5	13.0	---	---	---	17.0	14.5	16.0	17.5	16.5	17.0
14	15.5	12.5	14.0	---	---	---	17.0	16.0	16.5	17.5	16.5	17.0
15	16.5	13.5	15.0	---	---	---	17.0	15.0	16.0	17.0	14.5	16.0
16	17.0	14.0	15.5	---	---	---	17.0	14.5	15.5	14.5	13.0	14.0
17	16.5	14.0	15.5	---	---	---	17.0	14.0	15.5	13.0	10.5	11.5
18	17.0	14.5	16.0	17.0	13.5	15.0	17.0	15.0	16.0	10.5	8.5	9.5
19	16.0	14.5	15.0	17.0	13.5	15.0	18.5	16.5	17.5	13.0	10.5	11.5
20	15.0	13.0	14.0	17.0	14.0	15.5	18.5	16.5	17.5	13.5	13.0	13.0
21	16.5	14.0	15.0	17.0	15.0	16.0	16.5	15.5	16.0	14.0	11.5	13.0
22	15.5	13.5	14.5	17.5	15.5	16.0	15.5	15.0	15.5	14.5	13.0	14.0
23	15.5	14.0	14.5	16.5	15.0	16.0	16.5	15.5	16.0	13.0	10.5	11.5
24	14.0	13.0	13.5	16.5	14.0	15.0	17.0	15.5	16.5	10.5	9.5	10.0
25	15.0	12.0	13.5	16.5	13.5	15.0	18.0	16.0	17.0	11.5	9.0	10.0
26	15.5	12.0	14.0	16.5	13.5	15.0	17.5	15.5	16.5	12.0	10.5	11.0
27	16.0	13.0	14.5	17.0	13.5	15.0	18.5	16.0	17.5	12.0	9.5	11.0
28	17.0	13.5	15.5	17.0	14.0	15.5	19.5	18.0	18.5	12.5	9.5	11.0
29	17.0	14.0	16.0	17.0	14.0	15.5	19.0	17.5	18.5	13.5	11.5	12.5
30	17.5	16.0	17.0	17.0	14.5	16.0	17.0	16.0	16.5	12.5	11.5	12.5
31	---	---	---	16.5	15.5	16.5	16.5	14.0	15.0	---	---	---
MONTH	17.5	8.0	13.8	---	---	---	19.5	12.5	16.1	19.0	8.5	14.2

POTOMAC RIVER BASIN

01595000 NORTH BRANCH POTOMAC RIVER AT STEYER, MD

LOCATION.--Lat 39°18'07", long 79°18'26", Garrett County, Hydrologic Unit 02070002, on left bank 0.3 mi southeast of Steyer, 0.4 mi downstream from Steyer Run, 2.0 mi northeast of Gorman, and at mile 81.8.

DRAINAGE AREA.--73.0 mi².

PERIOD OF RECORD.--July 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,276.01 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for Oct. 8 to Nov. 15, June 9-11, Aug. 27 to Sept. 6 (dead battery), Dec. 9-31 (ice effect), and July 15-22 (nitrogen tank empty), which are poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--34 years, 173 ft³/s, 32.18 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s, Nov. 5, 1985, gage height, 13.14 ft, from rating curve extended above 3,000 ft³/s on basis of slope-area measurement at gage height 10.30 ft; minimum discharge 2.9 ft³/s, Sept. 10, 1965, gage height, 2.03 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1954, reached a stage of 13.0 ft, from floodmarks; discharge, 11,300 ft³/s, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 26	1315	*3,630	*7.62	No other peak greater than base discharge.			

Minimum discharge, 24 ft³/s, Aug. 13, gage height, 2.09 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	e110	195	932	308	161	142	95	272	563	57	e28
2	148	e90	182	377	267	154	182	104	227	325	53	e30
3	107	e80	164	272	281	177	169	131	213	202	52	e29
4	89	e75	175	347	382	170	163	224	239	159	52	e28
5	80	e73	167	512	325	150	180	618	202	208	40	e30
6	103	e71	166	337	271	152	203	368	167	284	48	e34
7	264	e70	285	255	248	138	195	272	150	185	54	47
8	e205	e120	204	218	222	128	193	230	148	143	45	44
9	e180	e260	e190	200	249	138	229	198	e1200	111	44	29
10	e160	e210	e175	220	586	123	258	236	e600	130	41	34
11	e145	e170	e155	201	361	111	458	216	e350	176	37	37
12	e138	e145	e140	197	301	111	322	179	242	196	33	32
13	e130	e130	128	162	272	107	258	181	197	655	25	45
14	e120	e125	e120	210	255	99	223	189	167	417	43	43
15	e114	e130	e118	150	221	97	211	164	153	e350	36	104
16	e105	466	e112	261	218	95	189	160	128	e280	37	49
17	e150	332	e110	315	206	96	180	242	103	e230	40	62
18	e270	248	e108	411	182	91	175	201	90	e200	39	50
19	e520	206	e105	309	163	67	146	168	114	e180	32	51
20	e350	198	e103	350	153	78	130	151	101	e170	26	93
21	e290	175	e100	452	141	81	271	143	92	e190	40	71
22	e240	155	e99	327	135	94	297	147	87	e160	94	84
23	e210	153	e98	261	117	93	222	138	106	147	273	112
24	e180	136	e96	227	121	84	198	112	82	123	147	84
25	e150	139	e94	209	107	84	173	104	81	112	90	71
26	e130	251	e92	232	119	81	156	1640	69	95	56	60
27	e120	266	e92	191	170	100	136	1110	65	79	e36	55
28	e110	317	e90	179	194	94	112	548	64	66	e33	51
29	e95	267	e90	351	---	99	110	556	75	54	e31	48
30	e95	222	e160	647	---	93	115	479	271	47	e30	34
31	e100	---	e580	380	---	111	---	337	---	54	e28	---
TOTAL	5198	5390	4693	9692	6575	3457	5996	9641	6055	6291	1692	1569
MEAN	168	180	151	313	235	112	200	311	202	203	54.6	52.3
MAX	520	466	580	932	586	177	458	1640	1200	655	273	112
MIN	80	70	90	150	107	67	110	95	64	47	25	28
CFSM	2.30	2.46	2.07	4.28	3.22	1.53	2.74	4.26	2.76	2.78	.75	.72
IN.	2.65	2.75	2.39	4.94	3.35	1.76	3.06	4.91	3.09	3.21	.86	.80

CAL YR 1989 TOTAL 74462 MEAN 204 MAX 1660 MIN 40 CFSM 2.79 IN. 37.95
WTR YR 1990 TOTAL 66249 MEAN 182 MAX 1640 MIN 25 CFSM 2.49 IN. 33.76

e Estimated

POTOMAC RIVER BASIN

41

01595200 STONY RIVER NEAR MOUNT STORM, WV

LOCATION.--Lat 39°16'10", long 79°15'45", Grant County, Hydrologic Unit 02070002, on left bank 100 ft downstream from highway bridge on U.S. Highway 50, 1.0 mi west of Mt. Storm, and at mile 6.4.

DRAINAGE AREA.--48.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,554.54 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for estimated daily discharges (ice effect), which are poor. Prior to June 1987, flow regulated by Stony River Reservoir, 14.0 mi upstream from station. Regulation since 1963 by Virginia Electric and Power Company dam (Mount Storm Lake), 4.0 mi upstream from station.

AVERAGE DISCHARGE.--29 years, 99.3 ft³/s, 27.63 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s, Nov. 5, 1985, gage height, 16.41 ft, from floodmarks, from rating curve extended above 7,500 ft³/s on basis of slope-area measurement of peak flow; minimum daily discharge, 1.3 ft³/s, Aug. 28, 1988; minimum gage height, 1.73 ft, Sept. 25, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,580 ft³/s, May 29, gage height, 6.48 ft; minimum daily discharge, 8.9 ft³/s, Sept.30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	30	169	492	216	36	26	66	118	212	24	13
2	137	27	107	335	312	35	36	64	52	132	16	11
3	119	27	49	73	328	41	39	78	160	102	15	12
4	97	23	51	71	298	38	45	124	227	85	15	10
5	75	22	53	176	377	41	49	227	149	91	14	11
6	55	23	56	172	116	49	111	175	95	52	14	16
7	39	24	77	179	61	113	148	160	74	21	15	15
8	33	29	64	235	59	223	129	140	35	18	15	12
9	40	52	59	260	72	35	128	119	174	18	14	11
10	44	44	54	241	355	27	127	122	277	15	14	12
11	50	38	53	178	70	24	165	106	182	30	13	11
12	49	36	54	50	70	25	144	96	154	31	11	11
13	48	36	53	37	85	25	131	95	125	541	11	14
14	46	37	50	34	111	26	121	98	78	246	14	12
15	46	39	50	34	335	27	118	83	27	155	13	18
16	69	126	48	76	191	27	109	32	22	164	13	11
17	132	141	56	100	44	91	82	36	18	146	13	14
18	218	532	70	355	37	48	37	32	20	285	13	13
19	332	47	60	442	36	24	33	26	25	239	14	14
20	284	50	54	401	32	28	29	20	23	30	12	17
21	261	55	e45	129	31	27	52	21	20	28	25	14
22	234	52	e45	189	32	48	59	24	20	26	40	15
23	193	47	e40	333	32	50	78	26	19	23	114	16
24	62	41	e35	173	33	48	85	25	15	21	48	14
25	34	41	e35	58	30	50	85	25	12	18	27	14
26	33	76	e32	66	31	102	81	762	13	16	21	13
27	30	85	e30	59	41	47	78	981	11	18	20	12
28	27	103	e30	56	43	27	70	226	11	15	19	11
29	24	99	e30	110	---	25	67	867	12	13	18	10
30	24	145	e40	219	---	21	77	346	35	11	16	8.9
31	28	---	342	201	---	26	---	301	---	17	16	---
TOTAL	2971	2127	1991	5534	3478	1454	2539	5503	2203	2819	647	385.9
MEAN	95.8	70.9	64.2	179	124	46.9	84.6	178	73.4	90.9	20.9	12.9
MAX	332	532	342	492	377	223	165	981	277	541	114	18
MIN	24	22	30	34	30	21	26	20	11	11	11	8.9

CAL YR 1989 TOTAL 38724 MEAN 106 MAX 1080 MIN 15
WTR YR 1990 TOTAL 31651.9 MEAN 86.7 MAX 981 MIN 8.9

e Estimated

POTOMAC RIVER BASIN

01595200 STONY RIVER NEAR MOUNT STORM, WV--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: December 1961 to March 1974, September 1974 to current year.

INSTRUMENTATION.--Temperature recorder (continuous ethyl alcohol - actuated thermograph) since December 1961.

REMARKS.--Upstream reservoir regulation stopped June 1987. Temperature recorder stopped June 19-25 and Sept. 17-30.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 27.5°C, Aug. 14, 1984 and July 19, 1990; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 27.5°C, July 19; minimum, 1.0°C, Dec. 25-30.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	13.0	7.5	6.0	7.5	3.0	10.5	16.5	17.0	19.0	21.5	21.0
2	17.5	11.5	7.5	6.0	9.0	3.0	10.0	16.0	16.0	22.0	21.0	22.5
3	17.5	10.0	5.5	6.0	9.0	5.0	9.0	15.5	19.0	24.0	22.0	22.5
4	16.5	10.0	3.0	3.5	9.0	4.0	6.0	15.0	18.5	24.5	22.5	22.0
5	14.5	9.0	3.0	5.5	8.0	4.0	8.5	14.5	18.0	24.5	21.5	21.0
6	14.0	10.0	5.0	6.0	8.0	4.5	9.0	15.0	19.0	23.0	22.0	23.5
7	14.0	10.0	5.0	6.5	5.0	8.5	10.5	16.5	19.0	21.5	21.5	22.5
8	11.5	11.0	4.0	7.5	5.0	11.5	11.5	18.5	19.0	22.5	20.5	21.0
9	10.0	11.0	3.0	8.0	5.5	10.0	12.5	18.0	18.5	24.0	20.0	21.5
10	9.0	10.0	3.0	8.0	9.5	10.0	12.0	18.0	17.5	24.0	22.5	22.0
11	10.5	9.5	3.0	7.5	6.0	9.0	12.0	16.5	19.0	23.5	21.5	22.0
12	12.5	9.0	3.0	5.0	3.5	11.0	9.5	15.5	18.5	21.5	22.5	21.5
13	14.0	9.5	4.0	2.0	4.5	14.5	12.0	16.0	20.0	24.5	22.5	21.5
14	15.0	11.5	3.5	1.5	7.5	12.5	12.5	17.5	20.5	24.5	23.5	22.0
15	15.5	12.0	3.0	1.5	11.5	13.0	13.0	18.0	20.5	19.5	23.5	21.0
16	17.5	11.5	2.0	2.0	11.5	12.5	14.0	17.5	21.0	22.5	22.5	18.5
17	17.5	9.0	2.0	3.0	9.0	14.0	13.5	16.5	22.0	24.5	23.5	---
18	18.0	16.0	2.0	8.0	4.0	13.5	10.0	14.5	21.0	27.0	22.0	---
19	18.0	9.5	2.0	8.0	5.0	10.0	9.5	14.5	---	27.5	23.5	---
20	16.0	6.5	2.0	8.5	4.0	7.5	10.0	14.5	---	25.5	24.0	---
21	16.0	6.5	2.0	8.5	3.5	7.0	10.0	14.5	---	22.5	22.0	---
22	16.0	4.5	2.0	7.0	5.0	9.5	13.0	14.0	---	23.0	20.0	---
23	16.0	4.0	2.0	8.5	6.5	10.5	15.0	13.0	---	22.0	19.0	---
24	16.0	4.0	1.5	8.5	5.5	9.5	17.0	13.0	---	21.0	19.0	---
25	13.0	3.5	1.0	5.5	2.0	8.0	17.0	13.0	---	21.0	21.5	---
26	11.0	5.0	1.0	5.5	2.0	10.5	18.5	17.0	21.5	22.5	22.5	---
27	11.0	6.0	1.0	2.0	1.5	10.0	17.5	18.0	21.0	22.0	23.0	---
28	10.5	8.0	1.0	3.0	2.0	8.0	18.5	18.0	22.5	23.0	24.0	---
29	11.0	7.5	1.0	3.0	---	7.5	17.0	18.5	22.5	22.0	23.5	---
30	11.0	7.0	1.0	4.5	---	6.5	17.5	17.5	21.0	23.0	22.5	---
31	13.0	---	5.0	6.0	---	9.0	---	19.0	---	21.5	21.5	---
MAX	18.0	16.0	7.5	8.5	11.5	14.5	18.5	19.0	---	27.5	24.0	---

POTOMAC RIVER BASIN

43

01595200 STONY RIVER NEAR MOUNT STORM, WV--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MINIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.5	11.5	7.0	5.0	5.5	1.5	8.5	15.0	15.0	17.5	18.5	18.0
2	16.5	10.0	5.5	6.0	7.5	2.0	8.5	14.5	14.0	19.0	17.5	20.0
3	16.5	9.5	3.0	3.0	9.0	3.0	6.0	15.0	15.0	19.5	18.0	20.0
4	14.0	9.0	2.0	3.0	8.0	2.0	5.0	14.5	16.5	22.0	19.0	18.5
5	13.5	8.5	2.0	3.5	8.0	2.0	5.5	14.0	16.0	22.5	21.0	18.5
6	14.0	8.5	3.0	5.5	5.0	3.5	7.0	13.5	16.0	21.5	20.0	20.5
7	11.5	10.0	4.0	6.0	4.5	3.5	9.5	14.5	17.0	18.0	19.5	21.0
8	10.0	10.0	3.0	6.0	4.5	8.5	9.5	15.0	15.5	18.5	18.0	19.5
9	9.0	10.0	3.0	7.5	4.5	8.0	9.5	16.0	15.0	19.5	18.5	19.5
10	8.5	9.0	3.0	7.0	5.5	7.0	10.5	16.0	15.0	21.5	19.5	20.0
11	9.0	8.5	3.0	5.0	3.5	8.0	9.5	14.0	17.0	21.0	19.5	19.0
12	10.5	8.5	3.0	2.0	3.0	8.5	9.0	14.0	16.0	20.0	18.5	20.0
13	12.5	9.0	3.0	1.5	3.0	10.5	9.0	14.5	17.0	20.0	19.5	20.0
14	14.0	9.5	3.0	1.0	4.5	11.0	10.5	14.5	18.0	19.5	20.0	20.0
15	14.5	11.5	2.0	1.0	7.5	11.0	12.5	15.5	18.0	19.5	19.5	18.5
16	15.0	8.0	2.0	1.5	9.0	12.0	11.5	15.5	17.5	19.5	19.5	17.5
17	17.5	7.0	2.0	2.0	4.0	12.0	9.5	14.5	17.5	21.5	19.0	---
18	17.5	9.0	2.0	3.0	2.5	10.0	7.0	12.0	18.5	22.5	19.5	---
19	15.0	6.0	2.0	7.5	3.5	7.5	6.5	12.0	---	25.5	21.0	---
20	16.0	6.0	2.0	8.0	2.5	5.5	9.0	13.5	---	22.0	22.0	---
21	16.0	4.5	2.0	4.5	1.5	4.5	10.0	14.0	---	21.0	20.0	---
22	15.5	4.0	2.0	4.5	3.0	5.0	9.0	12.0	---	21.0	19.0	---
23	15.5	4.0	1.5	6.0	5.5	9.5	10.0	11.0	---	21.0	18.5	---
24	13.0	3.0	1.0	5.5	2.0	6.5	13.0	11.5	---	19.0	18.5	---
25	11.0	3.0	1.0	5.0	2.0	7.0	14.5	11.5	---	18.5	19.0	---
26	10.0	3.5	1.0	2.0	1.5	7.5	15.0	12.5	19.5	18.0	19.5	---
27	10.5	5.0	1.0	2.0	1.5	7.5	15.5	17.0	17.0	18.0	20.0	---
28	10.0	6.0	1.0	2.0	1.5	5.5	16.0	12.5	17.0	18.5	22.0	---
29	10.5	5.0	1.0	2.0	---	6.0	16.0	13.0	18.0	18.0	21.5	---
30	10.5	4.5	1.0	2.5	---	6.0	15.0	13.0	18.0	18.5	20.0	---
31	11.0	---	1.0	4.5	---	6.0	---	15.5	---	20.0	18.0	---
MIN	8.5	3.0	1.0	1.0	1.5	1.5	5.0	11.0	---	17.5	17.5	---

POTOMAC RIVER BASIN

01596500 SAVAGE RIVER NEAR BARTON, MD

LOCATION.--Lat 39°34'05", long 79°06'10", Garrett County, Hydrologic Unit 02070002, on right bank 0.9 mi upstream from Bear Pen Run, 1.5 mi downstream from Popular Lick Run, 5.4 mi northwest of Barton, and 10 mi upstream from mouth.

DRAINAGE AREA.--49.1 mi².

PERIOD OF RECORD.--September 1948 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,603.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect) which are fair. U.S. Army Corps of Engineers satellite telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--42 years, 75.0 ft³/s, 20.74 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,510 ft³/s, Oct. 15, 1954, gage height, 8.45 ft, from rating curve extended above 1,600 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 0.40 ft³/s, Sept. 3, 4, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 1	0445	ice jam	*4.21	May 26	0945	*1,010	3.58

Minimum discharge, 4.3 ft³/s, June 30, gage height, 0.99 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	49	71	e250	120	e46	38	29	145	57	11	6.4
2	56	36	64	237	178	e45	44	27	106	23	9.6	5.8
3	49	34	58	e145	327	44	51	28	90	13	8.6	5.5
4	37	32	55	139	328	e44	53	59	80	9.5	8.0	5.0
5	32	30	55	329	269	42	56	245	63	12	8.1	4.7
6	27	29	48	262	199	40	56	208	49	13	9.3	4.8
7	25	27	56	182	152	e37	59	156	42	8.2	7.9	5.6
8	22	28	46	141	119	e36	58	119	38	6.6	6.7	6.8
9	20	44	e44	112	111	36	59	95	38	6.7	6.1	15
10	17	44	e43	100	211	37	61	92	32	10	6.0	15
11	20	46	e39	86	219	35	73	82	25	81	5.8	9.0
12	16	46	e39	84	170	34	68	68	21	63	5.5	9.3
13	14	45	e39	77	132	31	64	69	18	464	5.2	96
14	13	44	e39	84	110	28	62	71	15	299	5.2	58
15	12	62	e38	71	92	27	62	60	14	211	5.2	43
16	11	278	e37	90	85	26	56	60	12	217	5.2	33
17	36	248	e36	167	77	28	52	71	10	137	5.2	37
18	49	156	e34	248	65	27	47	60	9.5	89	5.0	26
19	150	112	e32	188	63	24	39	53	9.4	64	4.9	32
20	168	97	e31	161	55	25	37	47	9.2	50	5.9	52
21	131	83	e30	238	52	23	37	44	8.5	48	6.9	45
22	101	69	e29	216	49	23	35	39	7.5	53	15	141
23	79	63	29	162	49	22	30	34	8.0	45	82	144
24	65	54	e28	127	49	22	27	28	7.2	35	51	98
25	56	51	e27	106	e48	22	25	25	7.0	27	30	73
26	50	61	e26	91	e47	23	24	514	6.2	22	19	63
27	44	68	e25	75	e47	23	23	433	5.4	18	14	58
28	37	79	e25	67	e46	22	22	290	4.9	16	12	43
29	33	81	e25	71	---	24	24	368	4.6	14	9.8	35
30	29	78	e26	108	---	24	36	339	4.6	13	9.5	28
31	33	---	e90	108	---	34	---	217	---	12	8.0	---
TOTAL	1446	2174	1264	4522	3469	954	1378	4030	890.0	2137.0	391.6	1197.9
MEAN	46.6	72.5	40.8	146	124	30.8	45.9	130	29.7	68.9	12.6	39.9
MAX	168	278	90	329	328	46	73	514	145	464	82	144
MIN	11	27	25	67	46	22	22	25	4.6	6.6	4.9	4.7
CFSM	.95	1.48	.83	2.97	2.52	.63	.94	2.65	.60	1.40	.26	.81
IN.	1.10	1.65	.96	3.43	2.63	.72	1.04	3.05	.67	1.62	.30	.91

CAL YR 1989 TOTAL 31118.7 MEAN 85.3 MAX 818 MIN 5.8 CFSM 1.74 IN. 23.58
WTR YR 1990 TOTAL 23853.5 MEAN 65.4 MAX 514 MIN 4.6 CFSM 1.33 IN. 18.07

e Estimated

POTOMAC RIVER BASIN

45

01597500 SAVAGE RIVER, BELOW SAVAGE RIVER DAM, NEAR BLOOMINGTON, MD

LOCATION.--Lat 39°30'05", long 79°07'25", Garrett County, Hydrologic Unit 02070002, on left bank 0.7 mi downstream from Savage River Dam, 1.1 mi downstream from Crabtree Creek, 3.2 mi northwest of Bloomington, and 3.7 mi upstream from mouth.

DRAINAGE AREA.--106 mi².

PERIOD OF RECORD.--October 1948 to current year.

REVISED RECORDS.--WSP 1432: 1955.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,276.40 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Diversions upstream from station by Baltimore and Ohio Railroad and by cities of Frostburg and Westernport for municipal supply. Flow regulated by Savage River Reservoir beginning December 1950, capacity 20,000 acre-ft. U.S. Army Corps of Engineers satellite telemeter at station. Upper Potomac River Commission gage height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--42 years, 166 ft³/s, 21.27 in/yr, adjusted for storage since December 1950.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,550 ft³/s, Nov. 4, 1985, gage height, 7.81 ft; minimum discharge, 0.35 ft³/s, Oct. 27, 1966; minimum daily discharge, 0.6 ft³/s, July 27-31, Aug. 5, 6, 9, 10, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,510 ft³/s, July 13, gage height, 6.03 ft; minimum discharge, 8.1 ft³/s, Oct. 16, June 28; minimum daily discharge, 38 ft³/s, Sept. 6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	84	206	80	313	164	68	61	478	97	61	85
2	83	84	203	131	316	164	68	61	341	119	53	85
3	83	83	199	192	324	164	68	61	339	93	50	85
4	83	83	200	209	326	164	68	61	236	266	91	85
5	83	83	198	213	428	164	68	62	126	389	171	55
6	83	83	196	217	493	164	68	63	63	364	128	38
7	83	83	195	225	492	163	68	63	63	500	58	54
8	83	84	194	288	397	142	68	63	63	392	58	83
9	83	85	198	316	341	125	68	63	64	60	58	84
10	83	85	195	313	342	125	69	64	63	60	58	81
11	83	85	192	307	343	125	69	63	63	62	58	55
12	83	85	191	305	482	125	68	63	63	70	58	40
13	83	85	194	303	562	125	70	63	63	2500	58	57
14	83	85	188	301	559	123	70	63	63	1300	58	85
15	82	86	187	301	555	123	70	63	151	719	58	85
16	45	89	186	299	551	123	70	63	182	701	75	85
17	48	89	184	300	548	123	70	63	63	457	85	70
18	130	91	190	307	544	122	70	63	62	318	85	39
19	183	91	190	305	539	122	70	63	62	360	85	55
20	83	174	166	313	356	105	70	63	61	135	85	85
21	84	224	146	314	198	91	70	63	61	135	85	85
22	85	219	146	316	170	75	70	63	61	135	85	87
23	85	217	146	318	170	68	70	63	62	123	105	87
24	85	211	146	416	168	68	70	63	61	133	128	87
25	85	206	146	379	167	68	70	63	61	133	128	87
26	77	207	144	314	167	68	70	505	61	132	127	87
27	83	207	144	313	167	68	70	977	61	122	104	87
28	83	206	102	310	165	68	70	736	70	94	85	87
29	83	211	77	313	---	68	70	804	76	75	85	87
30	83	211	77	315	---	68	63	877	90	87	85	87
31	84	---	79	314	---	68	---	668	---	79	85	---
TOTAL	2650	3916	5205	8847	10183	3533	2071	6134	3333	10210	2593	2259
MEAN	85.5	131	168	285	364	114	69.0	198	111	329	83.6	75.3
MAX	183	224	206	416	562	164	70	977	478	2500	171	87
MIN	45	83	77	80	165	68	63	61	61	60	50	38
(†)	14880	16680	11160	15640	13410	11450	14520	19760	18880	18900	16500	18700

CAL YR 1989 TOTAL 77447 MEAN 212 MAX 2070 MIN 45 CFSM 2.00 IN 27.17
WTR YR 1990 TOTAL 60934 MEAN 167 MAX 2500 MIN 38 CFSM 1.58 IN 21.38

† Monthend contents, in acre-feet, in Savage River Reservoir (contents on Sept. 30, 1989, 14,180 acre-feet). Records provided by U.S. Army Corps of Engineers.

LOCATION.--Lat 39°28'45", long 79°03'55", Mineral County, W. Va., Hydrologic Unit 02070002, on right bank 0.2 mi downstream from Savage River, 0.5 mi northwest of Luke, and at mile 53.3.

CAL YR 1989	TOTAL	315428	MEAN	864	MAX	6110	MIN	335	CFSM	2.14	IN.	29.04
WTR YR 1990	TOTAL	286316	MEAN	784	MAX	6300	MIN	286	CFSM	1.94	IN.	26.36

POTOMAC RIVER BASIN

47

01599000 GEORGES CREEK AT FRANKLIN, MD

LOCATION.--Lat 39°29'38", long 79°02'42", Allegany County, Hydrologic Unit 02070002, on right bank at Franklin, and 1.2 mi upstream from Westernport and mouth.

DRAINAGE AREA.--72.4 mi².

PERIOD OF RECORD.--May 1905 to July 1906 (published as "at Westernport"), October 1929 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WSP 1502: 1940. WDR MD-DE-86-1: 1984(M).

GAGE.--Water-stage recorder. Datum of gage is 958.96 ft Westvaco Corporation datum. May 4, 1905, to July 15, 1906, nonrecording gage at bridge 0.8 mi downstream at different datum. Oct. 16, 1929, to Oct. 1, 1937, water-stage recorder at site 95 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Records include about 0.5 ft³/s of sewage from city of Frostburg, which obtains its water supply from Big Piney Run (Monongahela River basin) and Savage River. A negligible discharge is diverted upstream from station by Frostburg Water Co. for municipal supplies of Eckhart and Welch Hill. An undetermined amount of water is diverted from the upper third of basin into the Wills Creek basin by the Hoffman drainage tunnel (see station 01601500). Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--61 years (water years 1930-90), 81.6 ft³/s, 15.31 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,500 ft³/s, Mar. 17, 1936, gage height, 9.6 ft, site then in use, from rating curve extended above 2,000 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 1.6 ft³/s, Sept. 29 to Oct. 13, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 29, 1924, reached a stage of about 10 ft, from floodmarks, at site 95 ft downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 13	0245	*1,320	*6.64	No other peak greater than base discharge.			
Minimum discharge, 12 ft ³ /s, Aug. 18, 19, gage height, 3.10 ft.							

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	69	57	120	127	59	53	44	181	64	27	20
2	134	50	54	77	167	58	57	40	141	32	24	18
3	69	46	53	73	227	58	58	39	127	21	22	16
4	54	43	48	88	303	54	56	66	110	18	21	15
5	46	41	52	224	249	50	57	149	91	28	26	14
6	41	40	49	155	198	48	56	100	82	29	28	15
7	38	38	51	120	165	45	59	89	76	19	22	16
8	33	44	44	102	134	43	57	82	72	17	19	15
9	30	69	39	93	149	46	54	76	70	18	18	30
10	28	60	39	95	309	46	54	90	63	27	18	23
11	30	55	41	89	216	44	65	85	54	93	18	17
12	25	50	39	89	178	43	58	73	53	92	17	21
13	22	46	37	80	148	41	54	73	46	709	16	55
14	21	45	33	74	131	39	52	69	41	294	17	37
15	20	49	31	77	112	39	53	60	38	411	15	30
16	18	148	31	95	107	38	51	61	35	361	13	27
17	50	97	e30	114	98	42	50	70	32	178	13	31
18	61	86	e28	128	88	40	48	58	30	114	12	21
19	205	78	e26	107	86	36	43	49	28	88	13	34
20	133	75	28	131	82	41	42	46	27	87	21	47
21	102	74	26	199	78	37	44	49	26	81	19	32
22	87	66	e24	149	77	36	43	45	30	80	49	92
23	76	63	e23	122	77	34	39	43	33	74	262	73
24	69	56	e23	106	76	36	35	38	27	61	95	56
25	62	51	22	99	65	38	33	35	24	52	64	45
26	57	63	23	92	56	41	32	447	22	46	47	44
27	51	65	20	84	62	40	30	335	19	41	40	46
28	47	74	21	80	65	37	30	301	17	37	31	34
29	44	66	20	107	---	36	35	572	16	35	27	30
30	42	59	22	175	---	37	53	418	17	32	26	26
31	50	---	54	128	---	56	---	272	---	30	22	---
TOTAL	1777	1866	1088	3472	3830	1338	1451	3974	1628	3269	1062	980
MEAN	57.3	62.2	35.1	112	137	43.2	48.4	128	54.3	105	34.3	32.7
MAX	205	148	57	224	309	59	65	572	181	709	262	92
MIN	18	38	20	73	56	34	30	35	16	17	12	14
CFSM	.79	.86	.48	1.55	1.89	.60	.67	1.77	.75	1.46	.47	.45
IN.	.91	.96	.56	1.78	1.97	.69	.75	2.04	.84	1.68	.55	.50

CAL YR 1989 TOTAL 39084 MEAN 107 MAX 1100 MIN 13 CFSM 1.48 IN. 20.08
WTR YR 1990 TOTAL 25735 MEAN 70.5 MAX 709 MIN 12 CFSM .97 IN. 13.22

e Estimated

POTOMAC RIVER BASIN

01601500 WILLS CREEK NEAR CUMBERLAND, MD

LOCATION.--Lat 39°40'07", long 78°47'18", Allegany County, Hydrologic Unit 02070002, on right bank at downstream side of Western Maryland Railway bridge, 0.15 mi downstream from Braddock Run, 2.0 mi upstream from Cumberland, and mouth.

DRAINAGE AREA.--247 mi².

PERIOD OF RECORD.--May 1905 to July 1906 (published as "at Cumberland"), October 1929 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WSP 1432: 1906, 1930(M), 1933-34(M), 1936-37, 1945(M).

GAGE.--Water-stage recorder. Datum of gage is 640.89 ft above National Geodetic Vertical Datum of 1929. May 6, 1905, to July 14, 1906, nonrecording gage at highway bridge 700 ft upstream at different datum. Oct. 18, 1929, to Mar. 17, 1936, water-stage recorder, and Apr. 1, 1936, to Mar. 19, 1937, nonrecording gage at site 200 ft upstream at present datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Records include drainage from numerous active and abandoned coal mines. An undetermined amount of water is diverted into the basin from Georges Creek basin by Hoffman drainage tunnel. Miscellaneous measurements of discharge from the Hoffman drainage tunnel have been made in the water years 1944, 1964-65, and 1967-82, 84 by the U.S. Geological Survey, and in the water years 1958 and 1959 by the Maryland Geological Survey. Slight diurnal fluctuation at low flow caused by quarry upstream. U.S. Army Corps of Engineers satellite telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

DISCHARGE.--61 years (water years 1930-90), 330 ft³/s, 18.14 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,100 ft³/s, Mar. 17, 1936, gage height, 20.2 ft, from flood-marks at present site, from rating curve extended above 11,000 ft³/s on basis of slope-area measurements at gage heights 13.45 ft and 20.2 ft; minimum discharge, 9 ft³/s, Oct. 14, 1930.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Aug. 23	1500	*2,370	*5.55	No peak greater than base discharge.			
Minimum discharge, 30 ft ³ /s, Aug. 18, gage height, 1.74 ft.							

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	256	240	e400	739	217	330	162	855	177	46	99
2	387	203	233	404	874	221	736	146	668	107	44	88
3	254	185	232	394	1270	226	939	140	610	72	41	78
4	212	174	194	443	1270	208	794	206	522	62	40	70
5	190	167	230	e750	1010	201	644	836	404	56	42	64
6	176	163	212	1070	852	188	525	923	324	54	46	65
7	170	160	213	841	746	168	451	707	302	52	45	93
8	150	166	179	699	635	160	390	557	264	49	44	121
9	140	209	144	596	594	189	337	449	274	47	41	151
10	130	210	e135	560	786	186	320	464	247	50	40	265
11	130	196	e125	505	685	178	348	414	210	95	44	207
12	122	188	e120	487	685	171	306	319	184	95	40	173
13	111	185	e110	404	629	166	279	312	167	261	37	281
14	105	187	e105	340	591	163	259	308	153	214	37	230
15	99	208	e100	361	539	159	261	261	141	218	35	434
16	92	677	e100	413	531	157	252	256	132	357	35	410
17	157	722	e100	566	498	168	241	273	119	209	33	343
18	260	636	e98	744	421	168	232	227	111	155	32	249
19	1020	522	e98	691	411	154	205	198	108	123	37	225
20	1090	456	e96	671	377	174	194	184	102	108	64	252
21	868	410	e96	917	334	164	198	194	95	111	74	194
22	667	339	e94	1030	324	160	198	177	88	124	291	294
23	505	308	e94	885	327	154	182	158	88	106	1340	255
24	396	271	e92	723	309	164	171	143	81	86	946	222
25	331	246	e90	617	255	171	163	132	76	73	558	197
26	290	267	e90	547	208	191	157	1020	72	63	355	191
27	255	264	e90	444	229	184	148	1250	64	57	254	192
28	232	273	e90	387	250	180	144	1190	60	54	195	157
29	211	251	e90	497	---	190	152	2050	58	52	162	137
30	193	238	e90	837	---	197	185	1940	76	50	143	123
31	202	---	e200	735	---	262	---	1260	---	48	118	---
TOTAL	9283	8737	4180	18958	16379	5639	9741	16856	6655	3385	5259	5860
MEAN	299	291	135	612	585	182	325	544	222	109	170	195
MAX	1090	722	240	1070	1270	262	939	2050	855	357	1340	434
MIN	92	160	90	340	208	154	144	132	58	47	32	64
CFSM	1.21	1.18	.55	2.48	2.37	.74	1.31	2.20	.90	.44	.69	.79
IN.	1.40	1.32	.63	2.86	2.47	.85	1.47	2.54	1.00	.51	.79	.88

CAL YR 1989 TOTAL 165954 MEAN 455 MAX 3200 MIN 66 CFSM 1.84 IN. 24.99
WTR YR 1990 TOTAL 110932 MEAN 304 MAX 2050 MIN 32 CFSM 1.23 IN. 16.71

e Estimated

POTOMAC RIVER BASIN

49

01603000 NORTH BRANCH POTOMAC RIVER NEAR CUMBERLAND, MD

LOCATION.--Lat 39°37'16", long 78°46'24", Allegany County, Hydrologic Unit 02070002, on left bank at downstream side of Wiley Ford Bridge, 2.0 mi south of Cumberland, 2.1 mi downstream from Wills Creek, and at mile 19.6.

DRAINAGE AREA.--875 mi².

PERIOD OF RECORD.--May 1929 to current year. Gage-height records collected at various sites about 2.0 mi upstream from September 1901 to December 1932 and thereafter at present site, are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 726: Drainage area. WSP 781: 1932(M).

GAGE.--Water-stage recorder. Datum of gage is 585.22 ft above National Geodetic Vertical Datum of 1929. Prior to June 18, 1929, nonrecording gage at same site and datum.

REMARKS.--Records good except those for Dec. 13-28 (ice effect) and July 25 to Sept. 30 (backwater from construction), which are fair. Prior to July 1981 some regulation at low flow by Stony River Reservoir, 79 mi upstream from station. Low-flow regulation since December 1950 by Savage River Reservoir, 39 mi upstream from station (see station 01597500). Flow regulated by Jennings Randolph Lake, 43 mi upstream from station since July 1981. Prior to July 1957, small amount of inflow from industrial wastes and sewage from city of Cumberland from water diverted from Evitts Creek, mouth of which is downstream from station. Diversion to Chesapeake and Ohio Canal prior to 1935. National Weather Service gage height telemeter at station. U.S. Army Corps of Engineers satellite telemeter at gage. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--61 years, 1,277 ft³/s, 19.82 in/yr, adjusted for storage since October 1981.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 88,200 ft³/s, Mar. 17, 1936, gage height, 29.1 ft, from rating curve extended above 33,000 ft³/s on basis of slope-area measurement of peak flow; minimum discharge (river only), 12 ft³/s, Sept. 22, 1932, gage height, 2.38 ft; minimum daily discharge (including flow in canal), 38 ft³/s, Sept. 24, 1932.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 29.2 ft June 1, 1889, discharge, about 89,000 ft³/s. Flood of Mar. 29, 1924, reached a stage of 28.4 ft, discharge, about 82,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,600 ft³/s, July 14, gage height, 9.71 ft; minimum daily discharge, 350 ft³/s, Aug. 15, 16.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	678	1120	957	1440	2640	975	846	687	3150	930	e470	e520
2	1340	1010	941	1550	2800	964	1240	638	2440	1610	e440	e500
3	1000	966	940	1600	3790	971	1510	605	2350	939	e380	e480
4	859	942	881	1740	4110	941	1340	694	2080	689	e360	e450
5	794	923	922	2790	3800	920	1160	1930	1340	694	e400	e440
6	758	920	900	2900	3590	900	1010	2740	1110	767	e600	e400
7	744	909	896	2460	3370	870	958	2140	1020	880	e420	e430
8	710	926	858	2190	3060	850	895	1840	968	919	e390	e500
9	693	1080	805	2110	2290	852	830	1680	961	875	e370	e560
10	676	1060	785	2380	3060	854	810	1750	940	516	e370	e680
11	679	1030	853	2310	2760	838	870	1730	1550	695	e380	e600
12	660	997	833	2270	2680	829	826	1260	1280	953	e370	e540
13	643	971	e800	2130	2690	813	776	1180	1070	5340	e360	e880
14	632	971	e780	1990	2570	798	748	1120	767	7880	e360	e700
15	624	995	e760	2010	2430	791	751	913	963	4450	e350	e1000
16	616	1750	e750	2050	2380	788	742	867	858	4160	e350	e1300
17	673	1790	e730	1950	2300	815	728	1380	759	3380	e360	e920
18	858	1550	e720	2190	2150	809	720	1050	690	2400	e370	e700
19	2240	1400	e710	2140	2110	779	668	925	615	1780	e380	e680
20	2610	1770	e700	2110	2000	828	649	1010	543	1480	e420	e760
21	2180	1380	e690	2920	1660	776	661	1280	526	1390	e450	e690
22	1850	1260	e680	3080	1560	635	668	756	511	1390	e760	e830
23	1430	1130	e670	2860	1550	601	637	647	539	1370	e2100	e840
24	1180	1050	e660	2670	1160	613	618	614	511	1270	e2400	e760
25	1060	1000	e650	2780	1060	634	602	589	502	e720	e1400	e700
26	986	1040	e640	2480	943	656	595	2340	485	e680	e1100	e660
27	925	1070	e630	1930	997	646	585	5630	470	e640	e930	e700
28	886	1060	e620	1830	1030	639	595	6490	461	e620	e800	e640
29	854	1020	603	2070	---	643	654	8430	426	e580	e640	e600
30	853	970	622	3140	---	656	772	7510	453	e560	e600	e570
31	935	---	770	2760	---	770	---	4620	---	e500	e560	---
TOTAL	31626	34060	23756	70830	66540	24454	24464	65045	30338	51057	19640	20030
MEAN	1020	1135	766	2285	2376	789	815	2098	1011	1647	634	668
MAX	2610	1790	957	3140	4110	975	1510	8430	3150	7880	2400	1300
MIN	616	909	603	1440	943	601	585	589	426	500	350	400

CAL YR 1989 TOTAL 583405 MEAN 1598 MAX 11300 MIN 528 CFSM 1.83 IN. 24.80
WTR YR 1990 TOTAL 461840 MEAN 1265 MAX 8430 MIN 350 CFSM 1.45 IN. 19.63

e Estimated

POTOMAC RIVER BASIN

01608500 SOUTH BRANCH POTOMAC RIVER NEAR SPRINGFIELD, WV

LOCATION.--Lat 39°26'49", long 78°39'16", Hampshire County, Hydrologic Unit 02070001, on left bank at highway bridge, 2.0 mi east of Springfield, and at mile 13.4.

DRAINAGE AREA.--1,471 mi².

PERIOD OF RECORD.--June 1894 to February 1896 (fragmentary), June 1899 to February 1902, August 1903 to July 1906, August 1928 to current year.

REVISED RECORDS.--WSP 1552: 1903-06, 1929-30(M), 1932-33(M), 1935(M), 1937-40(M), 1942-43(M), 1945(M).

GAGE.--Water-stage recorder. Datum of gage is 562.02 ft above National Geodetic Vertical Datum of 1929. June 1984 to February 1986, nonrecording gage at Baltimore & Ohio Railroad bridge 11.2 mi upstream at different datum. June 26, 1899, to Feb. 2, 1902, nonrecording gage at bridge 10.0 mi upstream at different datum. Aug. 28, 1903, to July 14, 1906, nonrecording gage at present site at different datum. Aug. 8, to Sept. 24, 1928, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are poor. National Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--66 years (water years 1900-01, 1904-05, 1929-90), 1,315 ft³/s, 12.14 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 240,000 ft³/s, Nov. 5, 1985, gage height, 44.22 ft, from floodmarks, from rating curve extended above 145,000 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 29 ft³/s, Jan. 28, 1956, result of freezeup, July 30, 1966, result of temporary dam; minimum gage height, 0.39 ft, July 30, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1877 reached a stage of about 34 ft, from floodmarks, discharge, 140,000 ft³/s.

EXTREMES FOR CURRENT PERIOD.--Peak discharges greater than base discharge of 10,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 27	1100	10,100	9.78	May 30	0700	*10,700	*10.08

Minimum discharge, 151 ft³/s, Sept. 11, 12, gage height, 1.89 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	938	727	1250	2360	3050	907	1270	722	3670	730	202	220
2	1160	691	1170	4660	2510	883	1320	657	2620	779	191	202
3	2330	649	1080	3810	2200	863	1330	615	2200	474	183	188
4	2150	607	994	2710	2190	904	1390	605	1940	392	178	176
5	1690	579	914	2950	2470	917	1340	982	1670	331	174	170
6	1380	554	890	3050	2560	857	1300	972	1430	294	197	160
7	1160	528	850	2510	2350	788	1360	811	1230	262	201	157
8	1000	522	853	2150	2140	729	1450	700	1040	254	196	155
9	892	643	854	1940	1920	688	1470	638	912	252	203	157
10	811	770	765	1790	1960	669	1820	630	816	236	207	156
11	743	812	703	2040	2620	667	2290	803	774	237	188	154
12	690	751	e650	2110	2870	661	2530	1020	655	241	177	162
13	637	698	e600	1900	2490	679	2290	931	588	415	169	283
14	585	657	e550	1640	2170	657	1980	920	536	925	163	225
15	545	623	e500	1470	1980	632	1760	1190	485	1060	157	268
16	514	1900	e480	1440	1810	611	1630	1160	557	1550	156	317
17	511	6640	e470	1460	1700	606	1480	1090	705	1350	159	304
18	567	4640	e460	1650	1570	658	1340	1040	547	902	165	254
19	1740	3070	e450	1930	1420	802	1210	881	464	624	158	229
20	4950	2340	e440	1990	1330	855	1050	746	420	508	167	212
21	3670	1980	e430	1870	1250	838	968	678	397	553	164	196
22	2560	1750	e430	1910	1130	776	1050	639	374	502	190	190
23	1910	1580	e420	1750	1060	734	1200	652	378	444	233	186
24	1510	1450	e420	1580	1050	744	1060	802	387	396	347	181
25	1290	1300	e410	1470	1030	791	965	704	399	365	503	185
26	1120	1200	e400	1480	923	850	882	980	358	336	586	207
27	1000	1230	e400	1570	758	874	811	7530	323	299	648	210
28	912	1450	e390	1540	803	959	748	6270	297	270	435	198
29	834	1420	e390	1550	---	1030	708	7260	278	246	345	184
30	776	1340	e450	2550	---	1050	718	9570	264	229	287	176
31	739	---	e700	3190	---	1120	---	5840	---	216	246	---
TOTAL	41314	43101	19763	66020	51314	24799	40720	58038	26714	15672	7575	6062
MEAN	1333	1437	638	2130	1833	800	1357	1872	890	506	244	202
MAX	4950	6640	1250	4660	3050	1120	2530	9570	3670	1550	648	317
MIN	511	522	390	1440	758	606	708	605	264	216	156	154
CFSM	.91	.98	.43	1.45	1.25	.54	.92	1.27	.61	.34	.17	.14
IN.	1.04	1.09	.50	1.67	1.30	.63	1.03	1.47	.68	.40	.19	.15

CAL YR 1989 TOTAL 535285 MEAN 1467 MAX 10400 MIN 295 CFSM 1.00 IN. 13.54
WTR YR 1990 TOTAL 401092 MEAN 1099 MAX 9570 MIN 154 CFSM .75 IN. 10.14

e Estimated

POTOMAC RIVER BASIN

51

01610000 POTOMAC RIVER AT PAW PAW, WV

LOCATION.--Lat 39°32'13", long 78°27'28", Allegany County, Md., Hydrologic Unit 02070003, on left bank 250 ft upstream from bridge on Maryland State Highway 51 at Paw Paw, 3.3 mi downstream from Little Cacapon River, and at mile 277.

DRAINAGE AREA.--3,109 mi².

PERIOD OF RECORD.--October 1938 to current year.

GAGE.--Water-stage recorder. Datum of gage is 487.88 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 25, 1939, nonrecording gage at bridge 250 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Low flow affected by Stony River Reservoir prior to July 1981, since December 1950 by Savage River Reservoir (see station 01597500), and since July 1981 by Jennings Randolph Lake. National Weather Service gage height telemeter at station. U.S. Army Corps of Engineers satellite telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--52 years, 3,296 ft³/s, 14.40 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 235,000 ft³/s, Nov. 5, 1985, gage height, 53.58 ft, from rating curve extended above 85,000 ft³/s on basis of slope-area measurement of peak flow at site 5.0 mi upstream at Okonoko, W. Va.; minimum discharge, 164 ft³/s, Sept. 10, 11, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 54.0 ft on Mar. 18, 1936, discharge, 240,000 ft³/s, from rating curve extended above 85,000 ft³/s on basis of slope-area measurement of peak flow at site 5.0 mi upstream at Okonoko, W. Va.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 30	0915	*22,300	*16.40	No other peak greater than base discharge.			
Minimum discharge, 574 ft ³ /s, Aug. 17, gage height, 3.72 ft.							

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1980	2150	2670	e2200	7850	2430	2580	1980	9210	1180	854	993
2	2760	2080	2550	e7000	6880	2400	3040	1800	6780	2980	769	929
3	4010	1920	2450	6370	7020	2370	3600	1680	6260	2260	717	880
4	3940	1830	2290	5390	7680	2360	3560	1670	5520	1660	667	835
5	3310	1740	2260	6080	7940	2330	3320	3130	4530	1410	681	805
6	2840	1690	2210	7510	7610	2260	3040	4870	3680	1430	769	778
7	2500	1640	2170	6420	7050	2170	2970	4250	3160	1280	917	766
8	2240	1620	2110	5610	6460	2070	3040	3590	2850	1500	723	790
9	2040	1820	2040	5070	5500	2010	2960	3210	2630	1390	692	841
10	1880	2180	1910	4990	6460	1990	3200	3200	2490	1060	699	1000
11	1780	2240	e1950	5470	7220	1980	3880	3740	2710	1080	688	1010
12	1680	2140	e1950	5540	7220	1960	4280	3290	2680	1440	689	943
13	1600	2010	e1950	5120	6600	1950	4040	2940	2330	3790	646	1500
14	1510	1920	e1910	4520	6040	1920	3590	2900	1930	9310	621	1640
15	1440	1870	e1750	4270	5570	1860	3280	2740	1930	6850	606	1320
16	1380	3680	e1500	4190	5210	1820	3070	2640	1600	6820	590	1880
17	1410	9690	e1260	4140	4950	1830	2850	2830	1960	5750	580	2010
18	1590	7910	e1220	4410	4560	1870	2630	2850	1670	4460	610	1330
19	3490	5720	e1200	4760	4250	1950	2410	2330	1490	3290	619	1130
20	8590	4880	e1200	4870	4030	2110	2210	2260	1310	2840	753	1180
21	7470	4260	e1200	5160	3630	2110	2110	2310	1210	2500	730	1170
22	5730	3680	e1200	5740	3340	1950	2140	2180	1160	2440	876	1210
23	4570	3330	e1200	5380	3260	1790	2280	1730	1150	2350	2260	1440
24	3780	3020	e1200	4910	3000	1750	2170	1780	1200	2140	4480	1230
25	3230	2760	e1200	4820	2740	1840	2030	1750	1190	1890	3130	1100
26	2890	2610	e1200	4690	2440	1910	1930	4120	1140	1420	2440	1070
27	2650	2650	e1200	4410	2330	1960	1850	12500	1050	1240	2250	1090
28	2450	2930	e1200	4150	2360	1970	1770	14800	989	1150	1900	1080
29	2290	2980	e1400	4310	---	2050	1750	18100	933	1070	1510	997
30	2160	2820	e1700	10200	---	2090	1950	21200	881	999	1210	943
31	2060	---	e1900	9480	---	2280	---	14200	---	952	1080	---
TOTAL	91250	91770	53150	167180	149200	63340	83530	152570	77623	79931	35756	33890
MEAN	2944	3059	1715	5393	5329	2043	2784	4922	2587	2578	1153	1130
MAX	8590	9690	2670	10200	7940	2430	4280	21200	9210	9310	4480	2010
MIN	1380	1620	1200	2200	2330	1750	1750	1670	881	952	580	766
CFSM	.95	.98	.55	1.73	1.71	.66	.90	1.58	.83	.83	.37	.36
IN.	1.09	1.10	.64	2.00	1.79	.76	1.00	1.83	.93	.96	.43	.41

CAL YR 1989 TOTAL 1476910 MEAN 4046 MAX 26100 MIN 1170 CFSM 1.30 IN. 17.67
WTR YR 1990 TOTAL 1079190 MEAN 2957 MAX 21200 MIN 580 CFSM .95 IN. 12.91

e Estimated

POTOMAC RIVER BASIN

01613000 POTOMAC RIVER AT HANCOCK, MD

LOCATION.--Lat 39°41'49", long 78°10'39", Washington County, Hydrologic Unit 02070004, on left bank, 0.2 mi downstream from Little Tonoloway Creek, 0.5 mi downstream from bridge on U.S. Highway 522 at Hancock, 1.1 mi upstream from Tonoloway Creek (formerly called Great or Big Tonoloway Creek), and at mile 239.

DRAINAGE AREA.--4,073 mi².

PERIOD OF RECORD.--October 1932 to current year. Gage-height records collected at same site since June 1925 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 781: 1933(M). WSP 801: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 383.68 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1932, to Jan. 5, 1935, Mar. 18, 1936, to Jan. 20, 1937, nonrecording gage, on former highway bridge just upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Slight regulation at low flow from power plants upstream. Low flow affected slightly by Stony River Reservoir prior to July 1981, since December 1950 by Savage River Reservoir (see station 01597500), and since July 1981 by Jennings Randolph Lake. National Weather Service gage height telemeter at station. U.S. Army Corps of Engineers satellite telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--58 years, 4,144 ft³/s, 13.82 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 340,000 ft³/s, Mar. 18, 1936, gage height, 47.6 ft, from rating curve extended above 120,000 ft³/s on basis of slope-area measurement of peak flow; minimum discharge observed, 180 ft³/s, Oct. 4, 1932, gage height, 2.01 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1932, about 40 ft in May 1889, discharge, about 220,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 23,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 2	1200	Ice jam	*17.03	No other peak greater than base discharge.			
May 30	1345	*25,600	13.93				

Minimum discharge, 765 ft³/s, Aug. 18.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2160	2380	3110	e2300	10200	2690	2900	2350	12100	1120	1150	1240
2	2290	2430	2970	e8000	8570	2710	3310	2300	8640	1800	1070	1140
3	3520	2250	2840	8230	7920	2680	4050	2110	7450	3210	1010	1080
4	4390	2130	2700	6660	8360	2650	4350	2030	6850	2290	967	1040
5	3910	2030	2580	6040	8960	2610	4130	2530	5870	1820	929	1000
6	3290	1940	2550	8200	8720	2560	3780	5180	4640	1590	968	985
7	2840	1890	2510	7690	8150	2470	3530	5320	3940	1600	1040	982
8	2520	1850	2460	6630	7530	2350	3550	4380	3480	1450	1160	970
9	2270	1910	2360	5810	6720	2270	3620	3830	3160	1620	990	989
10	2070	2220	2220	5450	6550	2230	3570	3630	2950	1510	950	1020
11	1930	2520	2140	5720	8200	2210	4160	4430	2750	1250	934	1140
12	1820	2540	2200	6280	8380	2190	4740	4470	3050	1320	918	1140
13	1720	2380	2180	6010	7770	2170	4740	3950	2770	1770	903	1340
14	1640	2230	2160	5300	7100	2160	4280	3650	2440	7770	861	1950
15	1560	2150	2110	4830	6520	2120	3870	3400	2050	8650	828	1860
16	1480	3110	1940	4620	6050	2070	3600	3240	2110	7790	805	1740
17	1470	11300	1410	4610	5650	2050	3420	3100	1880	7610	785	2240
18	1490	11400	e1400	4570	5250	2050	3160	3320	2100	5750	773	2040
19	2130	7790	e1400	4960	4790	2100	2940	2950	1800	4280	800	1520
20	8330	6030	e1400	5170	4500	2270	2700	2610	1640	3400	1080	1350
21	10300	5340	e1400	5180	4210	2360	2530	2550	1500	2960	1020	1380
22	7530	4490	e1400	5950	3800	2340	2480	2670	1400	2770	1080	1410
23	5850	4040	e1400	5960	3620	2160	2550	2240	1370	2670	1620	1500
24	4660	3620	e1400	5450	3560	2060	2660	1990	1360	2650	4270	1580
25	3920	3320	e1400	5140	3210	2070	2480	2070	1410	2520	4170	1390
26	3440	3070	e1400	5180	2990	2130	2350	2750	1380	2070	3130	1290
27	3120	3010	e1400	5120	2690	2220	2240	9120	1340	1680	2600	1260
28	2870	3150	e1500	4820	2620	2280	2150	17200	1250	1490	2340	1260
29	2670	3390	e1700	4860	---	2370	2100	17600	1180	1380	1950	1240
30	2510	3280	e1900	11100	---	2470	2160	24700	1140	1290	1590	1160
31	2390	---	e2100	12900	---	2580	---	19100	---	1220	1360	---
TOTAL	102090	109190	61640	188740	172590	71650	98100	170770	95000	90300	44051	40236
MEAN	3293	3640	1988	6088	6164	2311	3270	5509	3167	2913	1421	1341
MAX	10300	11400	3110	12900	10200	2710	4740	24700	12100	8650	4270	2240
MIN	1470	1850	1400	2300	2620	2050	2100	1990	1140	1120	773	970
CFSM	.81	.89	.49	1.49	1.51	.57	.80	1.35	.78	.72	.35	.33
IN.	.93	1.00	.56	1.72	1.58	.65	.90	1.56	.87	.82	.40	.37

CAL YR 1989 TOTAL 1707480 MEAN 4678 MAX 32100 MIN 1200 CFSM 1.15 IN. 15.59
WTR YR 1990 TOTAL 1244357 MEAN 3409 MAX 24700 MIN 773 CFSM .84 IN. 11.37

e Estimated

POTOMAC RIVER BASIN

53

01614500 CONOCOCHAGUE CREEK AT FAIRVIEW, MD

LOCATION.--Lat 39°42'57", long 77°49'28", Washington County, Hydrologic Unit 02070004, on right bank 0.7 mi upstream from highway bridge in Fairview, 2.0 mi upstream from Rockdale Run, 6.5 mi northwest of Hagerstown, and 19.1 mi upstream from mouth.

DRAINAGE AREA.--494 mi².

PERIOD OF RECORD.--June 1928 to current year.

REVISED RECORDS.--WSP 756: Drainage area. WSP 1432: 1929(M), 1930, 1931-32(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 391.85 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 6, 1932, nonrecording gage at highway bridge 0.7 mi downstream at datum 2.93 ft lower. Dec. 6, 1932, to Oct. 7, 1933, nonrecording gage 150 ft downstream from former site at datum 4.92 ft lower than present datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Low flow partly regulated by small powerplants near Mercersburg, Pa. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--62 years, 584 ft³/s, 16.05 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,400 ft³/s, June 23, 1972, gage height, 24.5 ft, from flood-mark, from rating curve extended above 15,000 ft³/s on basis of contracted-opening and flow-over-road measurement of peak flow; minimum discharge, 21 ft³/s, Aug. 8, Sept. 12, 1966; minimum daily discharge, 25 ft³/s Nov. 28, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1928, about 16.5 ft, present datum, sometime in 1889, from information by local residents, discharge, about 22,000 ft³/s.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 30	0715	*5,060	*8.18	No other peak greater than base discharge.			

Minimum discharge, 100 ft³/s, Aug. 18, 19, gage height, 1.33 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137	206	248	e500	1650	367	255	346	786	153	131	222
2	218	203	239	e420	1340	350	337	279	649	157	123	202
3	305	191	232	e360	1160	351	814	244	644	143	118	189
4	214	178	203	e360	1070	344	785	244	555	135	114	176
5	166	171	225	e380	1000	322	671	423	483	132	115	171
6	152	166	217	e350	864	308	578	592	426	131	233	167
7	144	165	209	e330	792	291	519	442	398	134	192	162
8	135	169	202	e310	729	275	476	387	378	135	151	161
9	133	248	168	e310	680	275	427	341	469	126	135	156
10	139	386	e180	e320	861	289	405	407	451	122	129	178
11	123	292	e180	e330	901	283	527	942	358	147	126	164
12	129	241	e175	e330	784	280	513	712	320	192	123	150
13	128	212	e170	e320	700	271	435	604	286	259	120	153
14	126	199	e170	e310	655	259	395	665	266	254	128	155
15	122	193	e165	e310	612	250	394	557	252	271	118	146
16	120	912	e160	303	607	244	387	485	246	442	113	152
17	126	1360	e150	316	576	251	367	480	235	301	107	149
18	153	795	e145	319	514	263	342	443	229	220	102	151
19	392	583	e140	306	484	250	314	379	370	187	105	139
20	1020	492	e135	295	460	269	296	349	271	177	881	144
21	1050	431	e130	375	427	298	291	358	242	396	455	136
22	592	376	e130	454	415	274	293	368	216	545	507	149
23	412	351	e125	439	438	259	280	323	202	303	1220	177
24	332	324	e125	393	504	248	265	294	191	227	1030	145
25	284	299	e120	394	481	250	252	270	182	190	730	134
26	253	294	e120	852	374	242	247	512	174	171	520	130
27	233	298	e120	1070	365	237	238	634	166	158	402	131
28	215	309	e120	837	376	225	231	468	157	147	327	127
29	203	291	e120	999	---	219	226	674	150	142	277	119
30	192	263	e140	4610	---	222	293	1470	148	138	313	115
31	189	---	e170	2470	---	238	---	1060	---	133	247	---
TOTAL	8137	10598	5133	19672	19819	8504	11853	15752	9900	6368	9392	4650
MEAN	262	353	166	635	708	274	395	508	330	205	303	155
MAX	1050	1360	248	4610	1650	367	814	1470	786	545	1220	222
MIN	120	165	120	295	365	219	226	244	148	122	102	115
CFSM	.53	.72	.34	1.28	1.43	.56	.80	1.03	.67	.42	.61	.31
IN.	.61	.80	.39	1.48	1.49	.64	.89	1.19	.75	.48	.71	.35

CAL YR 1989 TOTAL 221523 MEAN 607 MAX 7250 MIN 120 CFSM 1.23 IN. 16.68
WTR YR 1990 TOTAL 129778 MEAN 356 MAX 4610 MIN 102 CFSM .72 IN. 9.77

e Estimated

POTOMAC RIVER BASIN

01617800 MARSH RUN AT GRIMES, MD

LOCATION.--Lat 39°30'53", long 77°46'38", Washington County, Hydrologic Unit 02070004, on right bank 220 ft upstream from bridge on Sprecher Road, 0.1 mi downstream from unnamed tributary, 0.5 mi southwest of Grimes, 1.5 mi upstream from mouth, and 2.2 mi southwest of Fairplay.

DRAINAGE AREA.--18.9 mi².

PERIOD OF RECORD.--October 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 354.72 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--27 years, 11.7 ft³/s, 8.41 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 459 ft³/s, Feb. 12, 1985, gage height, 4.45 ft, from rating curve extended above 220 ft³/s; no flow Oct. 1, 1977, result of regulation caused by construction work upstream from station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 60 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 31	2100	Ice jam	*1.76	No peak greater than base discharge.			
Jan. 30	0115	*26	1.47				

Minimum discharge, 1.1 ft³/s, Dec. 3, 14, gage height, 0.80 ft, result of freezeup.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	2.8	2.3	e5.0	9.5	5.8	4.5	4.5	9.8	3.9	3.8	2.5
2	5.2	3.1	2.4	e3.5	9.3	5.7	6.4	4.1	9.0	3.5	3.7	2.6
3	4.2	2.8	2.3	e2.3	9.1	5.7	9.8	4.0	9.1	3.4	3.7	3.2
4	3.2	2.6	e2.2	2.5	11	5.7	7.2	4.6	7.8	3.2	3.6	3.2
5	2.9	2.5	2.2	2.6	8.9	5.6	6.7	7.7	7.0	3.0	4.3	3.1
6	2.7	2.2	2.0	2.6	8.2	5.5	7.1	5.1	7.0	3.0	5.8	2.7
7	2.6	2.0	2.0	2.5	8.2	5.3	8.8	4.5	7.0	2.9	4.2	2.2
8	2.4	2.4	1.9	2.4	7.8	5.2	7.7	4.2	6.9	3.0	3.9	2.0
9	2.4	3.5	e1.9	e2.4	7.7	5.5	6.6	4.0	7.0	2.8	3.9	2.0
10	2.0	3.2	e1.9	e2.4	10	5.2	6.7	8.8	7.0	2.7	4.1	2.0
11	2.0	2.7	e1.8	e2.5	9.0	4.8	7.0	10	6.3	3.6	3.8	1.9
12	2.2	3.0	e1.8	e2.5	8.3	5.1	6.2	6.6	5.9	5.0	3.6	1.9
13	2.4	2.8	e1.8	e2.4	7.8	4.9	5.9	8.6	5.7	9.9	3.7	2.3
14	2.4	2.8	e1.8	e2.4	8.0	4.8	5.7	14	5.8	6.3	5.1	2.2
15	2.3	2.8	e1.7	2.4	8.0	4.8	6.4	8.8	5.6	12	4.1	2.2
16	2.1	5.1	e1.6	2.3	7.2	4.8	5.7	8.1	5.1	16	3.9	2.3
17	2.5	4.7	e1.5	2.5	6.2	5.6	5.3	7.8	5.0	8.6	3.6	2.7
18	2.8	3.4	e1.4	2.9	6.2	5.3	5.4	6.8	4.8	6.5	3.0	2.4
19	8.8	3.0	e1.3	2.9	6.6	4.9	5.7	6.1	4.8	4.5	3.0	2.7
20	11	3.0	e1.2	3.1	6.4	6.6	5.1	5.5	4.6	4.1	6.3	3.0
21	6.6	2.9	e1.2	3.4	6.7	5.5	5.3	6.2	4.7	6.8	5.8	2.6
22	4.4	2.8	e1.2	3.2	7.0	4.9	5.2	5.6	4.5	8.5	6.6	3.3
23	3.9	3.1	e1.2	3.0	7.3	4.5	4.8	5.8	4.7	6.8	7.4	2.9
24	3.9	2.9	e1.2	2.9	8.9	4.8	4.4	5.6	4.6	5.6	6.9	2.5
25	3.7	2.2	e1.2	3.6	6.5	4.8	4.3	5.4	4.6	5.3	5.6	2.3
26	3.5	2.4	e1.2	6.5	6.2	4.5	4.2	12	4.4	5.0	4.8	2.4
27	3.3	2.4	e1.2	5.2	5.9	4.2	4.0	10	4.3	4.7	4.0	2.6
28	3.0	2.8	e1.2	4.3	6.0	4.1	3.8	8.0	4.1	4.3	3.0	2.5
29	3.0	2.4	e1.3	7.1	---	4.1	4.3	13	3.9	4.3	3.1	2.2
30	3.0	2.3	e1.5	19	---	4.3	4.9	15	3.7	4.3	3.2	2.0
31	2.8	---	e1.8	11	---	5.0	---	11	---	4.0	2.8	---
TOTAL	110.1	86.6	51.2	123.3	217.9	157.5	175.1	231.4	174.7	167.5	134.3	74.4
MEAN	3.55	2.89	1.65	3.98	7.78	5.08	5.84	7.46	5.82	5.40	4.33	2.48
MAX	11	5.1	2.4	19	11	6.6	9.8	15	9.8	16	7.4	3.3
MIN	2.0	2.0	1.2	2.3	5.9	4.1	3.8	4.0	3.7	2.7	2.8	1.9
CFSM	.19	.15	.09	.21	.41	.27	.31	.39	.31	.29	.23	.13
IN.	.22	.17	.10	.24	.43	.31	.34	.46	.34	.33	.26	.15

CAL YR 1989 TOTAL 2906.3 MEAN 7.96 MAX 47 MIN 1.2 CFSM .42 IN. 5.72
WTR YR 1990 TOTAL 1704.0 MEAN 4.67 MAX 19 MIN 1.2 CFSM .25 IN. 3.35

e Estimated

POTOMAC RIVER BASIN

55

01618000 POTOMAC RIVER AT SHEPHERDSTOWN, WV

LOCATION.--Lat 39°26'04", long 77°48'07", Jefferson County, Hydrologic Unit 02070004, on right bank, 0.1 mi downstream from Rumsey Bridge at Shepherdstown, 3.3 mi upstream from Antietam Creek, and at mile 184.

DRAINAGE AREA.--5,936 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to September 1953. Annual maximums, water years 1954-64. July 1964 to current year. Gage-height record and estimated discharges October 1953 to June 1964 available in files of the Mid-Atlantic district office.

REVISED RECORDS.--WSP 756: Drainage area. WSP 781: 1929(M).

GAGE.--Water-stage recorder. Datum of gage is 281.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for Dec. 13-30 (ice effect) and Aug. 26-28 (missing record), which are fair. Some regulation at low flow by power plants upstream from station, prior to July 1981 by Stony River Reservoir, since December 1950 by Savage River Reservoir (see station 01597500), and since July 1981 by Jennings Randolph Lake. National Weather Service gage height telemeter at station.

AVERAGE DISCHARGE.--51 years (water years 1929-53, 1965-90), 6,105 ft³/s, 13.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 335,000 ft³/s, Mar. 19, 1936, gage height, 42.1 ft, from floodmarks, from rating curve extended above 200,000 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 170 ft³/s, Aug. 1, 1966; minimum daily discharge, 185 ft³/s, July 31, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in June 1889 and May 1924 reached stages of 39.2 ft and 29.8 ft respectively, from floodmarks, discharges, about 290,000 ft³/s and 168,000 ft³/s respectively, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 23,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 31	0500	26,700	9.69	May 30	2400	*35,100	*11.49

Minimum discharge, 910 ft³/s, Aug. 13, gage height, 1.80 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2940	2790	4160	2690	18200	3640	3590	3340	20600	1840	1550	2120
2	3140	2970	3970	2970	14300	3630	4260	3430	14000	1830	1360	1910
3	3970	2900	3890	9190	12200	3620	6060	3340	10900	2130	1320	1830
4	4930	2740	3530	9190	11700	3560	7770	3160	10100	3470	1250	1670
5	5290	2600	3400	7820	12300	3500	7160	3440	8790	2620	1250	1550
6	4760	2400	3360	8270	12300	3420	6420	5200	7320	2260	1540	1480
7	4240	2250	3250	11100	11700	3300	5960	7620	6150	1920	1790	1510
8	3760	2350	3300	10000	10700	3180	5790	6780	5440	1890	1600	1520
9	3440	2360	3170	8490	9820	3070	5620	5650	4890	1740	1680	1510
10	3160	2650	2810	7160	8890	3050	5440	5180	4690	2050	1540	1530
11	3010	3050	2730	7040	10500	3000	5430	6760	4380	2080	1390	1520
12	2820	3200	2900	7560	11500	2960	6100	7980	4070	2190	1160	1650
13	2700	3180	e2850	7810	11100	2890	6420	6930	4150	2870	1360	1820
14	2610	2900	e2750	7120	10200	2850	6130	6310	3730	3290	1280	1940
15	2520	2760	e2600	6280	9230	2890	5620	5680	3360	10900	1380	2900
16	2410	2960	e2200	5780	8400	2780	5250	4960	2910	9860	1160	2700
17	2260	11700	e1950	5640	7800	2710	4830	4760	2950	10200	1180	2540
18	1920	17200	e1850	5570	7230	2680	4630	4420	2780	8280	1310	2810
19	2210	12500	e1750	5620	6700	2770	4250	4480	3050	6400	1210	2740
20	4660	8970	e1700	5810	6120	2850	3880	3920	2890	4790	2020	2220
21	14500	7370	e1700	6180	5810	2980	3660	3640	2650	4030	4100	2020
22	11800	6420	e1700	6560	5400	3200	3500	3590	2360	3900	3080	2490
23	8580	5530	e1700	7430	4990	3090	3440	3580	2240	3750	3700	2400
24	6680	5020	e1700	7150	5060	2960	3440	3090	2150	3360	5720	2180
25	5430	4530	e1700	6590	4980	2860	3520	2770	2120	3190	8620	2280
26	4620	4160	e1700	6680	4420	2810	3370	3080	2090	2960	e5200	2170
27	4120	3970	e1700	7490	3980	2880	3120	7460	2050	2490	e4400	1960
28	3730	3990	e1800	7400	3720	2970	3080	17900	1820	2100	e3900	1910
29	3400	4160	e2000	6920	---	3020	3060	20500	1590	1930	3320	1940
30	3180	4310	e2100	15800	---	3070	3090	31100	1690	1720	2810	1890
31	2950	---	2450	24700	---	3310	---	31700	---	1660	2450	---
TOTAL	135740	143890	78370	244010	249250	95500	143890	231750	147910	113700	75630	60710
MEAN	4379	4796	2528	7871	8902	3081	4796	7476	4930	3668	2440	2024
MAX	14500	17200	4160	24700	18200	3640	7770	31700	20600	10900	8620	2900
MIN	1920	2250	1700	2690	3720	2680	3060	2770	1590	1660	1160	1480
CFSM	.74	.81	.43	1.33	1.50	.52	.81	1.26	.83	.62	.41	.34
IN.	.85	.90	.49	1.53	1.56	.60	.90	1.45	.93	.71	.47	.38

CAL YR 1989 TOTAL 2466840 MEAN 6758 MAX 55300 MIN 1640 CFSM 1.14 IN. 15.46
WTR YR 1990 TOTAL 1720350 MEAN 4713 MAX 31700 MIN 1160 CFSM .79 IN. 10.78

e Estimated

POTOMAC RIVER BASIN

01618000 POTOMAC RIVER AT SHEPHERDSTOWN, WV--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1980 to September 1981 (discontinued).

WATER TEMPERATURE: October 1980 to September 1981 (discontinued).

EXTREMES FOR PERIOD OF DAILY RECORD--

SPECIFIC CONDUCTANCE: Maximum, 670 microsiemens, Aug. 6, 10, 15, 30, Sept. 3, 1981; minimum, 160 microsiemens, Apr. 14-15, 1981.

WATER TEMPERATURE: Maximum, 30.0°C, July 17, 21, 25, 1981; minimum, 1.0°C, Feb. 13, 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	Dis-charge, instantaneous (ft3/s)	Spe-cific con-duct-ance (US/CM)	Ph (stand-ard units)	Temper-ature, water (deg C)	Temper-ature, air (deg C)	Baro-metric pres-sure (mm of Hg)	Tur-bid-ity (ntu)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent satur-ation)	
OCT 30...	1200	3130	282	7.31	13.0	22.0	762	2.9	10.7	102	
JAN 29...	1205	6530	270	6.81	5.0	12.0	755	--	12.8	101	
MAR 05...	1200	3530	273	6.98	5.0	11.0	766	4.4	13.2	103	
APR 30...	1115	3000	280	6.97	19.0	17.5	755	2.3	7.3	80	
JUN 25...	1210	1950	350	7.42	25.0	25.0	759	2.3	8.2	100	
SEP 04...	1210	1560	310	7.10	25.0	24.0	767	1.4	8.6	104	
DATE	Coli-form, fecal, 0.7 UM-MF (col/100 ML)	Strep-tococci, fecal, KF agar (cols. per 100 ML)	Calcium dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)	Potas-sium, dis-solved (mg/L as K)	Alka-linity, wat wh tot fet field (mg/L as CaCO3)	Sulfate dis-solved (mg/L as SO4)	Chlo-ride, dis-solved (mg/L as Cl)	Fluo-ride, dis-solved (mg/L as F)	Silica, dis-solved (mg/L as SiO2)
OCT 30...	K59	80	35	6.6	8.1	2.2	59	40	11	0.10	5.5
JAN 29...	K98	K77	--	--	--	--	51	--	--	--	--
MAR 05...	K7	K11	40	8.3	9.2	1.9	81	49	15	<0.10	3.9
APR 30...	75	170	36	6.9	9.0	2.1	78	37	8.2	0.10	1.3
JUN 25...	K23	260	45	8.6	10	2.3	101	54	11	0.20	2.8
SEP 04...	K8	K19	45	9.0	9.9	3.0	99	42	14	0.10	6.7
DATE	Solids, residue at 180 deg. C dis-solved (mg/L)	Solids, sum of consti-tuents, dis-solved (mg/L)	Nitro-gen, nitrate dis-solved (mg/L as N)	Nitro-gen, nitrite dis-solved (mg/L as N)	Nitro-gen, NO2+NO3 dis-solved (mg/L as N)	Nitro-gen, ammonia total (mg/L as N)	Nitro-gen, ammonia dis-solved (mg/L as N)	Nitro-gen, ammonia + organic total (mg/L as N)	Phos-phorous total (mg/L as P)	Phos-phorous dis-solved (mg/L as P)	Phos-phorous ortho, dis-solved (mg/L as P)
OCT 30...	135	150	1.18	0.020	1.20	0.040	0.030	0.90	0.030	0.020	0.010
JAN 29...	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	190	183	1.58	0.020	1.60	0.090	0.030	0.20	0.040	<0.010	<0.010
APR 30...	169	152	0.880	0.020	0.900	0.040	0.050	0.60	0.050	0.020	0.010
JUN 25...	200	200	1.19	0.010	1.20	0.010	0.020	0.60	0.040	<0.010	<0.010
SEP 04...	199	197	1.69	<0.010	1.70	<0.010	0.020	0.60	0.030	0.030	0.020

K: Results based on colony count outside the acceptance range (non-ideal colony count).

POTOMAC RIVER BASIN

57

01618000 POTOMAC RIVER AT SHEPHERDSTOWN, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	Alum- inum, dis- solved (ug/L as Al)	Arsenic, dis- solved (ug/L as As)	Barium, dis- solved (ug/L as BA)	Beryl- lium, dis- solved (ug/L as BE)	Cadmium, dis- solved (ug/L as Cd)	Chro- mium, dis- solved (ug/L as CR)	Cobalt, dis- solved (ug/L as CO)	Copper, dis- solved (ug/L as Cu)	Iron, dis- solved (ug/L as Fe)	Lead, dis- solved (ug/L as Pb)	Lithium dis- solved (ug/L as Li)
OCT 30...	20	<1	41	<0.5	<1	<1	<3	1	33	<1	6
JAN 29...	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	30	<1	41	<0.5	<1	<5	<3	<10	41	<10	6
APR 30...	100	<1	46	<0.5	<1	<1	<3	1	14	<1	5
JUN 25...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	20	<1	51	<0.5	1	<1	<3	4	8	<1	13

DATE	Manga- nese, dis- solved (ug/L as Mn)	Mercury dis- solved (ug/L as Hg)	Molyb- denum, dis- solved (ug/L as Mo)	Nickel, dis- solved (ug/L as Ni)	Selen- ium, dis- solved (ug/L as SE)	Silver, dis- solved (ug/L as Ag)	Stron- tium, dis- solved (ug/L as Sr)	Vana- dium, dis- solved (ug/L as V)	Zinc, dis- solved (ug/L as Zn)	Hard- ness total (mg/L as CaCO3)
OCT 30...	27	<0.1	<10	2	<1	<1.0	180	<6	5	110
JAN 29...	--	--	--	--	--	--	--	--	--	--
MAR 05...	72	<0.1	<10	<10	<1	<1.0	190	<6	9	130
APR 30...	8	<0.1	<10	2	<1	<1.0	190	<6	<3	120
JUN 25...	--	--	--	--	--	--	--	--	--	150
SEP 04...	20	0.2	<10	2	<1	<1.0	250	<6	11	150

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	Dis- charge, instan- taneous (ft3/s)	Sedi- ment, sus- pended (mg/L)	Sedi- ment, dis- charge, sus- pended (T/DAY)	Sed. susp. sieve diam. % finer than .062 MM
OCT 30...	1200	3130	6	51	95
JAN 29...	1205	6530	7	123	94
MAR 05...	1200	3530	3	29	94
APR 30...	1115	3000	8	65	92
JUN 25...	1210	1950	9	47	99
SEP 04...	1210	1560	3	13	100

POTOMAC RIVER BASIN

01619320 ALBERT POWELL FISH HATCHERY SPRING AT BEAVER CREEK, MD

LOCATION.--Lat 39°35'22", long 77°38'19", Washington County, Hydrologic Unit 02070004, on left bank at spring outlet, 0.2 mi upstream from Beaver Creek, and 0.4 mi north of the town of Beaver Creek.

PERIOD OF RECORD.--April 1987 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 505 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17 ft³/s, May 16, 1989, gage height, 1.69 ft; minimum discharge, 4.9 ft³/s, Dec. 18, 19, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9.7 ft³/s, Jan. 30, gage height, 1.42 ft; minimum discharge, 5.8 ft³/s, Sept. 17-23, 27-30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	6.9	6.3	6.0	8.0	7.2	6.9	6.6	7.8	7.2	6.9	6.9
2	6.9	6.9	6.3	6.1	7.8	7.2	6.7	6.6	7.8	7.2	6.9	6.9
3	7.1	6.9	6.1	6.1	7.8	7.2	7.2	6.6	7.8	7.2	6.9	6.9
4	7.2	6.9	6.1	6.1	7.8	7.2	7.2	6.6	7.8	7.2	6.9	6.9
5	7.1	6.9	6.1	6.1	7.5	7.2	7.1	6.6	7.8	7.2	6.8	6.6
6	6.9	6.9	6.1	6.1	7.5	7.2	6.9	6.6	7.8	7.2	6.6	6.6
7	6.9	6.7	6.1	6.1	7.5	7.2	6.9	6.6	7.8	7.2	6.6	6.6
8	6.9	6.6	6.1	6.1	7.5	7.2	6.9	6.6	7.8	7.2	6.6	6.5
9	6.9	6.8	6.1	6.1	7.5	7.2	6.9	6.6	7.8	7.2	6.6	6.3
10	6.9	6.8	6.1	6.3	7.7	7.2	7.0	7.2	7.6	7.2	6.6	6.3
11	7.2	6.6	6.1	6.3	7.8	7.2	7.1	7.6	7.5	7.2	6.6	6.3
12	7.0	6.4	6.1	6.3	7.8	6.9	6.9	7.5	7.7	7.3	6.6	6.3
13	6.9	6.3	6.1	6.1	7.8	6.9	6.9	7.6	7.7	7.5	6.7	6.3
14	6.9	6.3	6.1	6.1	7.8	6.9	7.0	7.8	7.5	7.5	6.7	6.1
15	6.9	6.4	6.1	6.1	7.8	7.0	7.2	7.7	7.5	7.6	6.6	6.1
16	6.9	6.6	6.1	6.1	7.6	7.2	7.2	7.5	7.5	7.8	6.6	6.1
17	6.9	6.6	6.1	6.1	7.5	7.2	7.2	7.5	7.5	7.7	6.6	5.9
18	6.9	6.5	5.9	6.1	7.5	7.2	7.2	7.4	7.5	7.4	6.6	5.8
19	7.2	6.3	5.8	6.1	7.5	7.1	7.2	7.2	7.5	7.2	6.7	5.8
20	7.2	6.4	5.8	6.1	7.5	6.9	7.2	7.2	7.5	7.2	7.2	5.8
21	7.2	6.9	5.8	6.1	7.5	6.9	7.1	7.2	7.5	7.2	7.2	5.8
22	7.1	6.7	5.8	6.1	7.5	6.9	6.9	7.2	7.5	7.2	7.2	5.8
23	6.9	6.4	5.8	6.1	7.5	6.9	6.9	7.2	7.4	7.2	7.2	5.9
24	6.6	6.3	5.8	6.3	7.4	e6.9	6.9	7.2	7.2	7.2	7.0	6.1
25	6.6	6.3	5.8	6.3	7.2	e6.9	6.9	7.2	7.2	7.2	6.9	6.1
26	6.6	6.3	5.8	6.7	7.2	e6.9	6.9	7.2	7.2	7.2	6.9	6.1
27	6.7	6.3	5.8	6.8	7.2	e6.9	6.9	7.2	7.2	7.2	6.9	5.8
28	6.9	6.4	5.8	6.6	7.2	6.9	6.9	7.2	7.2	7.2	6.9	5.8
29	6.9	6.3	5.8	7.0	---	6.9	6.9	7.4	7.2	7.2	6.9	5.8
30	6.9	6.3	5.8	8.8	---	6.9	6.6	7.8	7.2	7.2	6.9	5.8
31	6.9	---	5.8	8.3	---	6.9	---	7.8	---	7.1	6.9	---
TOTAL	215.0	196.9	185.4	197.6	211.9	218.4	209.7	222.2	226.0	225.5	211.2	186.0
MEAN	6.94	6.56	5.98	6.37	7.57	7.05	6.99	7.17	7.53	7.27	6.81	6.20
MAX	7.2	6.9	6.3	8.8	8.0	7.2	7.2	7.8	7.8	7.8	7.2	6.9
MIN	6.6	6.3	5.8	6.0	7.2	6.9	6.6	6.6	7.2	7.1	6.6	5.8

CAL YR 1989 TOTAL 2691.9 MEAN 7.38 MAX 16 MIN 5.2
WTR YR 1990 TOTAL 2505.8 MEAN 6.87 MAX 8.8 MIN 5.8

e Estimated

01619500 ANTIETAM CREEK NEAR SHARPSBURG, MD

LOCATION.--Lat 39°27'01", long 77°43'52", Washington County, Hydrologic Unit 02070004, on left bank 400 ft downstream from Burnside Bridge, 1.0 mi southeast of Sharpsburg, and 4.0 mi upstream from mouth.

DRAINAGE AREA.--281 mi².

PERIOD OF RECORD.--June 1897 to September 1905, August 1928 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 192: 1897-1905. WSP 726: Drainage area. WSP 1432: 1929-31(M), 1933, 1935(M), 1937(M), 1949(M), 1952(M).

GAGE.--Water-stage recorder. Concrete control since Mar. 29, 1934. Datum of gage is 311.05 ft above National Geodetic Vertical Datum of 1929. June 24, 1897, to Aug. 25, 1905, nonrecording gage a few hundred feet downstream from Middle Bridge, 1.2 mi upstream at datum 12 ft higher. Aug. 21, 1928, to July 13, 1933, nonrecording gage at Burnside Bridge, 0.1 mi upstream at present datum. National Weather Service gage height telemeter at station.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Some diurnal fluctuation caused by powerplant upstream from station. Since 1928 records include pumpage from the Potomac River for municipal supply of Hagerstown. This water later enters Antietam Creek upstream from station as sewage. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--67 years (water years 1898-1903, 1905, 1931-90), 273 ft³/s, 13.19 in/yr, adjusted for inflow since January 1930.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s, July 20, 1956, gage height, 16.73 ft, from rating curve extended above 7,300 ft³/s on basis of contracted-opening measurement of peak flow; minimum discharge, 9.4 ft³/s, Nov. 22, 1957, result of regulation caused by construction work upstream from station; minimum daily discharge, 37 ft³/s, Jan. 30, 1966.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 30	1330	*955	*4.39	No peak greater than base discharge.			

Minimum discharge, 76 ft³/s, Dec. 17, result of freezeup.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	126	128	247	475	234	210	207	364	217	158	147
2	171	122	126	192	420	230	260	192	337	188	153	141
3	182	119	122	155	383	229	420	181	326	160	150	138
4	136	114	117	151	386	224	352	184	309	153	147	135
5	120	112	119	156	366	218	314	255	290	149	150	131
6	116	112	123	150	328	214	301	231	274	162	183	128
7	112	112	121	139	311	209	315	201	267	156	169	128
8	109	117	122	134	298	205	303	191	265	146	155	130
9	111	157	119	135	288	206	280	179	287	144	149	124
10	112	169	e120	136	347	209	270	264	270	143	149	125
11	110	144	e118	139	398	205	286	477	241	165	148	123
12	109	128	117	141	338	201	278	333	231	207	149	120
13	108	122	116	135	323	198	256	332	222	343	142	126
14	107	120	113	128	316	192	246	378	216	253	198	124
15	105	119	e110	125	306	187	254	302	212	336	169	122
16	103	159	e105	127	297	184	254	282	207	424	142	119
17	114	207	e100	129	289	199	242	349	201	272	136	152
18	139	164	e95	129	271	215	233	319	197	220	131	124
19	243	141	e92	128	262	198	223	271	349	204	129	118
20	308	136	e90	127	255	225	216	251	285	192	259	126
21	302	138	e88	134	242	231	216	267	228	212	282	121
22	185	135	e86	142	236	216	215	258	207	329	201	134
23	154	138	e84	141	240	217	209	236	202	248	228	145
24	141	135	e82	135	321	211	204	224	198	210	262	128
25	135	130	e82	136	282	211	200	215	191	194	208	117
26	132	130	e82	201	237	208	196	308	185	186	183	114
27	127	133	e82	276	234	205	192	371	178	178	170	116
28	124	144	e82	217	236	197	186	275	171	172	163	113
29	122	137	e82	233	---	195	185	354	166	169	152	111
30	119	132	e90	767	---	197	214	507	163	166	160	107
31	119	---	132	593	---	213	---	423	---	163	161	---
TOTAL	4387	4052	3245	5878	8685	6483	7530	8817	7239	6461	5336	3787
MEAN	142	135	105	190	310	209	251	284	241	208	172	126
MAX	308	207	132	767	475	234	420	507	364	424	282	152
MIN	103	112	82	125	234	184	185	179	163	143	129	107
(†)	-15.2	-14.6	-15.3	-14.9	-14.8	-15.0	-15.3	-15.2	-16.4	-16.2	-16.2	-15.8
MEAN#	127	120	89.7	175	295	194	236	269	225	192	156	110
CFSM#	0.45	0.43	0.32	0.62	1.05	0.69	0.84	0.96	0.80	0.68	0.56	0.39
IN#	0.52	0.48	0.37	0.72	1.09	0.80	0.94	1.11	0.89	0.78	0.65	0.44

CAL YR 1989	TOTAL	87848	MEAN 241	MAX 2510	MIN 74	MEAN# 226	CFSM# 0.80	IN# 10.92
WTR YR 1990	TOTAL	71900	MEAN 197	MAX 767	MIN 82	MEAN# 182	CFSM# 0.65	IN# 8.80

e Estimated

† Pumpage in cubic feet per second, from Potomac River for municipal supply of Hagerstown.

Adjusted for pumpage.

POTOMAC RIVER BASIN

01636500 SHENANDOAH RIVER AT MILLVILLE, WV

LOCATION.--Lat 39°16'55", long 77°47'22", Jefferson County, Hydrologic Unit 02070007, on left bank 0.4 mi downstream from Cattail Run, 1.0 mi upstream from Millville, 5.0 mi upstream from Harpers Ferry, and at mile 5.0.
DRAINAGE AREA.--3,040 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1895 to March 1909, August 1928 to current year.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1432: Drainage area at former site, 1895-99, 1901-02, 1905, 1907-08, 1932(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 293.00 ft above National Geodetic Vertical Datum of 1929. Apr. 15, 1895, to Mar. 31, 1909, nonrecording gage at site 0.8 mi downstream at datum 0.32 ft higher.

REMARKS.--Water-discharge records good except those for estimated daily discharges, which are fair. Regulation by hydroelectric plants, particularly that of Potomac Light and Power Company, 0.5 mi upstream from station. National Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--75 years (water years 1896-1908, 1929-90), 2,682 ft³/s, 11.98 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft³/s, Oct. 16, 1942, gage height, 32.4 ft, from flood-marks; minimum discharge, 59 ft³/s, Oct. 4, 1930, gage height, 0.39 ft; minimum daily discharge, 194 ft³/s, July 24, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1870 reached practically same stage as flood of Mar. 18, 1936, 26.36 ft, discharge, 151,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 15,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 3	0115	*19,300	*9.56	May 31	0030	15,600	8.60

Minimum daily discharge, 533 ft³/s, July 11, 12, 13, 14.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2760	2120	1740	1750	5690	2850	3190	2090	8520	661	822	1060
2	2760	1970	1660	2950	4850	2740	3290	2020	6050	841	794	974
3	2720	2020	1630	9260	4340	2590	3630	1930	4740	894	781	771
4	7390	1890	1590	6140	3990	2510	3790	1810	3940	949	764	852
5	6000	1670	1540	5360	4290	2380	3880	1710	3320	885	607	755
6	4570	1750	1530	4740	5400	2270	3540	1750	2880	764	722	878
7	3710	1570	1470	3990	4840	2100	3560	1820	2540	727	1220	835
8	3070	1660	1480	3380	4360	2030	4320	1870	2260	668	e1100	755
9	2680	1560	1500	3080	4010	1880	5140	1700	2080	590	e850	680
10	2310	1630	1460	2910	3780	1900	5280	1690	1960	550	e750	645
11	2180	1650	1320	2910	4040	1820	5260	1750	1800	533	e850	634
12	1900	1640	e1300	2980	4650	1760	5100	2080	1680	533	e760	740
13	1880	1550	e1200	2830	4670	1720	4800	2670	1590	533	e700	792
14	1770	1490	e1150	2640	4320	1600	4300	2390	1480	533	e750	1120
15	1450	1480	e1100	2440	3940	1600	3950	2250	1340	1400	745	1820
16	1560	1450	e1100	2290	3640	1630	3750	2200	1290	2630	626	1510
17	1500	2210	e1080	2160	3410	1680	3630	2080	1270	3880	595	1590
18	1540	6510	e1060	2090	3200	1740	3270	2060	1210	3030	708	1160
19	3590	5810	e1030	2030	2950	1990	2940	1990	1230	2080	698	991
20	7850	4470	e1000	1960	2720	2960	2720	1840	1210	1690	936	999
21	11700	3670	e990	1900	2530	2790	2570	1680	1260	1540	731	998
22	7900	3060	e980	1860	2400	2700	2540	1590	1110	1830	751	856
23	5930	2720	e970	1770	2320	2670	2530	1530	1110	1610	865	727
24	4790	2450	e960	1750	2540	2650	2550	1580	1060	2020	955	777
25	3970	2270	e950	1740	3660	2660	2350	1610	1050	1840	1620	841
26	3430	2140	e950	1850	3840	2670	2210	1750	1090	1470	3260	773
27	2990	2020	e950	2100	3320	2740	2100	1920	1310	1170	2920	806
28	2730	1930	e950	2600	3000	2770	1990	2680	889	1020	2680	778
29	2450	1980	e950	2710	---	2740	1980	4990	942	1060	2040	704
30	2310	1880	e1000	3290	---	2730	2060	10300	901	740	1500	566
31	2170	---	e1500	5340	---	2900	---	13400	---	921	1390	---
TOTAL	113560	70220	38090	94800	106700	71770	102220	82730	63112	39592	34490	27387
MEAN	3663	2341	1229	3058	3811	2315	3407	2669	2104	1277	1113	913
MAX	11700	6510	1740	9260	5690	2960	5280	13400	8520	3880	3260	1820
MIN	1450	1450	950	1740	2320	1600	1980	1530	889	533	595	566
CFSM	1.21	.77	.40	1.01	1.25	.76	1.12	.88	.69	.42	.37	.30
IN.	1.39	.86	.47	1.16	1.31	.88	1.25	1.01	.77	.48	.42	.34

CAL YR 1989 TOTAL 977138 MEAN 2677 MAX 21600 MIN 601 CFSM .88 IN. 11.96
WTR YR 1990 TOTAL 844671 MEAN 2314 MAX 13400 MIN 533 CFSM .76 IN. 10.34

e Estimated

POTOMAC RIVER BASIN

61

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-63, 1965, 1969-71, 1979 to current year.

INSTRUMENTATION.--Water-quality monitor October 1980 to September 1983.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1980 to September 1983 (discontinued).

WATER TEMPERATURES: October 1980 to September 1983 (discontinued).

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (water years 1981-82): Maximum, 778 microsiemens, Dec. 29, 1980; minimum, 212 microsiemens, Jan. 17, 1982.

WATER TEMPERATURE: Maximum, 30.0°C, July 20, 21, 1981; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	Dis-charge, instantaneous (ft3/s)	Spe-cific con-duct-ance (US/CM)	Ph (stand-ard units)	Temper-ature, water (deg C)	Temper-ature, air (deg C)	Baro-metric pres-sure (mm of Hg)	Tur-bid-ity (ntu)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent satur-ation)
OCT 30...	0905	2490	305	7.78	13.5	20.0	762	3.3	10.5	101
JAN 29...	0900	2700	320	8.08	6.0	15.0	757	6.7	11.8	95
MAR 05...	0900	2370	255	8.53	6.0	5.0	766	4.7	12.6	101
APR 30...	0900	2080	275	8.06	20.0	18.0	755	2.9	7.5	83
JUN 25...	0950	1040	338	7.68	24.0	24.0	757	--	6.7	80
SEP 04...	0915	1920	273	7.68	25.0	24.0	765	6.4	7.6	92

DATE	Coli-form, fecal, 0.7 UM-MF (col/100 ML)	Strep-tococci, fecal, KF agar (cols. per 100 ML)	Calcium dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)	Potas-sium, dis-solved (mg/L as K)	Alka-linity, wat wh tot fet field (mg/L as CaCO3)	Sulfate dis-solved (mg/L as SO4)	Chlo-ride, dis-solved (mg/L as Cl)	Fluo-ride, dis-solved (mg/L as F)	Silica, dis-solved (mg/L as SiO2)
OCT 30...	72	68	38	9.6	8.2	2.1	113	21	8.3	0.10	5.5
JAN 29...	100	K85	39	13	11	2.2	122	15	12	<0.10	4.3
MAR 05...	K2	K6	37	9.8	6.3	1.8	137	15	10	0.10	0.51
APR 30...	250	340	36	10	6.6	1.8	115	14	10	0.10	0.77
JUN 25...	K40	220	--	--	--	--	136	--	--	--	--
SEP 04...	K32	470	38	10	6.6	3.8	122	19	12	<0.10	8.0

DATE	Solids, residue at 180 deg. C dis-solved (mg/L)	Solids, sum of consti-tuents, dis-solved (mg/L)	Nitro-gen, nitrate dis-solved (mg/L as N)	Nitro-gen, nitrite dis-solved (mg/L as N)	Nitro-gen, NO2+NO3 dis-solved (mg/L as N)	Nitro-gen, ammonia total (mg/L as N)	Nitro-gen, ammonia dis-solved (mg/L as N)	Nitro-gen, ammonia + organic total (mg/L as N)	Phos-phorous total (mg/L as P)	Phos-phorous dis-solved (mg/L as P)	Phos-phorous ortho, dis-solved (mg/L as P)
OCT 30...	147	167	1.39	<0.010	1.40	0.020	0.010	0.30	0.050	0.030	0.030
JAN 29...	180	174	0.890	0.010	0.900	0.080	0.080	0.40	0.120	0.080	0.080
MAR 05...	158	168	1.08	0.020	1.10	0.020	0.040	0.30	0.120	0.010	<0.010
APR 30...	162	152	0.690	0.010	0.700	0.030	0.050	0.60	0.080	0.040	0.030
JUN 25...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	153	177	1.29	<0.010	1.30	0.030	0.030	0.60	0.110	0.110	0.090

K: Results based on colony count outside the acceptance range (non-ideal colony count).

POTOMAC RIVER BASIN

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	Alum- inum, dis- solved (ug/L as Al)	Arsenic, dis- solved (ug/L as As)	Barium, dis- solved (ug/L as Ba)	Beryl- lium, dis- solved (ug/L as Be)	Cadmium, dis- solved (ug/L as Cd)	Chro- mium, dis- solved (ug/L as Cr)	Cobalt, dis- solved (ug/L as Co)	Copper, dis- solved (ug/L as Cu)	Iron, dis- solved (ug/L as Fe)	Lead, dis- solved (ug/L as Pb)	Lithium dis- solved (ug/L as Li)
OCT 30...	<10	<1	31	<0.5	<1	<1	<3	1	27	<1	<4
JAN 29...	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	<10	<1	26	<0.5	<1	<5	<3	<10	28	<10	5
APR 30...	30	<1	30	<0.5	1	<1	<3	1	32	<1	5
JUN 25...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	20	2	37	<0.5	3	<1	<3	6	11	<1	8

DATE	Manga- nese, dis- solved (ug/L as Mn)	Mercury, dis- solved (ug/L as Hg)	Molyb- denum, dis- solved (ug/L as Mo)	Nickel, dis- solved (ug/L as Ni)	Selen- ium, dis- solved (ug/L as Se)	Silver, dis- solved (ug/L as Ag)	Stron- tium, dis- solved (ug/L as Sr)	Vana- dium, dis- solved (ug/L as V)	Zinc, dis- solved (ug/L as Zn)	Hard- ness total (mg/L as CaCO3)
OCT 30...	29	<0.1	<10	1	<1	<1.0	130	<6	<3	130
JAN 29...	--	--	--	--	--	--	--	--	--	150
MAR 05...	16	<0.1	<10	<10	<1	<1.0	130	<6	<3	130
APR 30...	32	<0.1	<10	1	<1	<1.0	140	<6	6	130
JUN 25...	--	--	--	--	--	--	--	--	--	--
SEP 04...	17	0.2	<10	2	<1	<1.0	140	<6	15	140

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	Dis- charge, instan- taneous (ft ³ /s)	Sedi- ment, sus- pended (mg/L)	Sedi- ment, dis- charge, sus- pended (T/DAY)	Sed. susp. sieve diam. % finer than .062 MM
OCT 30...	0905	2490	11	74	94
JAN 29...	0900	2700	6	44	100
MAR 05...	0900	2370	8	51	100
APR 30...	0900	2080	11	62	80
JUN 25...	0950	1040	14	39	99
SEP 04...	0915	1920	17	88	97

01637500 CATOCTIN CREEK NEAR MIDDLETOWN, MD

LOCATION.--Lat 39°25'35", long 77°33'25", Frederick County, Hydrologic Unit 02070008, on right bank 300 ft downstream from bridge on State Highway 17, 1.3 mi south of Middletown, 2.2 mi downstream from Little Catoctin Creek, and 14.8 mi upstream from mouth.

DRAINAGE AREA.--66.9 mi².

PERIOD OF RECORD.--August 1947 to current year.

REVISED RECORDS.--WSP 1432: 1947-48. WDR MD-DE-77-1: 1960(M), 1965(M), 1970(M), 1972(P), 1975(P).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 385 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect, siphoning action, missing record), which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 74.7 ft³/s, 15.16 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s, Oct. 9, 1976, gage height, 14.13 ft, from rating curve extended above 2,600 ft³/s on basis of slope-area measurement of peak flow; no flow Aug. 27 to Sept. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 13	2000	*1,290	*4.65	No other peak greater than base discharge.			

Minimum discharge, 4.3 ft³/s, Sept. 11, 12, gage height, 1.50.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	15	19	203	180	70	74	58	129	31	9.9	8.3
2	39	16	18	63	153	67	201	48	112	21	8.7	6.4
3	33	15	17	48	137	66	361	43	107	16	7.5	6.2
4	15	14	14	45	167	61	238	48	94	14	7.0	5.8
5	10	13	19	53	126	55	195	122	81	13	8.7	5.8
6	9.1	13	18	55	109	51	167	74	71	18	29	5.8
7	8.0	13	18	43	103	45	187	59	67	15	34	5.7
8	7.6	17	15	40	94	42	160	53	62	12	15	5.7
9	8.5	29	13	39	88	45	138	49	61	12	13	5.3
10	7.7	36	18	51	155	45	130	299	56	11	15	5.1
11	7.8	22	20	54	128	42	145	251	48	12	14	4.8
12	7.7	18	18	46	111	41	119	155	42	41	12	4.7
13	8.2	16	16	33	101	39	103	277	39	79	10	6.2
14	8.7	15	14	e35	95	38	95	262	37	69	10	6.9
15	6.8	15	15	e35	88	36	114	179	35	130	12	7.0
16	5.8	55	e14	e34	85	36	97	156	35	107	8.2	7.9
17	13	58	e14	e33	78	60	88	147	32	44	6.8	11
18	21	34	e13	e33	68	74	83	114	31	32	6.3	6.3
19	93	27	e13	e32	66	50	74	95	50	26	5.8	6.2
20	127	24	e13	e34	60	85	70	87	36	22	47	8.1
21	66	23	e12	e38	55	82	71	93	30	26	33	8.8
22	37	21	e12	e42	55	103	69	79	27	29	24	14
23	27	21	e12	37	72	93	63	70	28	30	51	19
24	22	19	e12	34	151	86	59	62	25	21	39	10
25	19	18	e11	44	95	85	56	56	22	17	24	7.0
26	18	21	e11	174	75	82	54	171	21	15	18	6.1
27	16	23	e11	127	75	72	53	110	19	14	14	6.4
28	16	26	e11	104	75	66	52	83	17	13	12	6.2
29	15	24	11	190	---	64	51	223	16	12	9.9	5.8
30	15	20	13	442	---	66	71	224	16	12	8.8	5.8
31	15	---	93	231	---	82	---	157	---	11	8.2	---
TOTAL	711.4	681	528	2472	2845	1929	3438	3904	1446	925	521.8	218.3
MEAN	22.9	22.7	17.0	79.7	102	62.2	115	126	48.2	29.8	16.8	7.28
MAX	127	58	93	442	180	103	361	299	129	130	51	19
MIN	5.8	13	11	32	55	36	51	43	16	11	5.8	4.7
CFSM	.34	.34	.25	1.19	1.52	.93	1.71	1.88	.72	.45	.25	.11
IN.	.40	.38	.29	1.37	1.58	1.07	1.91	2.17	.80	.51	.29	.12

CAL YR 1989 TOTAL 26074.0 MEAN 71.4 MAX 1250 MIN 5.8 CFSM 1.07 IN. 14.50
WTR YR 1990 TOTAL 19619.5 MEAN 53.8 MAX 442 MIN 4.7 CFSM .80 IN. 10.91

• Estimated

POTOMAC RIVER BASIN

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD

LOCATION.--Lat 39°16'25", long 77°32'35", Frederick County, Hydrologic Unit 02070008, on left bank at downstream side of bridge on U.S. Highway 15 at Point of Rocks, 0.3 mi downstream from Catoctin Creek (Virginia), 6 mi upstream from Monocacy River, and at mile 159.5.

DRAINAGE AREA.--9,651 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1895 to current year.

REVISED RECORDS.--WSP 192: 1895-1905. WSP 1432: 1899, 1901-2, 1904-5, 1912, 1914(M), 1915, 1917(M), 1918, 1919(M), 1920, 1921-23(M), 1924, 1925-28(M), 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 200.63 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 28, 1929, nonrecording gage at same site. Prior to Sept. 2, 1902, at datum about 0.45 ft higher.

REMARKS.--Water-discharge records good except those for period of ice effect, Dec. 17 to Jan. 3, which are fair. Low flow affected slightly from 1913 to July 1981 by Stony River Reservoir, since December 1950 by Savage River Reservoir (see station 01597500), and since July 1981 by Jennings Randolph Lake. Low flow affected extensively at times by run-of-the-river hydroelectric plants. National Weather Service gage height telemeter at station.

AVERAGE DISCHARGE.--95 years, 9,365 ft³/s, 13.18 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480,000 ft³/s, Mar. 19, 1936, gage height, 41.03 ft, from rating curve extended above 300,000 ft³/s, on the basis of adjustment of figure of peak flow at station near Washington for inflow and storage, and slope-area measurement of peak flow; minimum discharge, 530 ft³/s, Sept. 11, 12, 1966, gage height, 0.27 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, reached a stage of 40.2 ft, from floodmarks, discharge, about 460,000 ft³/s from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 35,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 31	2330	*39,800	*9.30	No other peak greater than base discharge.			

Minimum discharge, 1,700 ft³/s, Aug. 16, 17, gage height, 0.94 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5730	5060	5990	e4000	25400	6830	7000	5380	33100	2540	2490	3480
2	5720	4980	5700	e6500	20400	6720	8040	5540	23200	2450	2460	3070
3	5780	5010	5450	e16000	17300	6610	10600	5380	17200	2520	2120	2630
4	10300	4720	5140	16300	16100	6450	12200	5130	14800	4000	2280	2590
5	11500	4480	4890	13700	16400	6240	12100	5200	12800	3930	2110	2400
6	9390	4260	4820	12700	18000	6060	10900	5860	11000	3330	2700	2210
7	7740	4070	4750	14800	16900	5770	10400	9270	9230	2840	2820	2420
8	6540	4050	4600	14000	15600	5560	10500	9300	7970	2570	2800	2190
9	5760	4160	4640	12400	14300	5270	11300	7910	7210	2530	2690	2160
10	5150	4240	4400	10600	13400	5200	11400	7580	7020	2400	2610	2090
11	4730	4800	3990	10100	14100	5100	11200	8470	6350	2790	2230	2110
12	4320	4870	4180	10400	16200	5010	11600	10800	5790	3060	2180	2190
13	4150	4930	4320	10800	16300	4930	11800	10300	5770	3470	1940	2550
14	3910	4530	4140	10100	15000	4770	11100	9740	5410	5520	2070	2580
15	3650	4380	3940	9050	13800	4690	10300	8810	4940	11300	2290	4040
16	3520	4450	3540	8370	12600	4690	9550	7930	4440	13400	1870	4470
17	3460	9130	e2600	7920	11800	4950	8940	7490	4260	13700	1740	3920
18	3460	22800	e2400	7910	11000	4920	8340	7070	4010	12400	1780	3830
19	4780	20200	e2200	7730	10200	4860	7670	6900	4160	9240	1810	3720
20	10200	14800	e2200	7960	9340	6150	7050	6420	4190	7140	2100	3390
21	24200	11600	e2100	8190	8730	6320	6690	5850	3940	6000	3630	2850
22	21700	10100	e2100	8230	8230	6310	6430	5490	3510	5820	3710	2890
23	15900	8770	e2200	9140	7720	6270	6270	5350	3360	6090	3610	2730
24	12400	7740	e2200	9110	8120	6060	6270	5160	3100	5430	5770	2620
25	10000	7100	e2200	8660	8740	5910	6140	4680	3010	5420	9450	2890
26	8450	6530	e2200	9020	8740	5870	5890	5470	3010	4790	10100	2680
27	7370	6100	e2100	9850	7780	5930	5460	7340	3190	4150	8030	2620
28	6670	5960	e2300	10400	7100	5990	5230	17100	2960	3410	7050	2410
29	6110	6090	e2500	10200	---	6050	5170	25900	2590	3200	5700	2390
30	5650	6210	e2800	16100	---	6080	5200	30200	2740	2820	4680	2260
31	5280	---	e3200	e30000	---	6630	---	37700	---	2660	4090	---
TOTAL	243520	216120	109790	340240	369300	178200	260740	300720	224260	160920	110910	84380
MEAN	7855	7204	3542	10980	13190	5748	8691	9701	7475	5191	3578	2813
MAX	24200	22800	5990	30000	25400	6830	12200	37700	33100	13700	10100	4470
MIN	3460	4050	2100	4000	7100	4690	5170	4680	2590	2400	1740	2090
CFSM	.81	.75	.37	1.14	1.37	.60	.90	1.01	.77	.54	.37	.29
IN.	.94	.83	.42	1.31	1.42	.69	1.01	1.16	.86	.62	.43	.33

CAL YR 1989 TOTAL 3543630 MEAN 9709 MAX 71200 MIN 2100 CFSM 1.01 IN. 13.66
WTR YR 1990 TOTAL 2599100 MEAN 7121 MAX 37700 MIN 1740 CFSM .74 IN. 10.02

e Estimated

POTOMAC RIVER BASIN

65

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1961 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1960 to current year.

SUSPENDED-SEDIMENT DISCHARGE: October 1960 to current year.

REMARKS.--Water temperatures are measured daily in field by local observer at time of sampling.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum daily, 33.5°C, Aug. 24, 1964, July 19, 1977; minimum daily, 0.0°C on many days during winter periods.

SEDIMENT CONCENTRATION: Maximum daily mean, 2,690 mg/L, Nov. 7, 1985; minimum daily mean, 1 mg/L, on many days most years.

SEDIMENT LOAD: Maximum daily, 1,930,000 tons, Nov. 7, 1985; minimum daily, 2.0 tons on many days during 1964, 1966-1969.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum daily, 28.5°C, July 9; minimum daily, 0.0°C, Dec. 13.

SEDIMENT CONCENTRATION: Maximum daily mean, 255 mg/L, May 31; minimum daily mean, 1 mg/L, Aug. 19.

SEDIMENT LOAD: Maximum daily, 26,000 tons, May 31; minimum daily, 4.9 tons, Aug. 19.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	15.0	2.0	---	6.0	---	9.5	18.0	15.5	25.0	26.5	---
2	18.0	12.0	4.0	10.0	6.0	---	10.0	19.0	---	---	27.0	---
3	---	11.0	5.0	---	7.0	---	12.0	19.0	---	---	27.0	---
4	17.0	10.0	---	---	6.0	---	10.0	16.5	19.0	---	---	---
5	---	---	---	---	6.0	8.0	10.0	18.0	18.5	---	---	---
6	17.0	10.0	4.0	---	7.0	8.0	8.5	17.0	21.0	25.5	---	---
7	15.0	15.0	3.0	---	7.0	6.0	9.0	16.0	22.0	26.0	---	---
8	---	11.0	---	---	7.0	9.0	9.0	16.5	21.0	27.0	---	---
9	13.0	11.0	---	---	7.5	9.0	9.5	20.0	22.5	28.5	---	23.0
10	---	15.0	---	---	7.0	11.0	10.0	17.0	24.0	28.0	---	23.0
11	12.0	14.0	---	---	6.0	11.0	10.0	17.0	21.5	28.0	---	24.0
12	17.0	11.0	---	---	6.0	14.0	---	17.0	24.0	26.0	---	---
13	---	9.0	0	---	6.5	16.0	10.0	18.0	23.0	---	---	---
14	17.0	---	1.0	---	6.5	16.0	13.0	18.5	---	26.0	---	---
15	---	11.0	---	---	7.0	18.0	14.5	19.0	24.0	24.5	---	---
16	18.0	12.0	---	---	8.0	18.0	13.0	19.0	24.0	23.0	---	21.5
17	19.0	8.0	---	---	7.0	16.0	11.0	19.0	25.0	---	---	20.0
18	17.0	8.0	---	5.0	6.0	14.0	12.5	19.5	25.0	---	---	18.0
19	16.0	8.0	---	5.0	7.0	13.0	13.0	20.0	27.0	---	24.0	17.0
20	---	---	---	4.0	6.0	10.0	14.0	20.0	25.0	---	24.0	20.0
21	12.0	---	---	---	5.5	9.5	14.5	19.0	26.0	26.0	23.0	---
22	13.0	5.0	---	---	8.5	12.0	15.0	18.0	26.0	26.5	22.0	---
23	12.0	5.0	---	6.0	9.0	10.0	17.5	19.0	25.0	26.0	22.0	---
24	13.0	4.0	---	7.0	8.0	8.5	17.0	19.0	24.0	26.5	22.0	19.5
25	11.0	4.0	---	6.0	8.0	9.0	19.0	---	22.0	26.5	23.0	20.0
26	11.0	---	---	---	3.0	9.5	23.0	19.0	24.5	28.0	23.0	20.0
27	12.0	5.0	---	6.0	2.5	9.5	20.0	18.0	27.0	28.0	23.0	19.5
28	13.0	7.0	---	---	---	10.0	20.0	18.0	28.5	26.0	25.0	---
29	15.0	7.0	---	---	---	9.0	20.0	15.0	28.0	26.0	26.0	---
30	12.0	---	---	5.0	---	9.0	18.0	16.0	27.0	26.0	25.5	---
31	19.0	---	---	5.0	---	9.0	---	15.0	---	28.0	25.0	---

POTOMAC RIVER BASIN

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

SEDIMENT, SUSPENDED CONCENTRATION (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
OCTOBER			NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	18	278	7	96	6	97	e4	43	95	6520	e5	92
2	18	278	12	161	6	92	8	140	45	2480	e4	73
3	20	312	17	230	6	88	74	3200	27	1260	e4	71
4	72	2000	7	89	5	69	e50	2200	20	869	e4	70
5	80	2480	8	97	5	66	e30	1110	14	620	7	118
6	54	1370	9	104	4	52	e15	514	17	826	15	245
7	35	731	7	77	4	51	e20	799	15	684	21	327
8	24	424	5	55	4	50	e15	567	12	505	9	135
9	17	264	5	56	4	50	e12	402	11	425	9	128
10	14	195	6	69	4	48	e10	286	9	326	8	112
11	12	153	8	104	5	54	e9	245	9	343	7	96
12	9	105	23	302	5	56	e9	253	12	525	7	95
13	8	90	27	359	3	35	e9	262	13	572	9	120
14	7	74	8	98	3	34	e9	245	11	445	8	103
15	6	59	6	71	e3	32	e9	220	10	373	4	51
16	5	48	10	120	e3	29	e9	203	10	340	6	76
17	10	93	28	690	e3	21	e9	192	9	287	7	94
18	7	65	103	6340	e3	19	9	192	7	208	11	146
19	18	232	74	4040	e3	18	7	146	8	220	6	79
20	40	1100	34	1360	e3	18	9	193	7	177	7	116
21	210	13700	23	720	e3	17	9	199	4	94	8	137
22	100	5860	14	382	e15	85	9	200	3	67	10	170
23	57	2450	8	189	e10	59	12	296	4	83	11	186
24	33	1100	7	146	e5	30	17	418	4	88	12	196
25	21	567	7	134	e4	24	11	257	5	118	13	207
26	13	297	6	106	e4	24	21	511	8	189	9	143
27	11	219	4	66	e4	23	30	798	5	105	27	432
28	9	162	4	64	e4	25	33	927	e5	96	13	210
29	8	132	4	66	e4	27	19	523	---	---	12	196
30	7	107	5	84	e4	30	57	2480	---	---	12	197
31	7	100	---	---	e4	35	185	15000	---	---	14	251
TOTAL	---	35045	---	16475	---	1358	---	33021	---	18845	---	4672
APRIL			MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	30	567	15	218	212	18900	12	82	e6	40	e4	38
2	47	1020	16	239	182	11400	12	79	e5	33	e4	33
3	45	1290	14	203	102	4740	12	82	e5	29	e4	28
4	28	922	13	180	43	1720	22	238	e5	31	e4	28
5	24	784	19	267	38	1310	20	212	e5	28	e3	19
6	16	471	33	522	34	1010	13	117	e10	73	e3	18
7	15	421	35	876	30	748	12	92	e8	61	e3	20
8	19	539	28	703	26	559	11	76	e6	45	e3	18
9	21	641	21	448	25	487	10	68	e5	36	4	23
10	23	708	19	389	23	436	10	65	e5	35	2	11
11	20	605	27	617	22	377	15	113	e5	30	e2	11
12	21	658	33	962	22	344	20	165	e4	24	e2	12
13	23	733	27	751	19	296	26	244	e4	21	e3	21
14	21	629	e25	657	17	248	60	894	e4	22	e4	28
15	20	556	e25	595	15	200	72	2200	e6	37	e10	109
16	18	464	e25	535	15	180	64	2320	e5	25	e6	72
17	18	434	25	506	15	173	e70	2590	e4	19	8	85
18	19	428	21	401	14	152	e65	2180	e3	14	6	62
19	15	311	22	410	12	135	e50	1250	1	4.9	6	60
20	13	247	25	433	12	136	e40	771	7	40	12	110
21	10	181	23	363	11	117	63	1020	7	69	e10	77
22	10	174	17	252	10	95	60	943	10	100	e8	62
23	11	186	16	231	10	91	18	296	19	185	e5	37
24	12	203	16	223	11	92	12	176	16	249	3	21
25	12	199	14	177	11	89	12	176	21	536	3	23
26	9	143	23	340	12	98	11	142	22	600	3	22
27	11	162	36	713	15	129	8	90	23	499	4	28
28	19	268	108	4990	14	112	6	55	21	400	e4	26
29	15	209	140	9790	12	84	e6	52	10	154	e4	26
30	15	211	185	15100	12	89	e6	46	4	51	e4	24
31	---	---	255	26000	---	---	e6	43	e4	44	---	---
TOTAL	---	14364	---	68091	---	44547	---	16877	---	3534.9	---	1152

TOTAL LOAD FOR YEAR: 257981.9 TONS.
 e Estimated

01639000 MONOCACY RIVER AT BRIDGEPORT, MD

LOCATION.--Lat 39°40'43", long 77°14'06", Frederick County, Hydrologic Unit 02070009, on right bank 60 ft downstream from bridge on State Highway 140 at Bridgeport, 0.9 mi upstream from Cattail Branch, 3.4 mi northwest of Taneytown, 4.8 mi downstream from confluence of Rock and Marsh Creeks at Pennsylvania-Maryland State line, and 52 mi upstream from mouth.

DRAINAGE AREA.--173 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1942 to current year.

REVISED RECORDS.--WSP 1382: 1944(M).

GAGE.--Water-stage recorder. Concrete control since Sept. 15, 1947. Datum of gage is 340.83 ft above National Geodetic Vertical datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 3, 1946, nonrecording gage and crest-stage gages at site 0.3 mi downstream at datum 0.98 ft lower.

REMARKS.--Water-discharge records good except those for estimated daily discharges, Dec. 20-22 (backwater from ice), which are fair. Occasional regulation at low flow from unknown source upstream from station.

AVERAGE DISCHARGE.--48 years, 202 ft³/s, 15.86 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,300 ft³/s, June 22, 1972, gage height, 24.05 ft, from rating curve extended above 7,000 ft³/s on basis of slope-conveyance study; no flow July 24-29, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 24, 1933, reached a stage of about 25 ft, present site and datum, from floodmarks, discharge, about 23,000 ft³/s. Stage exceeded that of June 1889, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	1700	5,050	10.37	May 29	2015	5,480	10.81
Jan. 30	0415	*8,550	*13.61				

Minimum discharge, 8.7 ft³/s, Aug. 4, 5, gage height, 1.99 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	48	63	550	393	128	114	173	238	14	12	49
2	59	71	58	423	320	117	229	100	173	14	13	40
3	149	62	55	208	288	118	1350	75	143	14	11	32
4	47	58	44	172	441	112	365	71	121	12	9.5	27
5	26	55	55	304	374	96	265	198	99	11	10	22
6	21	54	50	286	244	89	187	147	84	12	23	20
7	16	52	50	182	208	79	233	93	77	15	54	20
8	14	55	44	135	179	71	201	74	92	15	31	19
9	13	148	34	113	163	73	141	62	344	13	22	18
10	13	232	42	225	718	82	122	934	121	12	27	17
11	12	115	42	467	465	81	139	1120	84	13	46	17
12	12	93	44	245	284	79	120	254	68	39	31	17
13	12	81	46	149	212	74	98	203	56	105	23	18
14	12	74	37	111	172	68	89	280	50	83	108	22
15	12	73	39	99	150	62	128	151	45	213	58	21
16	11	340	33	107	155	61	118	124	42	180	32	19
17	12	352	31	145	150	225	92	231	39	78	22	19
18	20	152	29	195	115	281	83	134	37	46	16	19
19	642	118	27	191	108	126	71	92	43	33	14	17
20	2340	107	e25	168	99	183	65	79	56	26	48	16
21	694	99	e23	386	87	224	66	97	43	28	120	16
22	235	83	e21	322	87	154	67	101	33	575	332	23
23	139	81	20	185	124	119	61	78	29	128	1420	49
24	105	78	15	147	942	100	55	66	26	68	439	32
25	87	68	13	198	275	108	51	58	24	45	200	20
26	75	74	15	1460	131	101	49	372	21	32	188	16
27	66	81	19	527	124	87	46	313	19	24	99	13
28	57	89	21	300	135	76	43	149	18	19	69	13
29	52	99	25	1010	---	71	79	2150	17	17	52	15
30	48	72	28	4300	---	77	258	1840	15	15	202	14
31	45	---	41	618	---	105	---	408	---	15	72	---
TOTAL	5059	3164	1089	13928	7143	3427	4985	10227	2257	1914	3803.5	660
MEAN	163	105	35.1	449	255	111	166	330	75.2	61.7	123	22.0
MAX	2340	352	63	4300	942	281	1350	2150	344	575	1420	49
MIN	11	48	13	99	87	61	43	58	15	11	9.5	13
CFSM	.94	.61	.20	2.60	1.47	.64	.96	1.91	.43	.36	.71	.13
IN.	1.09	.68	.23	2.99	1.54	.74	1.07	2.20	.49	.41	.82	.14

CAL YR 1989 TOTAL 83090.4 MEAN 228 MAX 6040 MIN 9.1 CFSM 1.32 IN. 17.87
WTR YR 1990 TOTAL 57656.5 MEAN 158 MAX 4300 MIN 9.5 CFSM .91 IN. 12.40

e Estimated

POTOMAC RIVER BASIN

01639000 MONOCACY RIVER AT BRIDGEPORT, MD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948-51, 1969-72, 1974-79, 1882-83, 1990.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1989 to September 1990.

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to September 1990.

INSTRUMENTATION.--Pumping sampler for nutrients and sediment since Nov. 29, 1989.

REMARKS.--Water temperatures are measured daily in field by local observer at time of sampling.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 565 mg/L, Oct. 20, 1989; minimum daily mean, 1 mg/L, Nov. 5-8, 1989.

SEDIMENT LOAD: Maximum daily, 7,230 tons, Jan. 30, 1990; minimum daily, 0.14 ton, Nov. 7, 1989.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 565 mg/L, Oct.30; minimum daily mean, 1 mg/L, Nov. 5-8.

SEDIMENT LOAD: Maximum daily, 7,230 tons, Jan. 30; minimum daily, 0.14 ton, Nov. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	Dis-charge, instantaneous (ft ³ /s)	Spe-cific con-duct-ance (US/CM)	Ph (stand-ard units)	Temper-ature, water (deg C)	Temper-ature, air (deg C)	Sedi-ment, sus-pended (mg/L)	Nitro-gen, nitrate dis-solved (mg/L as N)	Nitro-gen, nitrite total (mg/L as N)	Nitro-gen, nitrite dis-solved (mg/L as N)
OCT										
16...	1415	11	317	8.06	16.5	26.0	8	--	0.010	<0.010
30...	1100	48	285	7.60	13.0	17.0	5	2.19	0.010	0.010
NOV										
27...	1215	85	270	7.60	3.0	9.0	2	--	<0.010	<0.010
DEC										
22...	1045	33	377	8.37	0.5	-10.0	4	2.29	<0.010	0.010
JAN										
17...	1400	158	280	6.60	1.0	17.0	3	--	<0.010	<0.010
30...	1115	3950	132	6.54	4.0	7.0	186	1.88	0.060	0.020
30...	1315	2340	137	6.80	4.0	8.0	166	2.08	0.060	0.020
30...	1600	1520	144	6.90	4.5	7.0	89	2.28	0.040	0.020
30...	1900	1160	156	6.85	4.5	2.0	63	2.58	0.030	0.020
FEB										
22...	1025	86	245	6.74	3.5	10.0	2	--	<0.010	<0.010
MAR										
28...	0845	76	263	8.40	6.0	8.0	3	--	--	--
APR										
20...	1000	64	228	8.50	12.0	14.5	6	0.780	0.010	0.020
MAY										
08...	1315	73	246	7.90	18.0	25.5	8	0.980	0.020	0.020
25...	1315	57	236	7.80	18.0	21.0	13	1.39	0.010	0.010
29...	1423	2460	198	7.60	14.0	13.0	285	2.38	0.050	0.020
29...	1506	3170	--	--	--	--	--	2.27	0.070	0.030
29...	1718	4790	171	7.70	13.5	13.0	328	1.58	<0.010	0.020
29...	1725	4850	--	--	--	--	--	1.57	0.060	0.030
29...	1918	5400	--	--	--	--	--	1.67	0.070	0.030
29...	1935	5430	154	7.60	14.0	13.0	266	1.68	0.030	0.020
29...	2100	5460	--	--	--	--	--	1.77	0.070	0.030
29...	2243	5190	--	--	--	--	--	1.97	0.060	0.030
30...	0027	4700	150	7.50	14.0	12.5	117	2.18	0.050	0.020
30...	0033	4670	--	--	--	--	--	2.07	0.060	0.030
30...	0255	3640	--	--	--	--	--	2.37	0.050	0.030
30...	0445	2840	162	7.50	13.5	10.5	66	2.47	0.050	0.030
30...	0604	2400	--	--	--	--	--	2.57	0.060	0.030
30...	0945	1650	178	7.60	14.0	14.0	47	2.77	0.050	0.030
30...	1114	1480	--	--	--	--	--	2.76	0.060	0.040
JUN										
22...	0935	33	270	7.80	23.5	25.5	--	1.09	0.040	0.010
JUL										
31...	1215	15	283	9.20	27.0	26.0	--	0.490	0.020	0.010
AUG										
23-23	0030	1940	225	--	--	--	--	1.58	0.040	0.020
AUG										
23-23	0515	1680	194	--	--	--	--	1.58	0.030	0.020
23...	1130	1520	193	7.70	19.0	22.0	--	1.68	0.030	0.020
SEP										
06...	0945	21	300	7.90	22.5	22.5	--	--	0.010	<0.010
27...	1015	13	378	7.80	15.0	13.0	--	--	<0.010	<0.010

POTOMAC RIVER BASIN

69

01639000 MONOCACY RIVER AT BRIDGEPORT, MD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	Nitro- gen, NO2+NO3 total (mg/L as N)	Nitro- gen, NO2+NO3 dis- solved (mg/L as N)	Nitro- gen, ammonia total (mg/L as N)	Nitro- gen, ammonia dis- solved (mg/L as N)	Nitro- gen, am- monia + organic total (mg/L as N)	Nitro- gen, am- monia + organic DIS. (mg/L as N)	Phos- phorous total (mg/L as P)	Phos- phorous dis- solved (mg/L as P)	Phos- phorous, ortho, total (mg/L as P)	Phos- phorous ortho, dis- solved (mg/L as P)	Carbon, organic total (mg/L as C)
OCT											
16...	0.300	0.310	0.020	0.020	0.50	0.30	0.100	0.060	--	0.070	6.0
30...	2.30	2.20	0.030	0.030	0.80	0.50	0.100	0.080	--	0.050	4.1
NOV											
27...	2.00	2.00	0.010	0.020	0.60	0.40	0.100	0.050	--	0.050	3.1
DEC											
22...	2.30	2.30	0.020	0.020	0.60	0.80	0.040	0.040	--	0.030	3.6
JAN											
17...	3.10	3.00	0.070	0.070	0.60	0.70	0.060	0.040	--	0.040	3.0
30...	2.10	1.90	0.230	0.180	0.90	0.80	0.230	0.160	--	0.160	13
30...	2.30	2.10	0.190	0.150	0.90	0.60	0.220	0.150	--	0.150	9.6
30...	2.60	2.30	0.140	0.110	0.90	0.60	0.180	0.110	--	0.110	8.3
30...	2.90	2.60	0.110	0.090	1.1	0.40	0.160	0.090	--	0.090	7.6
FEB											
22...	2.40	2.20	0.020	0.010	0.50	0.30	0.050	<0.010	--	0.030	2.7
MAR											
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
20...	0.700	0.800	0.020	0.020	0.80	0.60	0.030	0.020	--	<0.010	3.5
MAY											
08...	1.00	1.00	0.040	0.020	0.70	0.60	0.070	0.050	--	0.050	5.6
25...	1.40	1.40	0.020	0.030	0.40	0.30	0.070	0.040	--	0.040	3.5
29...	2.40	2.40	0.200	0.140	1.7	0.70	0.250	0.180	--	0.160	22
29...	2.30	2.30	0.290	0.230	2.9	0.90	0.300	0.190	--	0.180	--
29...	1.60	1.60	0.250	0.220	2.0	1.0	0.230	0.180	--	0.160	16
29...	1.70	1.60	0.230	0.200	2.4	1.2	0.260	0.170	--	0.150	--
29...	1.70	1.70	0.250	0.150	2.4	1.2	0.230	0.170	--	0.130	--
29...	1.70	1.70	0.240	0.210	2.4	0.80	0.240	0.170	--	0.140	20
29...	1.90	1.80	0.230	0.180	2.2	1.2	0.220	0.160	--	0.140	--
29...	2.10	2.00	0.210	0.160	1.8	0.80	0.230	0.140	--	0.140	--
30...	2.20	2.20	0.190	0.170	1.3	1.1	0.220	0.160	--	0.140	13
30...	2.20	2.10	0.180	0.140	2.1	1.0	0.220	0.150	--	0.140	--
30...	2.40	2.40	0.180	0.150	1.3	0.70	0.220	0.160	--	0.150	--
30...	2.60	2.50	0.190	0.170	1.1	1.1	0.220	0.170	--	0.150	11
30...	2.70	2.60	0.200	0.160	1.5	1.3	0.250	0.170	--	0.150	--
30...	2.90	2.80	0.220	0.200	2.1	1.1	0.220	0.170	--	0.150	9.6
30...	2.90	2.80	0.220	0.190	1.6	1.2	0.250	0.160	--	0.140	--
JUN											
22...	1.10	1.10	0.040	0.050	0.60	0.70	0.070	0.080	--	0.070	4.3
JUL											
31...	0.500	0.500	0.030	0.020	1.3	0.60	0.120	0.060	--	0.040	9.2
AUG											
23-23	1.50	1.60	0.220	0.110	3.6	1.0	0.440	0.190	--	0.170	--
AUG											
23-23	1.60	1.60	0.100	0.100	2.0	1.0	0.300	0.210	--	0.180	--
23...	1.70	1.70	0.100	0.100	1.5	1.0	0.310	0.220	--	0.180	15
SEP											
06...	1.00	1.00	0.020	0.040	0.70	0.80	0.090	0.080	--	0.060	5.8
27...	1.60	1.60	0.020	0.020	0.50	0.40	0.090	0.070	0.070	0.070	4.1

01639000 MONOCACY RIVER AT BRIDGEPORT, MD--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
OCTOBER			NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	e6	.21	3	.39	2	.34	e25	37	11	12	3	1.0
2	e10	1.6	4	.77	2	.31	e14	16	8	6.9	2	.63
3	e25	10	4	.67	4	.59	e10	5.6	8	6.2	3	.96
4	e15	1.9	2	.31	40	4.8	e8	3.7	10	12	3	.91
5	e10	.70	1	.15	13	1.9	11	9.0	11	11	3	.78
6	e8	.45	1	.15	7	.94	7	5.4	8	5.3	3	.72
7	e7	.30	1	.14	6	.81	5	2.5	7	3.9	3	.64
8	e7	.26	1	.15	6	.71	3	1.1	6	2.9	2	.38
9	e6	.21	5	2.0	e6	.55	3	.92	5	2.2	2	.39
10	e6	.21	11	6.9	e6	.68	4	2.4	38	74	3	.66
11	e6	.19	13	4.0	e5	.57	8	10	34	43	4	.87
12	e5	.16	11	2.8	5	.59	7	4.6	13	10	5	1.1
13	e5	.16	7	1.5	6	.75	5	2.0	6	3.4	15	3.0
14	e7	.23	4	.80	6	.60	3	.90	5	2.3	8	1.5
15	e8	.26	2	.39	14	1.5	2	.53	4	1.6	6	1.0
16	8	.24	8	7.3	e10	.89	2	.58	4	1.7	5	.82
17	e8	.26	10	9.5	e8	.67	3	1.2	4	1.6	11	6.7
18	e10	.54	8	3.3	e7	.55	4	2.1	4	1.2	28	21
19	132	449	6	1.9	e6	.44	4	2.1	3	.87	16	5.4
20	565	2950	3	.87	e6	.40	5	2.3	3	.80	7	3.5
21	47	88	4	1.1	e5	.31	10	10	3	.70	5	3.0
22	22	14	7	1.6	4	.23	12	10	3	.70	6	2.5
23	12	4.5	8	1.7	e4	.22	9	4.5	2	.67	8	2.6
24	8	2.3	32	6.7	e4	.16	5	2.0	52	132	5	1.3
25	7	1.6	11	2.0	e3	.11	4	2.1	60	45	3	.87
26	7	1.4	7	1.4	e3	.12	84	359	45	16	3	.82
27	6	1.1	4	.87	e4	.21	27	38	9	3.0	4	.94
28	6	.92	4	.96	e5	.28	10	8.1	4	1.5	4	.82
29	5	.70	4	1.1	e6	.40	60	557	---	---	3	.58
30	5	.65	3	.58	e7	.53	390	7230	---	---	4	.83
31	4	.49	---	---	e9	1.0	30	50	---	---	e5	1.4
TOTAL	---	3532.54	---	62.00	---	22.16	---	8380.63	---	402.44	---	67.62
APRIL			MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	e6	1.8	40	19	44	28	e16	.60	46	1.5	30	4.0
2	e15	9.3	32	8.6	e40	19	16	.60	e46	1.6	32	3.5
3	126	567	23	4.7	e35	14	13	.49	e42	1.2	44	3.8
4	25	25	29	5.6	e30	9.8	14	.45	e37	.95	38	2.8
5	11	7.9	46	25	e28	7.5	15	.45	e34	.92	29	1.7
6	6	3.0	55	22	25	5.7	17	.55	e39	2.4	16	.86
7	5	3.1	46	12	20	4.2	18	.73	44	6.4	22	1.2
8	8	4.3	12	2.4	30	7.5	15	.61	e48	4.0	e20	1.0
9	6	2.3	e10	1.7	135	125	15	.53	e46	2.7	e20	.97
10	6	2.0	193	1500	70	23	e15	.49	51	3.7	24	1.1
11	5	1.9	90	272	32	7.3	e20	.70	e46	5.7	34	1.6
12	5	1.6	80	55	27	5.0	28	2.9	e52	4.4	19	.87
13	4	1.1	e80	44	23	3.5	40	11	e57	3.5	15	.73
14	e3	.72	e85	64	31	4.2	35	7.8	e66	19	30	1.8
15	e6	2.1	75	31	28	3.4	84	48	e62	9.7	33	1.9
16	6	1.9	65	22	19	2.2	68	33	e54	4.7	16	.82
17	7	1.7	94	59	20	2.1	53	11	e45	2.7	27	1.4
18	6	1.3	85	31	22	2.2	48	6.0	e37	1.6	26	1.3
19	5	.96	74	18	26	3.0	e45	4.0	35	1.3	26	1.2
20	5	.88	72	15	30	4.5	e40	2.8	52	6.7	17	.73
21	5	.89	67	18	20	2.3	e35	2.6	72	23	24	1.0
22	5	.90	67	18	12	1.1	e82	127	124	190	16	.99
23	6	.99	66	14	16	1.3	34	12	186	849	12	1.6
24	6	.89	53	9.4	18	1.3	26	4.8	55	65	10	.86
25	5	.69	16	2.5	19	1.2	20	2.4	67	36	12	.65
26	5	.66	e35	35	23	1.3	15	1.3	62	31	15	.65
27	5	.62	e30	25	20	1.0	15	.97	46	12	13	.46
28	5	.58	90	36	17	.83	16	.82	49	9.1	18	.63
29	28	6.0	211	1460	e17	.78	16	.73	44	6.2	6	.24
30	48	33	50	304	e17	.69	15	.61	e57	31	7	.26
31	---	---	24	26	---	---	24	.97	e40	7.8	---	---
TOTAL	---	685.08	---	4159.9	---	292.90	---	286.90	---	1344.77	---	40.62
TOTAL LOAD FOR YEAR:			19277.56 TONS.									
e Estimated												

POTOMAC RIVER BASIN

71

01639375 TOMS CREEK AT EMMITSBURG, MD

LOCATION.--Lat 39°42'13", long 77°20'41", Frederick County, Hydrologic Unit 02070009, on upstream face of left abutment of old bridge site, 80 ft upstream from new bridge on Hampton Valley Road, 0.5 mi west of Emmitsburg, 1.7 mi downstream from confluence with Friends Creek, and 8.0 mi upstream from mouth.

DRAINAGE AREA.--41.3 mi².

PERIOD OF RECORD.--March 1986 to September 30, 1990 (discontinued).

REVISED RECORDS.--WDR MD-DE-88-1: 1986-87(P).

GAGE.--Water-stage recorder. Elevation of gage is 408 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,910 ft³/s, May 19, 1988, gage height, 8.36 ft; minimum daily discharge, 1.2 ft³/s, Aug. 17, 18, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 29	2300	*1,120	*5.47	No other peak greater than base discharge.			

Minimum discharge, 3.0 ft³/s, Dec. 4, result of freezeup; minimum daily discharge, 3.3 ft³/s, Aug. 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	16	19	e75	155	47	50	40	128	10	4.0	22
2	51	13	19	e55	131	44	114	33	103	7.4	3.6	20
3	22	13	18	e48	119	45	196	30	94	6.1	3.4	16
4	12	12	17	e48	136	41	139	37	79	5.4	3.3	12
5	8.1	11	18	e55	106	39	118	66	67	5.3	3.6	12
6	6.7	11	17	e46	91	36	100	45	59	12	13	12
7	6.4	12	17	43	84	32	106	40	58	6.0	7.6	14
8	5.4	14	16	40	76	32	87	37	88	4.9	4.4	11
9	5.7	30	e16	40	73	33	76	34	86	4.8	4.0	8.9
10	5.5	26	e16	46	115	35	74	180	56	4.8	6.8	11
11	5.9	19	16	42	86	33	77	125	46	21	6.0	8.5
12	5.2	16	e15	38	77	32	66	84	41	22	7.1	7.4
13	5.6	14	e14	31	72	31	60	91	37	67	21	11
14	5.0	14	e13	29	69	30	56	79	34	47	39	9.2
15	4.7	15	e13	29	64	30	63	65	32	95	17	9.7
16	4.4	94	12	32	63	31	54	74	30	64	13	7.9
17	6.2	52	12	33	58	42	51	121	26	33	11	12
18	9.7	35	e11	34	50	41	47	71	52	22	9.8	6.9
19	101	28	e11	31	49	32	43	60	64	16	13	6.6
20	163	27	e10	37	43	46	41	54	37	13	64	11
21	55	26	e10	51	41	44	41	69	29	25	33	7.3
22	33	21	e10	47	42	46	39	56	24	45	100	25
23	25	22	9.6	42	54	42	37	48	23	23	175	17
24	22	21	e9.5	40	98	42	36	43	20	14	77	8.6
25	19	19	e9.5	55	55	43	35	40	17	13	51	7.3
26	18	23	e9.6	211	45	42	34	168	15	11	40	6.6
27	16	23	e10	125	47	39	31	99	13	7.8	34	7.2
28	14	29	e11	101	46	37	30	78	12	6.8	29	6.3
29	14	25	e13	303	---	37	41	337	9.8	6.5	31	5.3
30	13	21	e21	392	---	42	51	256	9.0	5.8	38	5.7
31	13	---	e40	201	---	48	---	166	---	5.2	26	---
TOTAL	680.9	702	453.2	2400	2145	1194	1993	2726	1388.8	629.8	888.6	325.4
MEAN	22.0	23.4	14.6	77.4	76.6	38.5	66.4	87.9	46.3	20.3	28.7	10.8
MAX	163	94	40	392	155	48	196	337	128	95	175	25
MIN	4.4	11	9.5	29	41	30	30	30	9.0	4.8	3.3	5.3
CFSM	.53	.57	.35	1.87	1.85	.93	1.61	2.13	1.12	.49	.69	.26
IN.	.61	.63	.41	2.16	1.93	1.08	1.80	2.46	1.25	.57	.80	.29

CAL YR 1989 TOTAL 18720.9 MEAN 51.3 MAX 843 MIN 3.2 CFSM 1.24 IN. 16.86
WTR YR 1990 TOTAL 15526.7 MEAN 42.5 MAX 392 MIN 3.3 CFSM 1.03 IN. 13.99

e Estimated

POTOMAC RIVER BASIN

01639500 BIG PIPE CREEK AT BRUCEVILLE, MD

LOCATION.--Lat 39°36'45", long 77°14'10", Carroll County, Hydrologic Unit 02070009, on left bank 300 ft downstream from bridge on State Highway 194, 800 ft downstream from Bruceville, 3.5 mi upstream from Detour, and confluence with Little Pipe Creek.

DRAINAGE AREA.--102 mi².

PERIOD OF RECORD.--October 1947 to current year. Prior to December 1947, monthly discharge only, published in WSP 1302.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 336.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for Oct. 1-3, Feb. 26 to March 21 (doubtful or missing record) and Dec. 3-5, 9-11, 13-29, 31, Jan. 1-11 (ice effect), which are fair. Occasional diversion for irrigation upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 110 ft³/s, 14.65 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,000 ft³/s, Sept. 26, 1975, gage height, 18.98 ft, from rating curve extended above 3,900 ft³/s on the basis of contracted-opening measurement at gage height 17.86 ft; minimum daily discharge, 1.0 ft³/s, Sept. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 29	2330	*2,410	*6.73	May 29	1500	1,710	5.33
May 10	2100	1,860	5.62				

Minimum discharge, 24 ft³/s, Sept. 13.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e37	61	54	e170	219	e94	96	130	182	52	39	45
2	e50	56	52	e240	188	e98	142	103	156	50	35	43
3	e56	55	e52	e140	187	e96	490	92	142	47	33	41
4	46	54	e49	e110	253	e93	200	97	132	46	33	39
5	39	52	e49	e125	166	e88	170	205	119	47	37	38
6	36	53	50	e125	141	e86	146	125	110	59	65	38
7	35	52	50	e100	131	e84	223	105	107	49	99	38
8	33	56	47	e94	120	e81	173	94	186	46	52	37
9	33	133	e47	e98	117	e90	137	87	311	45	46	35
10	33	120	e48	e140	232	e100	129	686	130	47	153	35
11	34	75	e48	e240	173	e90	154	627	108	61	147	35
12	33	66	48	200	144	e84	125	246	97	58	67	34
13	33	58	e47	138	124	e80	110	359	91	93	55	35
14	32	55	e45	113	118	e78	104	382	88	72	50	41
15	32	55	e43	95	112	e76	197	177	85	106	46	39
16	31	258	e41	92	112	e100	138	159	86	102	43	37
17	37	161	e39	86	105	e150	118	280	81	63	42	48
18	77	94	e39	91	92	e110	112	150	95	54	41	38
19	317	79	e38	83	93	e120	100	126	114	50	40	36
20	697	74	e36	103	86	e170	95	118	88	47	61	43
21	229	68	e36	137	81	e130	97	124	79	56	75	38
22	112	60	e36	104	85	120	95	115	74	125	90	50
23	87	64	e35	88	124	105	89	105	73	131	208	71
24	76	61	e35	83	323	97	84	98	68	70	89	41
25	69	60	e35	133	140	102	81	93	63	57	71	37
26	65	65	e36	540	e100	93	79	268	62	50	61	36
27	61	63	e36	240	e94	85	76	162	59	45	55	36
28	58	72	e38	170	e94	80	73	121	57	43	50	35
29	55	64	e42	548	---	78	161	889	54	43	46	34
30	53	56	69	1020	---	88	202	535	52	42	75	33
31	54	---	e120	297	---	101	---	233	---	40	50	---
TOTAL	2640	2300	1440	5943	3954	3047	4196	7091	3149	1896	2054	1186
MEAN	85.2	76.7	46.5	192	141	98.3	140	229	105	61.2	66.3	39.5
MAX	697	258	120	1020	323	170	490	889	311	131	208	71
MIN	31	52	35	83	81	76	73	87	52	40	33	33
CFSM	.83	.75	.46	1.88	1.38	.96	1.37	2.24	1.03	.60	.65	.39
IN.	.96	.84	.53	2.17	1.44	1.11	1.53	2.59	1.15	.69	.75	.43

CAL YR 1989 TOTAL 44273 MEAN 121 MAX 2230 MIN 21 CFSM 1.19 IN. 16.15
WTR YR 1990 TOTAL 38896 MEAN 107 MAX 1020 MIN 31 CFSM 1.04 IN. 14.19

e Estimated

POTOMAC RIVER BASIN

73

01640965 HUNTING CREEK NEAR FOXVILLE, MD

LOCATION.--Lat 39°37'10", long 77°28'00", Frederick County, Hydrologic Unit 02070009, on left downstream wingwall of culvert on park road in Cunningham Falls State Park, 0.25 mi upstream from Hunting Creek Lake, and 2.9 mi west of Thurmont.

DRAINAGE AREA.--2.14 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,030 ft above National Geodetic Vertical datum of 1929, from topographic map.

REMARKS.--Water-discharge records good except those for Dec. 20 and 23-28 (ice effect), June 17-20 (missing record), and discharges below 1.0 ft³/s and above 40 ft³/s, which are fair.

AVERAGE DISCHARGE.--9 years, 3.15 ft³/s, 19.99 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 814 ft³/s, May 19, 1988, gage height, 4.71 ft, from rating curve extended above 40 ft³/s on basis of computation of peak flow through culvert; minimum daily discharge, 0.03 ft³/s, Aug. 21, 25, Sept. 2, 3, 4, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 40 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 10	1545	*34	*2.70	No peak greater than base discharge.			

Minimum daily discharge, 0.16 ft³/s, Sept. 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.37	1.8	1.4	5.0	7.2	2.6	4.0	2.3	5.8	.53	.31	.36
2	3.7	1.6	1.2	3.0	6.4	2.6	7.2	2.0	5.0	.43	.29	.34
3	.97	1.6	1.0	2.7	6.6	2.5	10	1.8	4.8	.38	.28	.30
4	.43	1.7	.96	3.5	7.6	2.3	7.4	2.4	4.0	.35	.26	.29
5	.33	1.7	.96	4.8	5.9	2.2	6.4	5.4	3.5	1.2	.31	.28
6	.29	1.7	.95	3.9	5.3	2.1	6.0	3.7	2.9	.75	1.3	.27
7	.26	1.7	.91	3.4	5.0	1.8	6.6	3.2	2.8	.44	.56	.25
8	.25	2.0	.87	3.1	4.5	1.7	5.9	2.8	2.7	.40	.36	.22
9	.25	2.9	.85	3.0	4.4	1.9	5.3	2.5	2.5	.38	.35	.24
10	.25	2.3	.84	3.7	7.7	2.0	5.1	14	2.1	.34	.41	.22
11	.27	1.9	.87	3.2	5.7	1.8	5.9	10	1.5	.57	.41	.19
12	.26	1.8	.87	2.8	5.1	1.7	4.8	7.2	1.3	1.3	.37	.22
13	.26	1.7	.87	2.4	4.7	1.7	4.3	8.1	1.2	2.9	.38	.26
14	.25	1.7	.83	2.2	4.4	1.6	4.1	7.1	1.2	4.5	.42	.24
15	.25	1.7	.80	2.2	4.1	1.5	5.1	5.8	.92	5.4	.32	.21
16	.25	5.3	.80	2.3	3.9	1.5	4.2	6.0	1.7	3.8	.30	.28
17	1.1	3.5	.75	2.3	3.5	3.2	4.1	6.2	e3.3	1.7	.28	.20
18	1.6	2.7	.72	2.3	3.2	2.9	3.7	4.8	e4.5	1.1	.26	.18
19	7.8	2.3	.68	2.1	3.1	2.4	3.4	4.1	e1.8	.81	.26	.31
20	9.9	2.1	e.67	2.5	2.7	3.5	3.3	3.7	e1.2	.69	3.4	.23
21	3.8	2.2	.67	3.6	2.5	4.2	3.3	4.1	.97	.79	.78	.44
22	2.5	2.1	.50	3.1	2.5	4.9	3.0	3.3	.76	.81	5.8	.80
23	2.1	2.1	e.51	2.6	3.3	4.6	2.8	2.8	.75	.76	9.3	.28
24	1.9	1.9	e.52	2.5	4.9	4.2	2.5	2.4	.65	.55	4.3	.22
25	1.8	1.7	e.52	3.9	3.1	4.4	2.4	2.1	.67	.49	2.6	.18
26	1.8	2.1	e.54	10	2.6	4.1	2.3	8.9	.56	.43	1.6	.17
27	1.7	2.0	e.56	6.5	2.7	3.6	2.1	5.9	.51	.38	1.0	.17
28	1.7	2.1	e.58	5.9	2.7	3.3	2.0	4.8	.47	.37	.76	.17
29	1.7	1.7	.62	12	---	3.1	2.4	13	.45	.36	.59	.16
30	1.7	1.5	.64	15	---	3.9	3.0	11	.48	.37	.48	.17
31	1.7	---	3.2	8.9	---	4.5	---	7.1	---	.36	.41	---
TOTAL	51.44	63.1	26.66	134.4	125.3	88.3	132.6	168.5	60.99	33.64	38.45	7.85
MEAN	1.66	2.10	.86	4.34	4.47	2.85	4.42	5.44	2.03	1.09	1.24	.26
MAX	9.9	5.3	3.2	15	7.7	4.9	10	14	5.8	5.4	9.3	.80
MIN	.25	1.5	.50	2.1	2.5	1.5	2.0	1.8	.45	.34	.26	.16
CFSM	.78	.98	.40	2.03	2.09	1.33	2.07	2.54	.95	.51	.58	.12
IN.	.89	1.10	.46	2.34	2.18	1.53	2.31	2.93	1.06	.58	.67	.14

CAL YR 1989 TOTAL 1235.98 MEAN 3.39 MAX 48 MIN .15 CFSM 1.58 IN. 21.49
WTR YR 1990 TOTAL 931.23 MEAN 2.55 MAX 15 MIN .16 CFSM 1.19 IN. 16.19

e Estimated

POTOMAC RIVER BASIN

01640965 HUNTING CREEK NEAR FOXVILLE, MD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1982 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1987 to current year.

WATER TEMPERATURE: October 1987 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1987.

REMARKS.--Periods of missing record are due to instrument malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (water year 1990): Maximum, 121 microsiemens, Dec. 31, 1989; minimum, 64 microsiemens, May 10, 11, 30, 31, June 16 and July 5, 1990.

WATER TEMPERATURE (water years 1989-90): Maximum daily, 21.5°C, July 25, 1989; minimum daily, 0.0°C, on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 121 microsiemens, Dec. 31; minimum, 64 microsiemens, May 10, 11, 30, 31, June 16 and July 5.

WATER TEMPERATURE: Maximum, 21.0°C, July 9; minimum, 0.0°C, Dec. 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	Dis-charge, instantaneous (ft ³ /s)	Specific conductance (US/CM)	Ph (stand-ard units)	Temperature, water (deg C)	Calcium dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)
OCT							
18...	1040	0.12	76	6.58	12.0	6.3	2.6
NOV							
15...	1045	0.39	92	6.91	8.0	7.8	3.7
DEC							
13...	1030	0.31	84	6.54	1.0	6.9	3.4
JAN							
17...	1035	4.3	81	7.16	2.0	6.1	2.9
FEB							
14...	1055	2.8	72	7.22	3.0	5.4	2.7
MAR							
16...	1115	6.2	72	7.22	5.0	5.5	2.7
APR							
18...	1300	2.3	79	7.36	13.0	5.9	2.8
MAY							
16...	1200	39	62	7.14	10.0	4.8	2.2
JUN							
13...	1235	2.3	83	7.38	16.0	7.8	3.3
JUL							
18...	1130	1.9	83	7.33	17.0	7.3	3.2
AUG							
15...	1140	0.33	86	7.26	19.0	8.1	3.1
SEP							
12...	1015	16	82	7.06	17.0	7.7	2.7

DATE	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)	Sulfate dissolved (mg/L as SO ₄)	Chloride, dissolved (mg/L as Cl)	Silica, dissolved (mg/L as SiO ₂)	Solids, sum of constituents, dissolved (mg/L)
OCT						
18...	3.1	0.56	3.1	5.3	9.4	45
NOV						
15...	2.8	0.39	8.2	5.6	9.1	53
DEC						
13...	2.5	0.27	8.6	5.6	8.5	49
JAN						
17...	3.2	0.20	12	7.1	8.7	48
FEB						
14...	2.6	1.6	9.5	5.4	8.4	43
MAR						
16...	3.0	0.19	11	6.8	8.7	44
APR						
18...	3.1	0.20	8.9	6.0	9.4	45
MAY						
16...	2.0	0.30	11	3.0	7.9	37
JUN						
13...	3.3	0.27	8.2	5.6	11	52
JUL						
18...	3.3	0.22	7.6	5.7	11	52
AUG						
15...	3.6	0.30	4.8	6.4	11	53
SEP						
12...	3.7	0.40	3.0	6.6	11	50

POTOMAC RIVER BASIN

75

01640965 HUNTING CREEK NEAR FOXVILLE, MD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	Dis-charge, instan- taneous (ft ³ /s)	Spe- cific con- duct- ance (US/CM)	Ph (stand- ard units)	Temper- ature, water (deg C)	Calcium dis- solved (mg/L as Ca)	Magne- sium, dis- solved (mg/L as Mg)
OCT							
18...	1000	1.6	102	7.13	14.0	8.8	3.9
NOV							
14...	1040	1.7	90	7.50	10.0	7.8	3.5
DEC							
18...	1200	0.68	83	7.17	0.0	6.5	3.1
JAN							
16...	1000	2.2	80	7.19	2.0	6.0	3.0
FEB							
13...	1215	4.7	77	7.21	5.0	5.6	2.7
MAR							
13...	1230	1.7	81	7.29	13.0	5.9	2.8
APR							
17...	1110	4.0	78	7.30	10.0	5.8	2.8
MAY							
15...	1040	5.8	77	7.25	12.0	5.9	2.9
JUN							
12...	1110	1.3	81	7.33	14.0	6.4	2.9
JUL							
17...	0915	1.8	85	7.58	17.0	7.6	3.4
AUG							
14...	0940	0.43	92	7.19	18.0	8.5	3.7
SEP							
18...	0945	0.17	85	7.08	11.0	7.6	3.2

DATE	Sodium, dis- solved (mg/L as Na)	Potas- sium, dis- solved (mg/L as K)	Sulfate dis- solved (mg/L as SO ₄)	Chlo- ride, dis- solved (mg/L as Cl)	Silica, dis- solved (mg/L as SiO ₂)	Solids, sum of consti- tuents, dis- solved (mg/L)
OCT						
18...	3.2	0.89	6.5	5.4	11	59
NOV						
14...	2.5	0.28	8.1	5.1	10	51
DEC						
18...	2.4	0.19	8.1	5.5	9.4	47
JAN						
16...	2.5	0.16	9.0	6.0	9.1	44
FEB						
13...	2.8	0.18	9.4	5.8	9.4	43
MAR						
13...	2.9	0.27	8.3	7.7	10	47
APR						
17...	3.0	0.20	9.2	6.4	10	46
MAY						
15...	2.7	0.20	9.4	4.6	11	46
JUN						
12...	3.4	0.21	7.5	6.8	11	50
JUL						
17...	2.9	0.25	8.7	4.7	12	54
AUG						
14...	3.1	0.32	6.1	5.5	12	58
SEP						
18...	2.9	0.30	5.4	5.5	11	51

POTOMAC RIVER BASIN

01640965 HUNTING CREEK NEAR FOXVILLE, MD--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	89	86	88	95	85	88	88	79	82	104	91	96
2	95	86	91	89	84	86	93	81	86	91	85	88
3	97	92	94	89	84	86	96	87	90	88	84	86
4	97	91	93	89	84	86	100	87	92	94	83	87
5	95	90	92	90	85	87	98	84	88	95	90	92
6	95	90	91	90	85	87	91	83	86	91	89	90
7	93	88	90	90	86	88	94	83	85	92	89	90
8	92	86	88	92	86	88	92	81	85	92	88	90
9	89	85	86	93	88	91	92	80	84	90	87	88
10	88	84	86	90	86	88	97	79	83	90	87	89
11	89	85	87	91	86	88	89	76	81	90	84	86
12	88	85	86	90	86	88	88	75	78	85	81	83
13	90	85	87	91	85	88	88	74	78	82	78	80
14	91	86	88	91	85	87	92	75	81	79	74	76
15	90	87	88	91	85	88	91	75	80	75	72	73
16	93	88	90	94	82	85	84	74	78	80	70	75
17	103	91	96	86	82	84	84	74	78	76	72	73
18	106	99	102	85	81	83	88	73	76	82	74	75
19	99	88	90	86	80	82	88	74	77	82	75	76
20	90	80	84	83	80	81	86	74	77	87	76	81
21	89	83	86	85	80	82	77	74	75	96	82	88
22	90	86	88	83	79	81	79	77	78	100	84	88
23	91	87	88	82	78	79	82	78	81	98	82	85
24	96	83	88	82	78	80	81	79	80	87	83	85
25	90	80	83	82	78	80	82	79	81	96	85	89
26	84	80	82	83	79	80	82	78	80	104	94	100
27	86	81	83	83	78	80	94	79	85	104	96	98
28	86	81	84	82	79	80	87	82	84	99	96	97
29	86	83	85	91	78	80	84	80	82	110	79	97
30	95	85	86	88	79	81	82	80	81	81	75	78
31	95	85	87	---	---	---	121	79	91	81	78	80
MONTH	106	80	88	95	78	84	121	73	82	110	70	86
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	83	81	82	77	75	76	80	77	79	89	84	86
2	83	82	82	85	76	78	81	77	79	91	86	88
3	83	80	82	86	76	78	80	77	79	91	83	86
4	83	80	82	78	77	78	79	77	78	86	82	84
5	83	81	82	79	78	78	77	76	77	83	74	77
6	82	80	81	86	77	79	78	76	77	78	72	75
7	83	80	81	87	79	81	77	76	77	81	74	77
8	82	80	81	88	78	82	76	75	75	85	80	82
9	87	80	81	83	77	79	77	74	75	87	84	86
10	85	78	80	81	77	79	77	75	76	87	64	73
11	85	78	80	81	79	80	77	75	76	70	64	66
12	79	78	78	83	78	81	78	76	77	75	69	72
13	78	77	78	84	80	82	78	75	77	77	74	76
14	80	76	78	86	81	84	88	76	78	78	76	77
15	78	76	77	91	86	88	80	76	78	79	75	77
16	78	75	77	92	88	91	82	77	79	79	73	77
17	78	76	77	93	87	90	79	77	78	82	74	79
18	78	70	77	92	87	89	77	75	77	82	79	81
19	78	75	76	91	88	90	79	74	77	85	81	84
20	77	75	76	88	82	85	79	75	77	86	81	83
21	77	76	77	84	80	83	79	75	77	89	86	87
22	78	76	77	82	76	78	82	76	78	89	87	88
23	83	72	76	76	74	75	84	78	81	91	88	89
24	80	74	75	76	73	75	84	78	81	90	88	89
25	79	76	78	76	74	75	85	79	82	---	---	---
26	83	76	79	76	74	75	89	81	84	78	71	73
27	78	76	77	88	71	75	89	83	86	73	72	73
28	77	74	76	77	73	74	91	84	87	86	82	83
29	---	---	---	80	75	76	89	85	87	87	66	76
30	---	---	---	79	75	76	86	84	85	67	64	65
31	---	---	---	80	77	78	---	---	---	70	64	67
MONTH	87	70	79	93	71	80	91	74	79	---	---	---

POTOMAC RIVER BASIN

77

01640965 HUNTING CREEK NEAR FOXVILLE, MD--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	78	69	73	88	86	87	88	86	87	100	80	89
2	85	77	80	87	85	86	86	84	86	104	80	89
3	89	84	86	86	84	85	86	84	85	119	92	96
4	93	88	90	86	84	85	85	84	84	114	87	90
5	94	88	90	97	64	86	86	82	85	114	87	90
6	90	84	87	96	93	95	90	72	87	105	88	90
7	94	88	91	94	90	92	95	89	90	103	86	90
8	93	87	90	91	89	90	90	88	89	104	85	88
9	98	92	94	92	90	91	89	87	88	98	84	86
10	100	97	98	93	90	91	91	88	89	88	86	87
11	98	84	89	92	86	90	91	84	90	87	82	86
12	85	80	82	93	83	90	91	89	90	101	85	87
13	87	81	83	89	83	85	90	78	89	101	86	89
14	84	82	83	86	76	83	92	90	91	89	88	88
15	86	83	85	86	78	83	92	90	91	103	86	89
16	86	64	84	85	80	83	91	89	90	89	84	86
17	87	81	84	86	84	86	90	87	89	104	88	92
18	86	84	84	89	86	87	90	86	88	102	87	90
19	87	84	85	90	86	88	99	87	91	110	88	96
20	87	82	84	93	87	90	99	77	87	108	89	96
21	91	84	87	91	87	89	101	92	93	99	86	89
22	93	88	90	89	87	89	100	77	88	95	82	89
23	94	86	89	91	86	87	88	75	80	105	88	91
24	98	88	92	93	88	91	91	80	83	102	84	88
25	90	79	83	93	89	91	93	80	84	98	85	86
26	88	83	85	91	88	89	94	84	86	101	84	88
27	85	84	84	91	87	90	98	85	87	86	84	85
28	85	81	85	92	87	90	95	86	88	98	84	86
29	86	84	85	91	88	90	97	87	90	88	84	85
30	87	83	85	92	87	89	89	87	88	87	85	86
31	---	---	---	93	87	89	97	85	87	---	---	---
MONTH	100	64	86	97	64	88	101	72	88	119	80	89

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.4	12.0	12.5	12.4	9.5	10.9	3.8	2.0	2.7	.4	.1	.2
2	14.9	13.4	14.3	9.8	8.3	9.2	3.5	2.0	2.6	.6	.2	.3
3	15.1	12.8	14.5	9.5	7.2	8.8	2.6	.2	1.5	1.1	.3	.6
4	12.8	10.8	11.5	7.8	5.8	6.8	.4	.0	.2	1.1	.5	.8
5	11.6	10.0	10.8	8.5	5.7	7.1	1.3	.3	.8	1.1	.6	.9
6	13.1	10.8	12.0	10.1	7.6	8.7	3.0	1.2	2.1	1.9	1.0	1.4
7	12.8	10.6	11.9	10.1	7.8	9.0	3.1	1.4	2.1	1.9	.7	1.3
8	10.6	9.1	9.8	9.9	8.7	9.4	1.4	.4	.8	1.8	1.2	1.5
9	9.6	8.5	9.1	11.3	8.7	10.2	.8	.1	.4	2.5	1.2	1.8
10	9.6	7.8	8.8	8.7	7.0	8.0	.9	.1	.5	3.0	2.2	2.5
11	10.6	8.9	9.7	8.4	5.9	7.2	1.5	.4	1.0	3.3	2.1	2.6
12	11.6	9.2	10.3	8.9	7.1	8.0	1.7	1.0	1.3	2.3	1.0	1.9
13	13.1	11.1	12.0	8.8	6.1	7.5	1.8	.3	1.1	1.0	.2	.5
14	13.5	11.9	12.6	11.2	8.2	9.7	.8	.1	.4	1.3	.2	.7
15	14.6	12.9	13.6	12.6	10.4	11.5	.5	.1	.3	2.4	.5	1.6
16	15.1	13.4	14.2	12.6	7.5	10.8	.3	.1	.1	4.1	1.7	2.8
17	15.5	14.6	15.0	7.5	5.2	6.4	.2	.1	.1	5.0	2.8	3.9
18	14.9	11.6	13.8	6.1	4.1	5.1	.2	.1	.2	6.5	4.8	5.5
19	11.5	10.8	11.2	4.4	3.1	3.9	.2	.1	.2	4.9	3.1	3.7
20	11.6	9.5	11.0	7.1	3.8	5.5	.3	.1	.2	3.2	2.7	3.0
21	9.5	8.6	9.2	5.8	2.4	4.0	.3	.1	.2	4.8	3.2	3.9
22	10.4	8.7	9.4	3.1	1.2	2.5	.2	.1	.2	4.7	3.2	4.0
23	10.5	8.0	9.3	2.4	1.0	1.6	.3	.1	.2	4.5	3.0	3.8
24	10.9	8.3	9.5	2.2	.5	1.3	.2	.1	.1	5.5	4.1	4.7
25	11.6	8.9	10.2	3.3	.8	2.0	.2	.1	.1	6.3	5.0	5.7
26	12.4	9.6	10.9	5.5	3.0	4.1	.2	.1	.2	6.1	3.2	4.3
27	12.6	9.9	11.2	4.9	3.4	4.3	.2	.1	.2	4.5	2.5	3.5
28	13.3	10.3	11.6	7.2	4.9	5.9	.3	.2	.2	5.2	3.3	4.1
29	13.4	10.9	12.0	5.2	2.1	3.6	.4	.2	.3	4.3	3.7	3.9
30	13.4	10.7	12.0	3.0	1.7	2.2	.5	.3	.5	4.9	3.5	4.1
31	13.4	12.2	12.7	---	---	---	.5	.1	.3	5.2	3.1	4.0
MONTH	15.5	7.8	11.5	12.6	.5	6.5	3.8	.0	.7	6.5	.1	2.7

POTOMAC RIVER BASIN

01640965 HUNTING CREEK NEAR FOXVILLE, MD--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.7	3.2	4.5	4.2	1.1	2.5	7.6	6.3	6.9	15.7	11.8	13.5
2	6.5	5.2	5.9	4.5	1.7	3.2	10.8	6.9	8.4	13.7	12.0	12.7
3	6.5	5.5	6.0	6.3	3.2	4.5	9.5	6.4	7.6	12.1	11.3	11.7
4	6.0	4.4	5.5	4.3	1.7	2.9	6.4	5.7	6.0	11.6	10.9	11.2
5	4.8	3.1	3.9	5.1	1.9	3.2	9.9	5.7	7.4	13.5	10.8	12.0
6	5.8	3.2	4.3	3.7	1.7	3.0	7.2	5.2	6.4	12.7	10.4	11.5
7	6.3	4.3	5.2	3.4	.2	1.5	6.6	4.8	5.7	13.3	10.1	11.6
8	6.6	4.0	5.3	3.9	.2	1.8	8.6	3.9	5.9	14.6	11.2	12.9
9	7.2	4.7	6.0	6.1	2.1	4.1	9.8	4.5	7.0	14.4	12.3	13.5
10	7.6	4.5	6.4	8.7	4.2	6.3	9.2	6.8	8.0	13.8	12.0	13.3
11	5.4	3.6	4.6	8.7	5.9	7.2	9.3	6.3	8.1	12.9	11.0	11.8
12	5.3	3.9	4.6	12.5	7.3	9.5	8.1	5.4	6.5	11.2	9.8	10.6
13	6.1	3.4	4.8	14.1	9.3	11.3	9.3	4.2	6.4	12.3	10.9	11.6
14	7.0	5.5	6.3	14.0	9.8	11.7	10.7	5.4	7.8	13.6	11.0	12.2
15	5.7	5.1	5.5	14.1	10.0	11.9	11.5	8.0	9.4	13.9	11.6	12.7
16	8.8	5.6	7.5	13.9	11.5	12.6	12.3	7.4	9.6	14.5	12.5	13.1
17	7.8	3.7	5.6	13.1	10.7	12.3	10.3	7.0	8.9	14.7	13.1	13.8
18	4.4	2.2	3.5	11.5	8.4	9.9	10.2	5.5	7.6	13.7	12.4	13.0
19	6.1	3.6	4.7	9.3	7.1	8.3	11.3	5.7	8.3	13.7	11.6	12.7
20	4.1	2.0	3.0	7.1	4.0	5.3	10.4	8.1	9.2	13.8	12.8	13.3
21	4.7	1.4	3.0	8.1	3.5	5.6	11.8	9.6	10.5	13.4	12.4	13.2
22	6.9	2.9	4.8	9.9	4.9	7.3	14.5	8.5	11.2	12.4	11.4	11.9
23	9.2	6.8	7.8	10.9	6.9	8.4	15.7	9.6	12.3	12.1	10.2	11.3
24	6.8	3.2	5.3	6.9	4.6	5.5	16.4	10.5	13.3	12.6	10.8	11.8
25	3.2	.6	1.5	7.4	4.8	5.9	16.6	11.8	14.2	12.9	10.9	12.0
26	2.0	.6	1.1	7.6	4.3	5.8	19.2	13.5	16.0	12.7	12.2	12.5
27	2.3	.8	1.6	7.4	3.7	5.3	18.0	14.0	16.0	12.4	11.7	12.1
28	4.3	2.0	2.9	8.3	3.2	5.7	18.4	14.2	16.1	12.3	11.2	11.8
29	---	---	---	6.3	5.5	5.9	15.4	13.2	14.3	11.8	10.9	11.3
30	---	---	---	6.0	5.4	5.7	13.8	12.4	13.0	12.3	10.8	11.4
31	---	---	---	6.5	5.4	5.9	---	---	---	12.5	10.0	11.3
MONTH	9.2	.6	4.7	14.1	.2	6.5	19.2	3.9	9.6	15.7	9.8	12.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	13.7	10.7	12.2	18.9	17.2	17.9	18.4	16.0	17.1	18.4	16.2	17.3
2	14.5	12.6	13.5	18.1	16.0	17.0	18.0	15.2	16.5	19.4	17.2	18.2
3	14.9	13.4	14.1	18.3	15.2	16.7	17.9	15.3	16.5	19.1	17.3	18.2
4	14.3	12.2	13.5	19.8	16.2	17.8	18.0	15.8	16.9	17.9	15.8	17.1
5	13.0	11.1	12.1	20.9	18.5	19.4	18.2	16.9	17.4	17.8	15.9	16.8
6	14.6	11.7	13.2	19.9	18.2	19.0	18.9	17.9	18.3	19.0	17.2	18.0
7	15.3	13.9	14.5	18.4	16.9	17.5	19.2	17.4	18.4	19.1	17.9	18.4
8	15.4	13.5	14.4	18.4	16.8	17.7	18.5	16.5	17.5	18.2	16.8	17.5
9	16.1	14.7	15.3	21.0	18.0	19.2	17.2	16.4	16.7	16.8	16.1	16.4
10	15.9	14.8	15.3	20.9	18.7	19.6	17.4	16.7	17.0	18.2	16.5	17.2
11	15.3	14.1	14.6	19.0	17.1	18.2	18.3	16.7	17.5	17.9	15.9	16.9
12	14.8	12.8	13.9	17.7	16.8	17.2	18.8	16.9	17.7	17.9	16.7	17.2
13	15.1	13.1	14.0	17.0	15.4	15.9	19.7	17.0	18.2	17.3	16.9	17.2
14	16.4	13.7	15.0	16.7	15.4	15.9	---	---	---	17.4	16.0	16.7
15	15.5	14.8	15.2	18.3	16.7	17.3	---	---	---	18.2	15.6	16.9
16	16.0	14.2	15.1	18.1	16.5	17.3	18.2	16.3	17.1	15.5	14.1	14.6
17	17.1	14.8	15.8	17.2	15.4	16.4	18.7	16.1	17.2	14.4	11.8	13.1
18	17.5	15.2	16.3	17.2	15.1	16.1	18.6	16.0	17.0	12.4	10.4	11.5
19	17.0	15.8	16.4	17.7	15.9	16.8	16.9	15.5	16.1	12.7	11.3	11.9
20	16.6	14.8	15.7	18.6	16.5	17.4	17.1	16.0	16.6	13.9	12.6	13.2
21	17.4	15.3	16.3	18.8	17.1	17.9	17.0	15.9	16.5	13.8	11.9	12.9
22	17.3	15.3	16.3	18.8	17.4	18.0	17.3	16.6	17.0	14.7	13.2	13.9
23	17.4	16.0	16.5	19.8	18.1	18.8	17.2	16.9	17.0	13.5	11.4	12.7
24	16.5	15.1	15.8	19.1	16.4	18.0	17.7	16.9	17.3	12.3	10.8	11.4
25	15.9	14.3	15.1	---	---	---	18.3	17.0	17.6	12.8	10.8	11.7
26	17.0	14.2	15.5	---	---	---	18.8	17.5	18.2	12.7	11.5	12.1
27	17.9	15.5	16.5	19.6	16.3	17.7	19.7	17.5	18.7	13.6	11.6	12.6
28	18.3	15.7	16.8	19.3	17.5	18.2	20.0	18.5	19.1	14.3	12.1	13.1
29	18.8	16.2	17.4	18.8	17.4	18.0	19.9	18.4	19.1	15.0	13.3	14.1
30	19.5	17.1	18.1	18.6	17.5	18.0	18.6	16.8	17.7	14.6	13.6	14.2
31	---	---	---	19.7	17.5	18.4	18.1	16.1	17.1	---	---	---
MONTH	19.5	10.7	15.1	---	---	---	---	---	---	19.4	10.4	15.1

01640970 HUNTING CREEK TRIBUTARY NEAR FOXVILLE, MD

LOCATION.--Lat 39°37'42", long 77°27'44", Frederick County, Hydrologic Unit 02070009, on left downstream wingwall of culvert of park road in Cunningham Falls State Park, 600 ft upstream from Hunting Creek Lake, and 2.7 mi west of Thurmont.

DRAINAGE AREA.--4.01 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR MD-DE-88-1: 1984(P), 1987(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,030 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Water-discharge records good except those below 1.0 ft³/s and those for estimated daily discharges (ice effect), which are fair.

AVERAGE DISCHARGE.--9 years, 6.28 ft³/s, 21.01 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,905 ft³/s, May 19, 1988, gage height, 3.78 ft, from rating curve extended above 80 ft³/s on basis of computation of peak flow through culvert; minimum discharge, 0.12 ft³/s, Sept. 10, 11, 12, 20, 1983, Aug. 17, 18, Sept. 16, 17, 24, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 90 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 29	2215	108	2.13	May 10	1645	*110	*2.14

Minimum daily discharge, 0.76 ft³/s, Oct. 8, 14, 15, 16.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.98	2.0	2.2	e6.0	12	4.5	6.0	4.2	9.9	2.3	1.4	1.8
2	9.3	1.5	2.1	e4.0	9.9	4.6	15	3.5	8.6	1.5	1.3	1.7
3	2.2	1.4	e1.9	e3.6	11	4.7	17	3.3	8.7	1.3	1.2	1.6
4	1.1	1.3	e1.7	5.2	14	4.2	11	5.6	7.4	1.1	1.1	1.5
5	.87	1.3	1.8	6.3	9.1	4.0	9.0	11	6.5	3.1	1.3	1.5
6	.81	1.3	e1.7	4.5	8.0	3.9	8.5	5.8	5.9	2.2	3.7	1.5
7	.79	1.3	e1.7	3.8	7.3	3.5	11	4.8	6.1	1.2	2.1	1.5
8	.76	2.2	1.6	3.5	6.8	3.8	8.6	4.3	6.2	1.1	1.4	1.3
9	.80	4.7	e1.7	3.5	6.9	3.8	7.3	3.9	5.6	1.1	1.5	1.3
10	.81	2.9	e1.8	4.7	16	4.0	7.2	39	4.9	.92	1.9	1.4
11	.87	2.1	e1.7	4.0	9.1	3.7	10	18	4.3	2.4	1.8	1.2
12	.81	1.8	1.8	3.5	7.9	3.5	7.1	11	3.9	5.1	1.4	1.2
13	.81	1.7	1.8	2.8	7.1	3.2	6.4	13	3.6	7.5	2.4	1.7
14	.76	1.6	e1.6	2.5	6.6	3.1	6.1	11	3.4	12	2.5	1.4
15	.76	1.7	e1.5	2.9	6.3	2.9	8.6	8.4	3.3	12	1.3	1.3
16	.76	10	e1.5	3.5	6.2	2.9	6.4	17	3.2	7.4	1.2	1.6
17	1.5	4.4	e1.4	3.5	5.7	6.8	6.3	23	2.9	3.9	1.1	1.7
18	2.2	3.2	e1.3	3.6	5.1	4.9	5.7	11	6.8	3.2	.96	1.1
19	14	2.7	e1.3	3.0	5.1	3.8	5.2	8.6	10	2.8	1.1	1.5
20	18	2.6	e1.3	3.7	4.6	6.1	5.1	7.9	3.7	2.6	12	1.9
21	4.3	2.4	e1.3	5.6	4.4	6.8	5.1	8.8	3.1	4.1	2.7	1.2
22	2.7	2.1	e1.3	4.3	4.6	8.0	4.8	7.3	2.6	4.5	15	3.8
23	2.1	2.2	e1.2	3.7	6.2	6.5	4.4	6.4	2.7	3.1	22	1.7
24	1.8	2.1	e1.2	3.6	9.6	5.9	4.1	5.7	2.3	2.4	7.7	1.2
25	1.6	2.1	e1.2	5.9	4.8	6.3	4.0	5.2	2.5	2.1	4.8	1.1
26	1.5	3.1	e1.2	20	5.0	5.8	3.8	23	2.0	1.9	3.5	1.0
27	1.5	2.8	e1.2	9.0	4.4	5.1	3.5	11	1.8	1.8	2.9	1.1
28	1.4	3.3	e1.2	7.9	4.9	4.8	3.3	8.4	1.7	1.7	2.5	1.0
29	1.3	2.5	e1.2	30	---	4.7	4.6	34	1.5	1.7	2.2	.99
30	1.3	2.2	e1.3	33	---	6.1	5.8	23	2.0	1.7	2.1	.94
31	1.4	---	e3.0	15	---	7.0	---	12	---	1.6	1.9	---
TOTAL	79.79	76.5	48.7	216.1	208.6	148.9	210.9	359.1	137.1	101.32	109.96	43.73
MEAN	2.57	2.55	1.57	6.97	7.45	4.80	7.03	11.6	4.57	3.27	3.55	1.46
MAX	18	10	3.0	33	16	8.0	17	39	10	12	22	3.8
MIN	.76	1.3	1.2	2.5	4.4	2.9	3.3	3.3	1.5	.92	.96	.94
CFSM	.64	.64	.39	1.74	1.86	1.20	1.75	2.89	1.14	.82	.88	.36
IN.	.74	.71	.45	2.00	1.94	1.38	1.96	3.33	1.27	.94	1.02	.41

CAL YR 1989 TOTAL 2270.20 MEAN 6.22 MAX 87 MIN .62 CFSM 1.55 IN. 21.06
WTR YR 1990 TOTAL 1740.70 MEAN 4.77 MAX 39 MIN .76 CFSM 1.19 IN. 16.15

e Estimated

POTOMAC RIVER BASIN

01640970 HUNTING CREEK TRIBUTARY NEAR FOXVILLE, MD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1982 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1987 to current year.

WATER TEMPERATURE: October 1987 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1987.

REMARKS.--Periods of missing record are due to instrument malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (water years 1989-90): Maximum, 360 microsiemens, Jan. 8, 1989; minimum, 61 microsiemens, Sept. 11, 1989.

WATER TEMPERATURE: Maximum, 36.0°C, Aug. 15, 17, 1988; minimum, 0.0°C, on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 195 microsiemens, Jan. 8, 9; minimum, 84 microsiemens, July 5.

WATER TEMPERATURE: Maximum, 21.9°C, July 10; minimum, 0.0°C, on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	Dis-charge, instantaneous (ft ³ /s)	Spe- cific con- duct- ance (US/CM)	Ph (stand- ard units)	Temper- ature, water (deg C)	Calcium dis- solved (mg/L as Ca)	Magne- sium, dis- solved (mg/L as Mg)
OCT							
18...	1135	0.37	120	6.95	12.0	11	3.6
NOV							
15...	1115	0.86	140	7.12	7.0	11	3.8
DEC							
13...	1220	0.66	146	6.89	1.0	11	4.2
JAN							
17...	1115	6.4	164	7.32	2.0	8.8	3.5
FEB							
14...	1130	6.0	217	7.23	1.0	10	3.8
MAR							
16...	1205	9.2	120	7.33	4.0	7.1	2.8
APR							
18...	1230	5.1	109	7.57	12.0	7.3	2.8
MAY							
16...	1255	104	79	7.27	11.0	5.6	2.1
JUN							
13...	1315	5.2	110	7.68	16.0	8.8	3.0
JUL							
18...	1200	4.3	106	7.66	17.0	9.7	3.3
AUG							
15...	1230	1.3	115	7.73	19.0	11	3.3
SEP							
12...	1100	0.62	120	7.82	19.0	12	3.5

DATE	Sodium, dis- solved (mg/L as Na)	Potas- sium, dis- solved (mg/L as K)	Sulfate dis- solved (mg/L as SO ₄)	Chlo- ride, dis- solved (mg/L as Cl)	Silica, dis- solved (mg/L as SiO ₂)	Solids, sum of consti- tuents, dis- solved (mg/L)
OCT						
18...	5.8	1.2	4.1	11	14	73
NOV						
15...	8.3	1.5	9.2	17	14	80
DEC						
13...	7.7	1.1	7.4	19	14	81
JAN						
17...	13	0.66	9.3	29	11	83
FEB						
14...	21	0.82	8.3	42	11	105
MAR						
16...	8.9	0.56	9.3	23	11	69
APR						
18...	7.0	0.67	6.8	14	12	61
MAY						
16...	4.7	0.57	9.1	7.9	9.2	46
JUN						
13...	6.1	0.83	5.5	12	14	65
JUL						
18...	5.6	0.84	5.0	11	15	67
AUG						
15...	5.6	1.0	3.6	11	16	71
SEP						
12...	5.6	1.1	3.0	12	17	75

POTOMAC RIVER BASIN

81

01640970 HUNTING CREEK TRIBUTARY NEAR FOXVILLE, MD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	Dis- charge, instan- taneous (ft ³ /s)	Spe- cific con- duct- ance (US/CM)	Ph (stand- ard units)	Temper- ature, water (deg C)	Calcium dis- solved (mg/L as Ca)	Magne- sium, dis- solved (mg/L as Mg)
OCT							
18...	1050	1.8	138	7.58	14.0	12	4.0
NOV							
14...	1105	1.6	129	7.64	9.0	9.5	3.6
DEC							
18...	1300	2.0	145	7.17	0.0	11	3.6
JAN							
16...	1030	3.2	165	7.33	2.0	8.9	3.5
FEB							
13...	1340	7.1	118	7.39	5.0	7.5	2.9
MAR							
13...	1250	3.3	119	7.57	12.0	8.0	2.9
APR							
17...	1140	6.0	116	7.40	10.0	7.8	3.0
MAY							
15...	1110	8.6	109	7.44	13.0	7.6	3.0
JUN							
12...	1140	4.2	106	7.66	15.0	8.2	3.0
JUL							
17...	0945	4.3	120	7.85	18.0	9.8	3.4
AUG							
14...	1010	2.3	125	7.34	19.0	11	3.7
SEP							
18...	1000	1.2	118	7.65	12.0	10	3.7

DATE	Sodium, dis- solved (mg/L as Na)	Potas- sium, dis- solved (mg/L as K)	Sulfate dis- solved (mg/L as SO ₄)	Chlo- ride, dis- solved (mg/L as Cl)	Silica, dis- solved (mg/L as SiO ₂)	Solids, sum of consti- tuents, dis- solved (mg/L)
OCT						
18...	6.3	2.1	5.4	14	15	82
NOV						
14...	5.8	0.98	6.3	13	13	69
DEC						
18...	7.7	1.4	6.6	20	14	78
JAN						
16...	11	0.66	7.2	30	12	82
FEB						
13...	7.8	0.62	7.6	18	12	64
MAR						
13...	7.1	0.82	6.3	17	14	67
APR						
17...	7.5	0.64	7.3	17	12	65
MAY						
15...	6.3	0.58	7.4	13	13	62
JUN						
12...	5.8	0.70	5.2	13	15	64
JUL						
17...	6.6	1.1	6.5	14	15	72
AUG						
14...	6.3	1.4	6.1	14	14	75
SEP						
18...	5.6	1.0	4.6	13	14	71

POTOMAC RIVER BASIN

01640970 HUNTING CREEK TRIBUTARY NEAR FOXVILLE, MD--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	126	115	122	123	119	121	---	---	---	---	---	---
2	133	114	123	122	121	121	---	---	---	---	---	---
3	140	133	137	121	118	120	---	---	---	---	---	---
4	140	133	137	119	117	118	---	---	---	---	---	---
5	133	130	132	118	116	117	137	128	132	186	181	184
6	133	129	131	117	116	117	128	124	126	193	186	190
7	132	126	129	119	116	117	127	123	124	194	192	193
8	127	125	126	120	116	118	164	125	136	195	193	194
9	126	123	124	131	119	123	178	149	161	195	193	194
10	125	122	124	136	131	134	151	141	145	194	192	193
11	125	122	123	135	127	133	141	133	137	193	190	192
12	129	122	126	128	126	127	144	134	139	191	186	189
13	129	125	127	128	127	127	179	146	171	186	178	182
14	131	127	128	129	127	128	173	158	166	179	171	175
15	133	128	130	---	---	---	163	147	153	172	166	168
16	136	129	132	---	---	---	164	155	159	166	163	165
17	139	133	136	123	121	122	155	146	151	165	161	163
18	140	131	137	122	118	121	147	142	145	162	160	161
19	140	127	135	120	117	119	144	139	142	163	160	161
20	140	128	132	118	117	118	140	134	137	164	161	162
21	130	128	129	118	115	116	135	132	134	170	163	167
22	129	126	128	117	114	115	141	135	138	174	170	172
23	127	124	126	177	115	142	149	141	144	180	173	175
24	125	118	120	145	129	133	149	139	144	187	179	183
25	119	118	118	131	126	128	140	137	139	190	176	186
26	119	118	119	137	129	133	138	133	136	175	149	159
27	120	118	119	135	128	131	---	---	---	154	144	148
28	120	118	119	144	132	139	---	---	---	145	141	143
29	121	119	120	136	130	133	---	---	---	183	130	147
30	122	120	120	---	---	---	---	---	---	129	124	128
31	123	121	122	---	---	---	---	---	---	130	127	128
MONTH	140	114	127	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	128	126	127	119	117	118	136	132	134	135	124	128
2	127	125	126	118	116	117	139	132	134	135	120	129
3	132	124	126	118	116	117	133	128	129	121	116	118
4	133	131	132	118	116	117	128	124	126	122	111	119
5	131	127	129	116	115	116	127	124	125	111	108	110
6	127	124	125	116	115	115	126	121	123	113	108	110
7	125	123	124	117	114	115	137	124	131	117	112	115
8	124	122	123	116	112	114	131	125	127	120	112	114
9	123	121	122	118	112	114	125	123	124	115	112	114
10	130	122	128	120	117	118	124	122	123	114	87	103
11	129	125	127	121	119	119	126	122	125	108	99	104
12	125	122	123	121	120	121	124	120	122	109	107	108
13	123	121	122	122	120	121	121	116	118	109	106	108
14	122	121	122	122	120	121	117	115	116	112	108	110
15	122	120	121	121	120	121	122	116	119	113	111	112
16	122	120	121	121	120	121	120	117	119	116	96	111
17	122	120	121	142	120	128	118	114	116	113	101	110
18	120	117	118	141	135	139	116	114	115	115	113	114
19	119	117	118	136	128	132	115	113	114	115	113	114
20	119	116	117	177	128	146	114	112	113	116	114	115
21	117	115	116	178	168	172	114	113	113	119	114	116
22	117	115	116	169	143	155	115	112	114	117	114	116
23	120	116	118	143	135	139	116	113	115	115	113	114
24	127	120	125	162	133	147	117	115	116	114	112	113
25	125	122	124	158	138	147	119	114	116	113	110	111
26	125	119	122	139	133	136	126	117	122	111	101	105
27	130	117	121	134	129	131	136	125	130	110	107	108
28	127	117	121	130	126	128	141	127	136	109	106	108
29	---	---	---	127	124	125	132	125	128	108	91	98
30	---	---	---	134	123	130	125	123	124	98	93	95
31	---	---	---	138	133	136	---	---	---	101	97	99
MONTH	133	115	123	178	112	128	141	112	122	135	87	111

POTOMAC RIVER BASIN

83

01640970 HUNTING CREEK TRIBUTARY NEAR FOXVILLE, MD--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	110	100	103	---	---	124	131	117	120	124	116	120
2	109	101	103	---	---	120	133	114	119	125	118	121
3	105	102	103	---	---	121	134	112	118	123	111	116
4	105	103	104	---	---	119	131	110	118	119	109	113
5	103	102	103	---	84	119	134	112	125	119	109	114
6	105	102	103	---	---	134	126	111	121	118	113	116
7	---	---	e103	---	---	123	128	118	123	119	114	116
8	---	---	e103	---	---	121	128	115	119	120	110	115
9	---	---	e103	---	---	117	129	115	122	115	112	114
10	---	---	e103	---	---	119	120	115	118	117	111	114
11	---	---	106	---	---	117	117	107	114	120	112	116
12	107	105	106	120	113	118	121	113	116	119	116	117
13	107	105	106	131	120	128	121	99	112	120	115	118
14	110	105	106	130	116	126	127	117	123	120	114	118
15	111	107	109	124	116	120	129	118	121	120	113	116
16	---	---	---	123	117	120	127	116	121	121	112	115
17	---	---	---	124	122	123	136	115	121	122	117	119
18	---	---	---	125	123	124	136	122	128	130	116	121
19	118	111	115	126	123	124	137	116	126	122	114	118
20	118	113	114	125	121	122	130	112	119	121	114	118
21	115	112	113	124	114	121	126	123	124	123	116	119
22	113	111	112	126	115	122	123	93	114	124	103	116
23	---	---	e113	129	125	127	102	90	97	125	121	123
24	---	---	e113	129	124	126	109	102	106	126	120	122
25	---	---	e113	128	122	125	113	107	109	125	119	122
26	---	---	113	125	121	123	117	112	114	125	120	122
27	120	115	117	127	118	122	120	116	118	124	119	121
28	---	---	119	138	119	125	124	117	120	125	119	122
29	---	---	121	130	117	124	129	122	125	127	122	124
30	---	---	123	128	118	124	126	119	122	129	121	124
31	---	---	---	127	120	123	124	117	120	---	---	---
MONTH	---	---	---	---	---	123	137	90	118	130	103	118

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	13.0	11.7	12.3	12.1	9.5	10.9	---	---	---	---	---	---
2	14.4	13.0	13.9	9.5	8.6	9.1	---	---	---	---	---	---
3	15.0	12.9	14.3	9.1	7.4	8.6	---	---	---	---	---	---
4	12.9	10.6	11.6	7.4	6.2	6.7	---	---	---	---	---	---
5	11.4	9.8	10.6	7.2	5.8	6.7	.6	.1	.4	.4	.0	.3
6	12.7	10.5	11.7	8.6	7.2	7.9	1.6	.5	1.0	.8	.3	.6
7	12.3	9.9	11.5	8.8	7.5	8.3	1.6	.4	1.0	.8	.2	.5
8	10.2	8.7	9.4	9.3	8.4	8.8	.4	.0	.1	.7	.4	.6
9	9.4	7.9	8.5	10.2	9.0	9.7	.0	.0	.0	1.1	.5	.8
10	9.1	7.1	8.3	9.0	7.4	8.2	.0	.0	.0	1.3	1.0	1.2
11	9.9	8.1	9.0	7.5	6.6	7.2	.0	.0	.0	1.7	1.2	1.5
12	10.9	8.5	9.8	8.1	7.2	7.7	.2	.0	.2	1.4	.7	1.3
13	12.6	10.4	11.4	7.9	6.5	7.2	.4	.0	.2	.8	.4	.5
14	12.8	11.1	12.0	9.8	7.9	8.9	.1	.0	.0	.8	.4	.6
15	14.3	12.3	13.2	11.3	9.8	10.5	.0	.0	.0	1.3	.4	1.0
16	15.0	13.0	14.0	11.8	8.0	10.5	.0	.0	.0	2.2	1.1	1.7
17	14.9	14.5	14.7	8.0	5.3	6.5	.0	.0	.0	3.2	1.8	2.5
18	14.7	11.7	13.6	5.4	4.1	4.9	.0	.0	.0	4.5	3.2	4.0
19	11.6	10.0	10.4	4.1	3.3	3.6	.0	.0	.0	4.0	2.4	3.2
20	10.7	8.9	10.1	5.5	3.5	4.5	.0	.0	.0	2.4	2.1	2.2
21	8.9	8.0	8.4	5.1	2.4	3.7	.0	.0	.0	3.2	2.1	2.7
22	9.0	8.0	8.5	2.4	1.2	2.1	.0	.0	.0	3.3	2.7	3.1
23	9.0	7.5	8.4	1.4	.8	1.1	.0	.0	.0	3.4	2.7	3.2
24	9.2	7.6	8.5	1.1	.3	.8	.0	.0	.0	4.4	3.4	4.0
25	9.7	8.0	9.0	1.6	.4	1.0	.0	.0	.0	5.9	4.4	5.2
26	10.4	8.8	9.7	3.1	1.6	2.5	.0	.0	.0	5.8	3.4	4.4
27	10.7	9.1	10.0	3.4	2.6	3.0	---	---	---	3.8	2.8	3.4
28	11.3	9.7	10.6	5.1	3.4	4.4	---	---	---	4.7	3.5	4.1
29	11.7	10.4	11.1	4.4	1.8	3.1	---	---	---	4.5	3.9	4.1
30	11.9	10.5	11.3	---	---	---	---	---	---	4.8	4.1	4.5
31	12.4	11.5	12.0	---	---	---	---	---	---	4.7	3.5	4.2
MONTH	15.0	7.1	10.9	---	---	---	---	---	---	---	---	---

e Estimated

POTOMAC RIVER BASIN

01640970 HUNTING CREEK TRIBUTARY NEAR FOXVILLE, MD--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.4	3.6	4.5	1.3	.2	.8	6.6	5.6	6.1	14.6	12.2	13.4
2	6.7	5.3	6.0	2.2	.7	1.5	8.8	6.5	7.6	13.8	12.1	12.7
3	6.6	5.6	6.2	3.6	2.0	2.8	8.3	6.3	7.4	12.1	11.3	11.7
4	5.7	4.6	5.5	2.6	1.2	1.8	6.3	5.2	5.5	11.3	10.9	11.1
5	4.6	3.1	3.6	2.7	1.1	1.9	7.5	5.2	6.4	12.9	10.7	11.7
6	4.3	2.8	3.5	2.5	1.3	2.1	6.8	4.8	6.0	12.0	10.6	11.3
7	5.1	3.7	4.5	1.3	.4	.8	5.2	4.3	4.8	12.2	10.0	11.2
8	5.4	3.9	4.8	1.2	.5	.8	6.0	3.5	4.8	13.6	11.3	12.5
9	6.5	4.7	5.7	3.9	1.0	2.6	7.2	4.0	5.8	14.0	12.4	13.3
10	7.7	4.7	6.6	5.9	3.6	4.9	8.8	6.5	7.4	14.0	12.3	13.6
11	4.7	3.6	4.3	7.4	5.4	6.4	9.0	6.4	8.0	12.3	10.9	11.6
12	4.4	3.5	4.0	10.2	7.1	8.8	6.5	5.0	5.9	11.2	9.9	10.5
13	5.2	3.2	4.2	12.2	9.7	10.9	6.3	3.9	5.3	12.5	10.7	11.6
14	6.6	5.2	6.0	12.5	10.4	11.6	8.1	5.1	6.7	13.2	11.4	12.4
15	5.7	5.1	5.3	12.8	10.9	12.0	9.9	7.8	8.8	13.9	12.1	13.0
16	8.5	5.4	7.3	13.5	12.2	12.9	10.2	7.7	9.1	14.7	13.2	13.7
17	8.1	3.8	5.8	13.4	11.5	12.9	9.7	7.0	8.8	14.8	13.6	14.1
18	3.8	2.3	3.0	11.5	8.7	10.1	7.7	5.7	6.8	13.6	12.4	13.1
19	4.5	3.1	3.8	8.7	7.1	8.1	8.3	5.3	7.0	13.2	11.6	12.5
20	3.3	1.6	2.3	7.1	3.4	5.0	8.9	7.4	8.1	13.5	12.7	13.1
21	2.5	.9	1.8	5.2	2.9	4.2	10.4	8.9	9.6	13.3	12.3	13.0
22	5.6	2.1	3.6	7.1	4.1	5.8	11.6	8.6	10.2	12.3	10.9	11.5
23	7.5	5.6	6.6	8.6	6.5	7.5	12.5	9.2	10.9	11.3	9.8	10.7
24	6.4	2.8	4.8	6.5	4.2	4.9	13.2	10.0	11.8	11.8	10.4	11.2
25	2.8	.2	.9	5.5	4.0	4.7	14.2	11.4	13.0	12.3	10.7	11.7
26	.3	.2	.2	5.8	4.0	5.0	16.5	13.3	14.9	12.6	12.2	12.5
27	.5	.2	.3	5.1	3.6	4.4	16.4	14.2	15.5	12.3	11.9	12.1
28	1.3	.4	.8	5.3	2.8	4.3	17.3	14.8	16.0	12.3	11.5	12.0
29	---	---	---	5.2	4.8	4.9	15.7	13.8	14.9	12.0	11.2	11.6
30	---	---	---	5.1	4.7	4.9	13.8	12.9	13.3	12.2	11.0	11.6
31	---	---	---	5.6	4.8	5.2	---	---	---	15.6	10.6	12.3
MONTH	8.5	.2	4.1	13.5	.2	5.6	17.3	3.5	8.9	15.6	9.8	12.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	13.3	10.8	12.2	19.8	18.3	19.0	19.9	17.8	18.8	18.1	16.5	17.3
2	14.8	13.1	14.0	18.8	17.1	17.9	19.2	16.5	17.8	18.9	17.4	18.2
3	15.5	14.4	14.9	18.7	16.3	17.6	19.2	16.5	17.8	18.8	17.3	18.2
4	15.1	12.7	14.1	20.1	17.2	18.7	18.9	16.8	17.9	17.9	16.7	17.2
5	12.8	11.4	12.2	21.7	19.6	20.4	18.5	17.9	18.3	17.5	16.1	16.9
6	14.4	11.9	13.2	20.5	19.2	19.8	18.7	18.2	18.5	18.7	17.4	18.0
7	15.4	14.3	14.8	19.4	18.0	18.4	19.1	17.6	18.4	19.0	18.1	18.5
8	15.5	10.6	14.8	19.0	17.8	18.5	18.7	16.8	17.7	18.4	17.2	17.9
9	15.5	10.6	12.8	21.5	18.9	20.2	17.4	16.9	17.1	17.2	16.4	16.7
10	11.5	10.7	11.1	21.9	20.1	20.8	17.5	17.0	17.2	18.1	16.9	17.4
11	10.7	5.7	9.7	20.4	18.4	19.4	18.7	17.0	17.7	18.0	16.4	17.3
12	15.1	8.7	12.1	18.6	17.5	18.3	19.1	17.3	18.1	18.2	17.3	17.7
13	15.2	13.7	14.5	17.5	16.1	16.6	20.3	17.8	18.9	17.9	17.4	17.7
14	16.4	14.2	15.4	17.3	16.0	16.4	19.4	18.1	18.7	17.8	16.9	17.4
15	16.2	15.6	15.9	18.5	17.3	17.9	19.4	17.8	18.5	17.9	16.0	17.3
16	16.6	15.2	15.9	18.2	17.1	17.7	19.6	17.6	18.4	16.0	14.8	15.2
17	17.3	15.9	16.6	18.5	17.1	17.8	20.2	17.4	18.6	14.8	12.3	13.7
18	17.9	16.3	17.1	19.2	17.6	18.5	20.6	17.8	19.0	12.7	11.2	12.1
19	17.7	16.7	17.2	19.6	18.3	19.0	19.9	18.7	19.3	12.7	11.7	12.1
20	17.1	15.7	16.5	20.2	18.8	19.5	19.2	16.1	17.2	13.7	12.7	13.2
21	18.0	16.4	17.1	20.2	18.9	19.5	16.1	15.9	16.0	13.6	12.2	13.0
22	17.9	16.4	17.2	19.6	18.9	19.3	16.3	15.8	16.1	14.3	13.2	13.7
23	18.0	17.1	17.5	20.3	19.1	19.6	16.4	16.1	16.3	13.6	11.7	12.8
24	17.4	16.3	16.8	19.4	18.3	18.9	17.2	16.3	16.8	12.1	11.1	11.5
25	16.6	15.5	16.1	19.3	17.7	18.5	17.9	16.8	17.3	12.4	10.9	11.7
26	17.4	15.3	16.4	19.7	17.8	18.7	18.6	17.5	18.1	13.0	11.6	12.1
27	18.5	16.7	17.6	20.2	18.0	19.0	19.4	17.9	18.7	13.3	11.6	12.5
28	18.9	16.9	17.9	20.0	18.7	19.2	20.0	18.7	19.4	13.8	12.0	13.0
29	19.5	17.6	18.6	20.3	18.8	19.4	20.0	18.8	19.3	14.8	13.3	14.0
30	20.3	18.4	19.3	20.0	19.2	19.5	18.7	17.4	18.1	14.7	13.6	14.2
31	---	---	---	21.0	19.1	19.9	18.0	16.5	17.3	---	---	---
MONTH	20.3	5.7	15.3	21.9	16.0	18.8	20.6	15.8	18.0	19.0	10.9	15.3

01641000 HUNTING CREEK AT JIMTOWN, MD

LOCATION.--Lat 39°35'40", long 77°23'50", Frederick County, Hydrologic Unit 02070009, on right bank just downstream from highway bridge, 0.4 mi southwest of Jimtown, about 2.2 mi southeast of Thurmont, 2.2 mi upstream from Little Hunting Creek, and 5.2 mi upstream from mouth.

DRAINAGE AREA.--18.4 mi².

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WSP 1332: 1952.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 355 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for Oct. 1-4, 8-17, Sept. 21-30 (backwater from beaver dams) and Dec. 17-30 (ice effect), which are fair. Slight regulation at irregular intervals caused by pumpage at recreation camp near Foxville, and from occasional draining and refilling of pond near Thurmont by Maryland Game and Inland Fish Commission. Regulation since spring of 1970 at low flow by Hunting Creek Lake, 5.6 miles upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--41 years, 26.5 ft³/s, 19.56 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,670 ft³/s, Oct. 9, 1976, gage height, 6.32 ft; minimum discharge, 0.4 ft³/s, Sept. 9, 1966, gage height, 1.48 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 350 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 10	1630	*322	*3.12	No peak greater than base discharge.			

Minimum discharge, 4.5 ft³/s, Aug. 3, 4, 5, gage height, 1.64 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e10	13	12	40	53	28	26	22	56	11	6.0	8.3
2	e19	12	12	18	52	26	67	18	47	8.6	5.7	8.2
3	e11	13	12	15	53	23	98	17	42	7.8	5.1	8.0
4	e8.0	12	12	16	62	22	66	22	36	7.1	4.7	8.1
5	7.3	12	12	17	49	21	54	41	31	15	8.7	8.4
6	7.4	12	12	16	43	20	48	30	28	9.1	17	8.3
7	7.0	12	12	15	39	20	54	25	26	7.0	9.3	8.3
8	e7.0	16	12	16	36	19	45	22	26	6.6	8.0	7.9
9	e7.0	18	11	18	35	20	39	20	26	6.5	8.3	7.8
10	e7.5	15	12	19	55	20	37	131	23	6.0	8.9	7.8
11	e7.5	14	11	17	45	16	43	93	20	9.3	8.1	7.0
12	e7.5	13	12	16	39	15	37	59	18	13	8.0	7.0
13	e7.0	13	12	14	36	15	32	62	17	25	7.6	8.3
14	e7.0	13	11	14	34	13	30	56	15	35	7.3	7.7
15	e7.0	13	11	14	32	13	38	43	15	54	6.0	7.6
16	e7.0	31	10	14	32	12	33	46	15	38	5.7	9.1
17	e12	17	e10	15	30	22	30	74	14	21	5.6	8.1
18	15	14	e9.5	15	29	17	28	47	34	18	5.7	7.0
19	56	13	e9.5	14	28	14	25	37	38	15	5.9	8.4
20	60	13	e9.0	19	27	20	25	33	20	14	42	9.8
21	21	13	e9.0	20	27	16	25	36	16	15	17	e10
22	16	13	e8.5	18	27	15	24	31	14	14	45	e12
23	14	14	e8.5	16	45	14	22	27	13	16	99	9.2
24	13	13	e8.5	16	52	15	21	24	13	11	44	e8.4
25	13	13	e8.5	29	33	17	20	22	12	10	28	e8.0
26	12	14	e8.5	73	30	18	19	93	12	9.3	22	e7.8
27	12	14	e8.5	36	29	18	19	56	11	8.6	21	e7.6
28	12	15	e9.0	30	29	17	18	41	10	8.4	20	e7.6
29	12	13	e10	90	---	19	23	144	9.3	7.5	15	e7.6
30	12	12	e15	96	---	24	27	108	12	7.5	10	e7.6
31	12	---	53	59	---	29	---	71	---	7.0	9.1	---
TOTAL	426.2	423	371.0	825	1081	578	1073	1551	669.3	441.3	513.7	246.9
MEAN	13.7	14.1	12.0	26.6	38.6	18.6	35.8	50.0	22.3	14.2	16.6	8.23
MAX	60	31	53	96	62	29	98	144	56	54	99	12
MIN	7.0	12	8.5	14	27	12	18	17	9.3	6.0	4.7	7.0
CFSM	.75	.77	.65	1.45	2.10	1.01	1.94	2.72	1.21	.77	.90	.45
IN.	.86	.86	.75	1.67	2.19	1.17	2.17	3.14	1.35	.89	1.04	.50

CAL YR 1989 TOTAL 9615.0 MEAN 26.3 MAX 383 MIN 4.2 CFSM 1.43 IN. 19.44
WTR YR 1990 TOTAL 8199.4 MEAN 22.5 MAX 144 MIN 4.7 CFSM 1.22 IN. 16.58

e Estimated

POTOMAC RIVER BASIN

01641510 FISHING CREEK TRIBUTARY NEAR LEWISTOWN, MD

LOCATION.--Lat 39°32'09", long 77°26'48", Frederick County, Hydrologic Unit 02070009, on right bank 800 ft upstream from entrance to Lewistown State Fish Hatchery, 1.2 mi west of U.S. Route 15, 1.7 mi west of Lewistown, and 0.6 mi upstream from Fishing Creek.

DRAINAGE AREA.--0.40 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1987 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 575 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Water-discharge records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33 ft³/s, May 18, 1988, gage height, 2.60 ft; minimum discharge, 0.03 ft³/s, Aug. 15, 1988, gage height, 1.54 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 13	1700	*8.2	*2.14	No peak greater than base discharge.			

Minimum discharge, 0.09 ft³/s, Sept. 26-30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	.21	.21	.50	.73	.59	.57	.57	1.1	.48	.13	.11
2	.35	.18	.20	.34	.69	.57	.87	.57	1.1	.40	.13	.11
3	.18	.17	.21	.29	.69	.57	.99	.57	1.1	.32	.13	.11
4	.14	.18	.20	.30	.67	.57	.95	.61	1.1	.32	.13	.11
5	.13	.18	.20	.28	.60	.57	1.0	.70	1.0	.34	.17	.11
6	.15	.18	.20	.26	.57	.57	1.0	.57	1.0	.36	.25	.11
7	.15	.16	.20	.26	.57	.57	1.1	.57	.97	.33	.19	.11
8	.13	.21	.20	.30	.57	.53	1.0	.57	.84	.30	.16	.11
9	.15	.28	.20	.31	.57	.52	1.0	.57	.79	.29	.16	.11
10	.16	.22	.20	.29	.72	.52	.95	1.2	.69	.28	.14	.11
11	.15	.20	.20	.26	.62	.52	1.0	.89	.69	.32	.13	.11
12	.13	.19	.20	.26	.57	.50	.96	.84	.65	.42	.13	.11
13	.13	.16	.20	.26	.57	.52	.92	2.0	.61	.39	.13	.13
14	.12	.14	.20	.26	.57	.52	.92	2.0	.57	.60	.12	.13
15	.13	.13	.20	.26	.57	.52	1.0	2.0	.57	.43	.11	.14
16	.13	.30	.20	.23	.57	.53	.92	2.1	.57	.33	.11	.15
17	.18	.17	.20	.23	.57	.70	.85	2.0	.55	.28	.11	.16
18	.21	.18	.20	.23	.57	.57	.84	1.8	.62	.26	.11	.14
19	.53	.18	.20	.23	.57	.53	.80	1.6	.59	.23	.12	.11
20	.43	.21	.20	.28	.57	.58	.76	1.6	.52	.23	.36	.11
21	.20	.28	.20	.26	.57	.57	.76	1.5	.55	.23	.18	.11
22	.18	.34	.19	.24	.57	.57	.76	1.4	.53	.24	.30	.15
23	.18	.34	.18	.23	.77	.52	.76	1.2	.55	.27	.30	.13
24	.18	.34	.18	.23	.71	.52	.73	1.1	.52	.22	.21	.12
25	.16	.35	.18	.39	.68	.55	.63	1.0	.48	.20	.19	.10
26	.15	.45	.18	.68	.69	.57	.63	1.6	.40	.20	.18	.09
27	.13	.36	.18	.53	.65	.54	.63	1.1	.38	.19	.17	.09
28	.12	.29	.18	.46	.63	.52	.60	.95	.38	.17	.14	.09
29	.12	.21	.18	.75	---	.52	.62	1.8	.36	.16	.11	.09
30	.13	.22	.18	.83	---	.56	.66	1.4	.57	.15	.11	.09
31	.17	---	.57	.76	---	.60	---	1.2	---	.13	.11	---
TOTAL	5.58	7.01	6.42	10.99	17.40	17.11	25.18	37.59	20.35	9.07	5.02	3.45
MEAN	.18	.23	.21	.35	.62	.55	.84	1.21	.68	.29	.16	.11
MAX	.53	.45	.57	.83	.77	.70	1.1	2.1	1.1	.60	.36	.16
MIN	.12	.13	.18	.23	.57	.50	.57	.57	.36	.13	.11	.09
CFSM	.45	.58	.52	.89	1.55	1.38	2.10	3.03	1.70	.73	.40	.29
IN.	.52	.65	.60	1.02	1.62	1.59	2.34	3.50	1.89	.84	.47	.32
CAL YR 1989	TOTAL 189.10	MEAN .52	MAX 4.5	MIN .11	CFSM 1.30	IN. 17.59						
WTR YR 1990	TOTAL 165.17	MEAN .45	MAX 2.1	MIN .09	CFSM 1.13	IN. 15.36						

01641510 FISHING CREEK TRIBUTARY NEAR LEWISTOWN, MD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1988 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1987 to current year.

WATER TEMPERATURE: October 1987 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1987.

REMARKS.--Periods of missing record are due to instrument malfunction, battery failure, or probe malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 90 microsiemens, Oct. 29, 1988; minimum, 13 microsiemens, Sept. 6, 7, 1989.

WATER TEMPERATURE: Maximum daily, 23.0°C, Aug. 15, 1988; minimum daily, 1.0°C, Jan. 6, 7, 8, 15, 16, 1988, Mar. 6, 1989.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 36 microsiemens, Nov. 20; minimum 13 microsiemens, Sept. 6, 7.

WATER TEMPERATURE: Maximum daily, 20.0°C, July 25-28, Aug. 6; minimum daily, 1.0°C, Mar. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	Dis-charge, instantaneous (ft ³ /s)	Specific conductance (US/CM)	Ph (stand-ard units)	Temper-ature, water (deg C)	Calcium dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)
OCT							
04...	0900	0.13	16	5.99	16.0	0.52	0.44
11...	1510	0.06	15	6.36	12.0	0.48	0.43
18...	0850	0.08	18	5.71	13.0	0.66	0.57
25...	0950	0.08	16	5.71	10.0	0.56	0.51
NOV							
01...	0905	0.11	17	5.68	9.0	0.57	0.52
08...	0850	0.09	18	5.92	9.0	0.64	0.59
15...	0930	0.09	19	5.64	9.0	0.66	0.63
22...	0930	0.11	23	5.53	7.0	0.85	0.79
29...	1300	0.13	19	5.74	8.0	0.64	0.59
DEC							
06...	0950	0.11	16	5.69	6.0	0.52	0.48
13...	1335	0.09	16	5.81	2.0	0.49	0.46
20...	1240	0.11	16	5.65	4.0	0.50	0.47
27...	1030	0.13	20	5.74	4.0	0.66	0.65
JAN							
03...	1000	0.13	20	5.96	4.0	0.62	0.60
10...	0945	0.20	22	6.22	4.0	0.73	0.71
17...	1520	0.34	20	6.26	5.0	0.64	0.63
24...	1000	0.26	19	6.27	3.0	0.50	0.51
31...	0855	0.23	18	6.41	6.0	0.54	0.54
FEB							
07...	1030	0.23	18	6.35	5.0	0.53	0.54
14...	0925	0.34	23	6.31	4.0	0.84	0.81
21...	0945	0.26	20	6.37	5.0	0.60	0.60
28...	0945	0.30	17	6.30	3.0	0.53	0.52
MAR							
09...	1015	0.38	19	6.26	3.0	0.53	0.55
16...	1345	0.43	18	6.37	7.0	0.66	0.53
21...	1015	0.52	19	6.29	6.0	0.60	0.60
29...	1055	0.84	17	6.33	12.0	0.52	0.49
APR							
04...	0930	0.69	17	6.29	11.0	0.48	0.48
11...	0945	0.57	16	6.39	7.0	0.46	0.46
18...	1400	0.57	17	6.35	14.0	0.49	0.47
24...	1015	0.52	17	6.40	10.0	0.49	0.47
MAY							
02...	1015	1.3	25	5.82	12.0	0.90	0.84
09...	0955	2.5	17	6.03	10.0	0.48	0.50
16...	1400	3.9	20	5.80	11.0	0.66	0.65
23...	1525	2.1	16	6.20	12.0	0.53	0.54
30...	1325	1.0	15	6.34	13.0	0.53	0.52
JUN							
06...	1030	0.84	16	6.27	14.0	0.51	0.54
13...	1045	0.57	16	6.33	14.0	0.49	0.49
20...	0900	0.52	16	6.29	15.0	0.41	0.45
27...	0945	0.63	16	6.21	17.0	0.46	0.43
JUL							
05...	1515	0.63	17	6.15	16.0	0.58	0.52
11...	0900	0.43	16	6.30	17.0	0.48	0.44
18...	1000	0.43	17	6.34	16.0	0.52	0.47
25...	1015	0.43	19	6.42	20.0	0.56	0.50
AUG							
01...	1015	0.38	19	6.38	18.0	0.58	0.54
08...	1000	0.30	18	6.46	17.0	0.49	0.45
15...	1015	0.23	16	6.35	19.0	0.56	0.50
22...	1230	0.23	16	6.37	18.0	0.51	0.46
29...	1000	0.20	16	6.23	18.0	0.55	0.48
SEP							
05...	1640	0.18	15	6.38	16.0	0.53	0.46
12...	0915	0.26	16	6.46	18.0	0.53	0.45
14...	1130	0.26	15	6.33	18.0	0.53	0.47
19...	1020	0.20	16	6.31	16.0	0.54	0.44
26...	1440	0.09	20	6.38	15.0	0.72	0.58

POTOMAC RIVER BASIN

01641510 FISHING CREEK TRIBUTARY NEAR LEWISTOWN, MD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	Sodium, dis- solved (mg/L as Na)	Potas- sium, dis- solved (mg/L as K)	Sulfate dis- solved (mg/L as SO ₄)	Chlo- ride, dis- solved (mg/L as Cl)	Silica, dis- solved (mg/L as SiO ₂)	Solids, sum of consti- tuents, dis- solved (mg/L)
OCT						
04...	0.98	0.64	1.7	1.2	7.3	14
11...	0.96	0.62	1.6	1.1	7.3	14
18...	1.0	0.82	2.1	1.3	6.9	15
25...	0.94	0.77	2.1	1.3	7.1	15
NOV						
01...	0.96	0.84	2.1	1.4	6.9	15
08...	1.0	0.94	2.6	1.5	7.0	16
15...	1.1	0.94	2.9	1.5	7.1	16
22...	1.0	1.1	4.5	1.7	7.2	18
29...	0.97	0.92	3.2	1.4	7.5	16
DEC						
06...	0.94	0.80	2.3	1.3	7.4	15
13...	0.95	0.75	2.2	1.2	7.3	15
20...	0.96	0.76	2.1	1.2	7.4	15
27...	1.0	0.97	3.6	1.8	7.2	17
JAN						
03...	1.0	0.91	3.2	1.2	7.1	16
10...	1.0	0.98	4.1	1.3	6.8	17
17...	0.94	0.92	3.6	1.3	6.5	15
24...	0.97	0.86	2.5	1.2	6.7	14
31...	1.0	0.91	2.7	1.2	6.7	15
FEB						
07...	1.0	0.91	2.8	1.2	6.7	15
14...	1.0	1.1	4.4	1.2	6.2	17
21...	0.96	0.98	3.1	1.2	6.3	15
28...	0.90	0.86	2.7	1.2	6.7	15
MAR						
09...	0.91	0.88	2.8	1.2	6.6	14
16...	0.85	0.87	2.7	1.3	6.4	14
21...	0.89	0.92	3.1	1.2	6.3	15
29...	0.96	0.90	2.4	1.3	6.3	14
APR						
04...	0.86	0.82	2.3	1.3	6.0	13
11...	0.89	0.79	2.1	1.2	5.7	13
18...	0.91	0.87	2.1	1.2	5.7	13
24...	0.90	0.82	2.0	1.2	5.7	13
MAY						
02...	0.74	1.2	5.8	1.1	5.1	16
09...	0.87	1.0	2.7	1.3	6.1	14
16...	0.78	0.99	4.0	1.1	4.9	14
23...	0.91	0.84	1.9	1.4	6.3	13
30...	0.93	0.81	1.7	1.3	6.4	13
JUN						
06...	0.89	0.77	1.7	1.3	6.1	13
13...	0.90	0.75	1.6	1.2	6.6	14
20...	0.90	0.71	1.6	1.3	6.8	14
27...	0.89	0.74	1.7	1.3	6.7	13
JUL						
05...	0.86	0.73	1.9	1.2	6.7	14
11...	0.95	0.75	1.5	1.3	6.9	14
18...	0.94	0.75	1.7	1.2	6.9	14
25...	0.98	0.71	1.5	1.2	7.0	14
AUG						
01...	0.95	0.72	1.7	1.2	6.9	14
08...	0.94	0.65	1.5	1.2	7.3	14
15...	1.0	0.71	1.4	1.2	7.2	14
22...	0.96	0.70	1.5	1.2	7.8	15
29...	1.0	0.70	1.5	1.2	7.6	15
SEP						
05...	1.0	0.65	1.5	1.2	7.8	15
12...	1.0	0.64	1.5	1.2	7.8	15
14...	1.0	0.65	1.5	1.2	7.8	15
19...	0.97	0.69	1.6	1.2	7.8	14
26...	1.0	0.84	2.6	1.3	7.6	16

POTOMAC RIVER BASIN

89

01641510 FISHING CREEK TRIBUTARY NEAR LEWISTOWN, MD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	Dis- charge, instant- aneous (ft ³ /s)	Spe- cific con- duct- ance (US/CM)	Ph (stand- ard units)	Temper- ature, water (deg C)	Calcium dis- solved (mg/L as Ca)	Magne- sium, dis- solved (mg/L as Mg)
OCT							
03...	0930	0.18	19	6.24	15.0	0.71	0.57
10...	1045	0.16	15	6.32	10.0	0.49	0.44
18...	1220	0.20	21	6.32	15.0	0.70	0.66
24...	1155	0.18	17	6.29	11.0	0.54	0.50
31...	1340	0.18	18	6.40	15.0	0.63	0.55
NOV							
07...	0915	0.16	17	6.34	10.0	0.53	0.49
14...	0940	0.16	17	6.38	10.0	0.55	0.50
21...	1245	0.23	18	6.30	6.0	0.51	0.49
29...	1115	0.20	19	6.29	6.0	0.60	0.58
DEC							
04...	1500	0.20	17	6.30	3.0	0.51	0.50
18...	1525	0.20	17	6.34	2.0	0.50	0.49
27...	1410	0.18	17	6.40	1.0	0.49	0.49
JAN							
02...	1330	0.34	23	6.20	2.0	0.74	0.74
09...	1405	0.30	23	6.04	3.0	0.69	0.70
16...	0845	0.23	19	6.36	4.0	0.56	0.57
23...	1300	0.23	18	6.37	6.0	0.56	0.56
30...	1040	0.76	27	5.82	6.0	0.95	0.94
FEB							
06...	1355	0.61	18	6.30	7.0	0.51	0.50
13...	1100	0.57	18	6.30	7.0	0.50	0.51
20...	1355	0.57	17	6.42	6.0	0.47	0.48
27...	0910	0.69	17	6.24	4.0	0.50	0.50
MAR							
06...	1140	0.57	17	6.36	6.0	0.47	0.48
13...	1110	0.52	18	6.50	12.0	0.51	0.51
21...	1030	0.57	18	6.34	7.0	0.57	0.55
27...	0940	0.57	17	6.35	7.0	0.52	0.51
APR							
03...	1025	0.92	23	6.20	9.0	0.76	0.75
10...	1110	0.92	17	6.40	10.0	0.53	0.52
17...	1000	0.84	18	6.44	11.0	0.55	0.54
25...	1040	0.63	17	6.45	13.0	0.53	0.53
30...	1310	0.63	19	6.39	13.0	0.62	0.61
MAY							
04...	1010	0.57	17	6.40	12.0	0.55	0.54
08...	0900	0.57	17	6.42	12.0	0.54	0.52
15...	1410	1.6	19	6.11	13.0	0.54	0.52
23...	1400	1.1	16	6.68	12.0	0.51	0.48
29...	1100	2.7	21	5.88	12.0	0.85	0.77
JUN							
01...	1010	1.1	18	6.42	12.0	0.53	0.50
05...	0940	1.1	17	6.27	12.0	0.55	0.48
12...	0910	0.69	17	6.30	14.0	0.51	0.49
19...	1200	0.57	17	6.37	16.0	0.54	0.50
26...	1230	0.43	16	6.42	15.0	0.53	0.48
JUL							
03...	0945	0.34	17	6.32	16.0	0.58	0.48
10...	1235	0.29	16	6.39	19.0	0.53	0.48
17...	1255	0.30	17	6.31	18.0	0.74	0.53
24...	1320	0.23	16	6.36	18.0	0.58	0.50
31...	0955	0.13	15	6.36	19.0	0.54	0.47
AUG							
07...	1430	0.18	17	6.39	19.0	0.61	0.53
14...	1350	0.12	16	6.26	19.0	0.57	0.50
21...	1250	0.18	18	6.21	17.0	0.63	0.52
28...	1240	0.16	15	6.35	20.0	0.55	0.47
SEP							
04...	1120	0.11	15	6.56	18.0	0.55	0.47
11...	1210	0.11	15	6.52	18.0	0.55	0.47
18...	1240	0.14	15	6.55	14.0	0.52	0.45
25...	1225	0.11	15	6.31	14.0	0.54	0.46

POTOMAC RIVER BASIN

01641510 FISHING CREEK TRIBUTARY NEAR LEWISTOWN, MD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	Sodium, dis- solved (mg/L as Na)	Potas- sium, dis- solved (mg/L as K)	Sulfate dis- solved (mg/L as SO ₄)	Chlo- ride, dis- solved (mg/L as Cl)	Silica, dis- solved (mg/L as SiO ₂)	Solids, sum of consti- tuents, dis- solved (mg/L)
OCT						
03...	0.95	0.82	2.7	1.3	7.5	16
10...	0.91	0.65	1.7	1.1	7.6	14
18...	0.96	1.2	2.9	1.6	7.4	17
24...	0.90	0.82	2.2	1.2	7.5	15
31...	0.94	0.95	2.1	1.4	7.6	16
NOV						
07...	0.89	0.77	1.8	1.2	7.8	15
14...	0.96	0.92	2.1	1.3	7.6	16
21...	0.92	0.95	2.3	1.4	7.4	15
29...	1.0	1.0	2.7	1.2	7.5	16
DEC						
04...	0.98	0.87	2.1	1.1	7.5	15
18...	0.95	0.81	2.2	1.2	7.3	15
27...	0.99	0.83	2.0	1.2	7.5	15
JAN						
02...	1.0	1.1	3.9	1.4	7.3	17
09...	0.98	1.1	3.8	1.3	6.9	16
16...	0.99	0.96	2.7	1.3	7.1	15
23...	0.95	0.95	2.6	1.3	7.1	15
30...	0.79	1.2	5.8	1.3	5.7	17
FEB						
06...	0.90	0.91	2.3	1.3	6.7	14
13...	0.91	0.85	2.1	1.3	6.7	14
20...	0.95	0.85	1.9	1.3	6.7	14
27...	0.90	0.82	2.2	1.3	6.6	14
MAR						
06...	0.92	0.84	1.9	1.3	6.3	13
13...	0.94	0.92	1.9	1.4	6.4	14
21...	0.90	0.90	2.4	1.4	6.6	14
27...	0.96	0.89	2.0	1.4	6.3	14
APR						
03...	0.85	1.1	4.2	1.3	5.9	16
10...	0.92	0.87	2.0	1.4	6.3	14
17...	0.92	0.89	2.0	1.4	6.0	14
25...	0.92	0.87	1.8	1.4	5.9	13
30...	0.95	0.97	2.2	1.3	6.2	14
MAY						
04...	0.90	0.81	1.8	1.3	6.4	14
08...	0.93	0.83	1.8	1.3	6.7	14
15...	0.88	0.88	2.4	1.3	6.9	14
23...	0.97	0.79	1.8	1.4	6.9	14
29...	0.79	0.96	3.5	0.92	5.1	13
JUN						
01...	0.88	0.76	1.9	1.3	6.9	14
05...	0.90	0.73	1.7	1.3	7.0	14
12...	0.90	0.69	1.6	1.3	7.2	14
19...	0.89	0.73	1.7	1.3	7.2	14
26...	0.92	0.67	1.5	1.2	7.5	14
JUL						
03...	0.92	0.68	1.5	1.2	7.5	14
10...	1.0	0.71	1.4	1.2	7.9	15
17...	0.98	0.84	1.6	1.2	7.6	15
24...	1.0	0.75	1.5	1.2	7.9	15
31...	0.97	0.65	1.4	1.2	7.6	14
AUG						
07...	0.95	0.76	1.7	1.2	7.6	15
14...	0.98	0.74	1.4	1.2	7.9	15
21...	0.90	0.79	2.0	1.1	7.3	15
28...	0.91	0.75	1.7	1.2	7.9	15
SEP						
04...	0.96	0.67	1.4	1.2	7.9	15
11...	1.0	0.66	1.5	1.2	7.8	15
18...	0.98	0.64	1.6	1.2	7.6	14
25...	0.99	0.65	1.6	1.2	7.9	15

POTOMAC RIVER BASIN

91

01641510 FISHING CREEK TRIBUTARY NEAR LEWISTOWN, MD--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	29	14	18	19	16	17	18	17	17	---	---	---
2	32	15	22	17	16	17	18	17	17	---	---	---
3	29	12	20	17	16	17	17	16	17	---	---	---
4	30	17	22	17	16	16	17	16	17	---	---	---
5	29	17	22	17	16	16	17	16	17	---	---	---
6	40	16	21	17	16	17	17	16	17	24	22	23
7	37	15	17	18	16	17	17	16	17	23	21	22
8	49	14	22	28	16	21	17	16	16	26	21	22
9	43	14	21	25	23	24	17	16	16	26	23	24
10	41	14	19	22	18	20	17	16	17	24	22	23
11	47	15	21	19	17	18	17	16	17	23	20	21
12	41	14	18	18	17	17	18	16	17	21	19	20
13	36	15	18	18	16	17	18	17	17	20	19	20
14	32	16	17	18	17	17	18	16	17	20	18	19
15	31	16	17	19	17	18	18	16	17	20	18	19
16	34	16	24	29	17	25	17	16	17	20	19	19
17	40	16	25	28	18	23	17	16	17	20	19	19
18	40	19	24	21	18	20	17	16	17	19	18	19
19	49	25	33	22	19	20	17	16	17	19	18	18
20	43	23	30	21	19	20	18	17	17	21	18	19
21	40	19	23	19	16	18	18	17	18	21	19	20
22	32	18	20	18	16	17	18	17	18	20	18	19
23	33	17	22	18	17	17	18	17	18	19	17	18
24	33	17	21	18	17	17	18	17	17	19	17	18
25	32	16	19	18	16	17	19	17	18	25	18	22
26	33	16	19	20	17	19	19	18	19	29	24	27
27	31	16	21	21	19	20	19	18	18	25	20	22
28	32	16	20	21	19	20	19	18	18	21	20	20
29	31	16	21	20	18	19	19	18	19	29	19	22
30	32	16	19	18	17	18	---	---	---	30	24	27
31	21	17	18	---	---	---	---	---	---	25	22	23
MONTH	49	12	21	29	16	19	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	23	21	22	19	16	17	---	---	---	20	18	19
2	22	20	21	18	16	17	---	---	---	22	18	19
3	20	19	19	19	16	17	---	---	---	22	18	19
4	20	19	19	19	16	17	---	---	---	22	18	19
5	22	17	18	19	16	17	---	---	---	26	17	19
6	18	16	17	19	16	17	---	---	---	18	17	17
7	17	16	16	19	16	17	---	---	---	18	16	17
8	17	16	16	19	16	17	---	---	---	18	16	17
9	18	17	17	20	16	17	---	---	---	17	15	16
10	19	17	19	20	17	18	---	---	---	27	16	20
11	18	17	18	21	17	19	---	---	---	22	17	19
12	19	18	18	21	17	19	---	---	---	18	15	16
13	19	17	18	21	17	18	---	---	---	38	15	20
14	19	18	18	18	17	18	---	---	---	23	18	19
15	20	18	19	18	16	17	---	---	---	27	17	18
16	20	19	19	20	16	18	---	---	---	18	16	18
17	20	19	19	25	17	21	---	---	---	17	16	17
18	21	18	19	22	19	20	19	16	17	17	16	16
19	20	17	19	20	18	19	18	17	17	17	15	16
20	19	16	17	20	18	19	17	16	17	17	15	16
21	19	16	17	19	17	18	18	16	17	17	16	16
22	20	16	17	19	17	18	17	16	17	17	15	16
23	27	17	19	18	17	18	17	16	16	16	15	16
24	26	19	21	18	17	17	18	16	17	17	16	16
25	21	17	19	18	17	17	18	16	17	18	16	17
26	20	16	18	18	17	17	18	16	17	23	17	20
27	19	16	18	18	17	17	18	17	17	20	18	19
28	20	17	18	25	17	18	18	16	17	20	18	19
29	---	---	---	19	17	18	20	17	18	22	19	20
30	---	---	---	20	18	19	20	17	19	21	19	20
31	---	---	---	21	19	20	---	---	---	19	18	19
MONTH	27	16	18	25	16	18	---	---	---	38	15	18

POTOMAC RIVER BASIN

01641510 FISHING CREEK TRIBUTARY NEAR LEWISTOWN, MD--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	19	18	18	23	18	20	---	---	---	---	---	---
2	19	17	18	19	17	18	---	---	---	---	---	---
3	19	17	18	18	15	16	---	---	---	---	---	---
4	18	17	18	17	16	16	---	---	---	---	---	---
5	17	16	17	19	16	17	---	---	---	---	---	---
6	18	17	17	17	16	16	---	---	---	---	---	---
7	18	17	17	---	---	---	---	---	---	---	---	---
8	18	16	17	---	---	---	---	---	---	---	---	---
9	18	16	17	---	---	---	---	---	---	---	---	---
10	17	16	17	---	---	---	---	---	---	---	---	---
11	17	17	17	20	15	17	---	---	---	---	---	---
12	17	17	17	24	19	20	---	---	---	---	---	---
13	17	16	16	---	---	---	---	---	---	---	---	---
14	16	16	16	---	---	---	---	---	---	---	---	---
15	16	15	16	---	---	---	---	---	---	---	---	---
16	15	15	15	---	---	---	---	---	---	---	---	---
17	15	15	15	---	---	---	---	---	---	---	---	---
18	19	14	15	---	---	---	---	---	---	---	---	---
19	25	17	18	---	---	---	---	---	---	---	---	---
20	17	16	16	---	---	---	---	---	---	---	---	---
21	17	15	16	---	---	---	---	---	---	---	---	---
22	17	16	16	---	---	---	---	---	---	---	---	---
23	17	16	16	---	---	---	---	---	---	---	---	---
24	20	16	16	---	---	---	---	---	---	---	---	---
25	21	15	16	---	---	---	---	---	---	---	---	---
26	20	15	16	---	---	---	---	---	---	---	---	---
27	17	15	16	---	---	---	---	---	---	---	---	---
28	16	15	15	---	---	---	---	---	---	---	---	---
29	15	14	14	---	---	---	---	---	---	---	---	---
30	26	13	17	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	26	13	16	---	---	---	---	---	---	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	14.4	13.6	13.9	13.9	11.9	12.8	5.2	4.7	4.9	---	---	---
2	15.0	14.3	14.6	11.9	11.2	11.6	5.0	4.6	4.8	---	---	---
3	15.1	13.9	14.8	11.5	9.9	11.1	4.7	3.2	4.1	---	---	---
4	13.8	12.1	12.6	9.9	9.1	9.4	3.3	2.7	3.0	---	---	---
5	12.4	11.5	12.0	9.8	8.6	9.3	3.9	3.3	3.6	---	---	---
6	13.3	12.1	12.7	10.7	9.7	10.2	4.6	3.9	4.3	3.5	3.0	3.3
7	13.3	11.8	12.7	10.8	9.8	10.4	4.7	4.1	4.4	3.1	2.6	2.9
8	11.8	10.8	11.2	11.0	10.5	10.8	4.1	3.4	3.6	3.2	2.7	3.0
9	10.8	10.2	10.5	11.5	10.2	11.1	3.5	3.1	3.4	3.3	2.8	3.1
10	10.7	9.6	10.3	10.2	9.0	9.6	3.3	2.9	3.1	4.0	3.3	3.7
11	11.5	10.5	11.0	9.3	8.3	8.9	3.8	3.2	3.5	4.3	3.7	4.0
12	12.4	10.8	11.6	9.7	9.0	9.3	4.0	3.7	3.9	4.0	3.3	3.8
13	13.5	12.4	13.0	9.8	8.4	9.1	4.2	3.5	3.9	3.3	2.7	3.0
14	13.9	13.1	13.5	11.2	9.6	10.4	3.5	3.0	3.2	3.2	2.6	2.9
15	14.8	13.9	14.4	12.2	11.1	11.6	3.1	2.7	3.0	3.6	2.9	3.4
16	15.3	14.3	14.8	12.4	9.6	11.4	2.9	2.2	2.4	4.8	3.4	4.1
17	15.4	15.1	15.3	9.6	7.5	8.4	2.2	1.9	2.0	5.9	4.7	5.2
18	15.2	13.1	14.4	7.5	6.5	7.1	2.1	1.8	2.0	7.1	5.9	6.6
19	13.1	11.8	12.3	6.5	5.8	6.2	1.9	1.7	1.9	6.5	5.4	5.8
20	12.2	10.7	11.7	7.8	6.0	6.9	1.9	1.6	1.8	5.4	4.9	5.1
21	10.8	10.2	10.5	7.3	5.5	6.3	1.6	1.3	1.5	5.8	5.1	5.4
22	11.1	10.3	10.7	5.6	5.1	5.4	1.3	1.0	1.2	5.7	5.1	5.5
23	11.5	10.4	11.0	5.2	4.9	5.1	1.3	1.0	1.2	5.7	4.9	5.4
24	11.6	10.5	11.1	5.0	4.5	4.8	1.2	.9	1.1	6.3	5.5	5.9
25	12.1	10.9	11.5	5.1	4.5	4.9	1.2	.9	1.1	6.8	6.1	6.4
26	12.8	11.6	12.2	6.2	5.1	5.7	1.3	.8	1.1	6.7	5.3	5.9
27	13.1	12.0	12.6	6.5	5.8	6.2	1.0	.6	.9	5.7	4.9	5.3
28	13.5	12.5	13.0	7.7	6.5	7.2	1.2	.9	1.1	5.8	4.9	5.4
29	13.9	12.9	13.5	7.2	5.3	6.2	1.5	1.0	1.3	5.5	4.8	5.2
30	13.7	12.9	13.4	5.3	4.7	5.0	---	---	---	6.0	5.0	5.5
31	14.3	13.7	14.0	---	---	---	---	---	---	6.1	5.0	5.6
MONTH	15.4	9.6	12.6	13.9	4.5	8.4	---	---	---	---	---	---

93

WATER TEMPERATURE. DEGREES CELSIUS. WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	6.5	5.2	5.9	5.3	4.0	4.6	---	---	---	13.8	12.5	13.2
2	7.4	6.5	7.0	5.7	4.3	5.1	---	---	---	13.3	12.4	12.7
3	7.5	7.2	7.4	7.0	5.5	6.2	---	---	---	12.4	11.7	12.1
4	7.5	6.7	7.3	6.0	4.9	5.5	---	---	---	11.7	11.4	11.6
5	6.7	6.0	6.4	6.1	4.8	5.4	---	---	---	12.4	11.2	11.8
6	7.0	5.7	6.3	5.7	4.9	5.4	---	---	---	12.0	11.3	11.7
7	7.5	6.5	7.0	5.1	3.8	4.5	---	---	---	12.3	11.1	11.8
8	7.9	6.6	7.3	5.4	3.6	4.5	---	---	---	13.0	11.8	12.4
9	8.1	6.9	7.6	6.8	4.8	5.9	---	---	---	13.4	12.5	13.0
10	8.5	7.1	8.1	8.5	6.5	7.5	---	---	---	13.4	12.6	13.3
11	7.3	6.5	7.0	9.0	7.7	8.4	---	---	---	12.6	11.8	12.1
12	7.2	6.4	6.9	11.3	8.7	10.1	---	---	---	11.8	11.2	11.4
13	7.4	6.1	6.8	12.7	10.5	11.5	---	---	---	12.7	11.4	11.9
14	8.1	7.4	7.7	12.8	11.0	12.0	---	---	---	12.3	11.6	12.0
15	7.7	7.4	7.5	13.1	11.3	12.2	---	---	---	12.4	11.7	12.1
16	9.2	7.6	8.4	13.4	12.0	12.7	---	---	---	12.7	12.0	12.3
17	8.9	6.7	7.8	13.1	12.0	12.8	---	---	---	13.2	12.4	12.8
18	6.7	5.8	6.3	12.0	10.3	11.3	10.6	8.4	9.4	12.7	12.2	12.5
19	7.3	6.3	6.7	10.6	9.5	10.1	11.0	8.4	9.7	12.5	11.8	12.2
20	6.3	5.3	5.9	9.5	6.9	8.2	11.0	9.6	10.3	12.6	12.3	12.5
21	6.3	4.8	5.6	8.6	6.3	7.4	11.5	10.5	11.0	12.6	12.1	12.4
22	7.3	5.4	6.2	9.6	7.0	8.3	12.9	10.1	11.4	12.2	11.7	11.9
23	8.8	7.3	8.1	10.5	8.7	9.4	13.7	10.8	12.1	12.0	11.4	11.8
24	8.0	5.8	7.2	8.7	7.1	7.7	14.0	11.3	12.6	12.3	11.6	12.0
25	5.8	3.8	4.7	8.3	6.9	7.5	14.0	11.9	13.0	12.4	11.7	12.1
26	4.4	3.3	3.8	8.2	6.5	7.3	15.7	13.1	14.3	12.5	12.3	12.4
27	4.3	3.4	3.9	7.9	6.2	6.9	15.4	14.0	14.7	12.3	12.0	12.2
28	5.4	4.1	4.7	8.2	5.8	7.0	15.6	14.3	15.0	12.2	11.8	12.0
29	---	---	---	7.5	7.2	7.4	14.8	13.6	14.3	12.0	11.5	11.7
30	---	---	---	7.5	7.2	7.3	13.6	13.1	13.4	12.0	11.3	11.7
31	---	---	---	7.7	7.1	7.5	---	---	---	12.1	11.3	11.8
MONTH	9.2	3.3	6.6	13.4	3.6	8.0	---	---	---	13.8	11.1	12.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	12.7	11.6	12.2	17.3	16.7	17.0	---	---	---	---	---	---
2	13.4	12.5	13.0	16.8	16.2	16.5	---	---	---	---	---	---
3	13.7	13.1	13.4	16.8	15.9	16.4	---	---	---	---	---	---
4	13.6	12.5	13.2	17.7	16.2	17.0	---	---	---	---	---	---
5	12.5	11.9	12.3	18.9	17.7	18.4	---	---	---	---	---	---
6	13.3	12.0	12.7	18.2	17.7	18.0	---	---	---	---	---	---
7	13.8	13.2	13.5	---	---	---	---	---	---	---	---	---
8	13.9	13.3	13.6	---	---	---	---	---	---	---	---	---
9	14.5	13.8	14.2	---	---	---	---	---	---	---	---	---
10	14.6	13.9	14.4	---	---	---	---	---	---	---	---	---
11	14.2	13.7	14.0	18.4	17.3	17.8	---	---	---	---	---	---
12	13.9	13.3	13.7	17.5	16.9	17.1	---	---	---	---	---	---
13	14.0	13.3	13.7	---	---	---	---	---	---	---	---	---
14	14.6	13.6	14.1	---	---	---	---	---	---	---	---	---
15	14.5	14.2	14.3	---	---	---	---	---	---	---	---	---
16	14.8	14.0	14.4	---	---	---	---	---	---	---	---	---
17	15.3	14.5	14.9	---	---	---	---	---	---	---	---	---
18	15.8	14.9	15.3	---	---	---	---	---	---	---	---	---
19	15.7	15.1	15.4	---	---	---	---	---	---	---	---	---
20	15.3	14.7	15.1	---	---	---	---	---	---	---	---	---
21	15.7	14.9	15.3	---	---	---	---	---	---	---	---	---
22	15.8	15.1	15.5	---	---	---	---	---	---	---	---	---
23	15.6	15.1	15.4	---	---	---	---	---	---	---	---	---
24	15.3	14.8	15.1	---	---	---	---	---	---	---	---	---
25	15.0	14.3	14.7	---	---	---	---	---	---	---	---	---
26	15.3	14.3	14.8	---	---	---	---	---	---	---	---	---
27	16.0	14.9	15.5	---	---	---	---	---	---	---	---	---
28	16.3	15.4	15.9	---	---	---	---	---	---	---	---	---
29	16.9	15.8	16.4	---	---	---	---	---	---	---	---	---
30	18.0	16.5	17.0	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	18.0	11.6	14.4	---	---	---	---	---	---	---	---	---

POTOMAC RIVER BASIN

01643000 MONOCACY RIVER AT JUG BRIDGE NEAR FREDERICK, MD

LOCATION.--Lat 39°24'13", long 77°21'58", Frederick County, Hydrologic Unit 02070009, on right bank 0.2 mi upstream from Jug Bridge on U.S. Highway 40, 0.4 mi downstream from Linganore Creek, 2.0 mi east of Frederick, and 16.9 mi upstream from mouth.

DRAINAGE AREA.--817 mi².

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for October, November 1929, published in WSP 1302.

REVISED RECORDS.--WSP 711: 1930.

GAGE.--Water-stage recorder. Nonrecording gage at site 0.2 mile downstream. Datum of gage is 231.92 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Occasional regulation at low and medium flows since September 1972 by Linganore Reservoir, total capacity, 883,200,000 gal, 2.8 mi upstream from station. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--61 years, 925 ft³/s, 15.37 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 81,600 ft³/s, June 23, 1972, gage height, 35.9 ft, from floodmark; minimum daily, 19 ft³/s, Sept. 7-13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1889 reached a stage of 30 ft, from floodmarks, discharge, 56,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 30	1700	*14,200	*14.22	May 30	0530	10,200	11.78
May 11	0800	9,010	10.96				

Minimum discharge, 146 ft³/s, Oct. 17; minimum daily discharge, 157 ft³/s, Oct. 16.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172	417	363	1030	2180	792	725	1010	1660	308	196	304
2	278	301	338	1550	1780	748	940	708	1340	277	185	262
3	534	308	327	1000	1560	725	4320	555	1170	254	172	242
4	436	296	269	784	2040	704	2500	534	1080	240	166	224
5	260	284	303	863	1890	637	1730	1170	927	229	166	209
6	209	272	320	1050	1400	592	1390	1160	811	262	269	202
7	192	270	308	877	1220	559	1580	762	737	258	337	197
8	178	274	304	740	1120	515	1580	627	709	235	337	190
9	174	379	238	669	1020	507	1200	551	1350	227	259	186
10	170	834	238	775	1460	539	1050	1590	1010	216	266	180
11	169	613	291	1350	2380	537	1110	6280	713	220	476	177
12	168	439	310	1230	1410	511	1070	1950	600	355	365	173
13	167	378	296	872	1220	495	876	1580	539	694	265	178
14	163	344	250	642	1130	469	788	2770	498	725	235	180
15	161	331	251	606	1040	448	964	1460	468	813	317	200
16	157	439	e245	584	994	429	1130	1170	455	1030	266	198
17	198	1540	e240	616	985	597	853	1590	430	690	218	206
18	233	794	e240	678	873	1380	774	1340	411	423	194	212
19	901	574	e235	734	743	867	688	975	898	330	182	184
20	3460	493	232	649	677	764	628	838	614	290	321	183
21	4200	465	e225	1010	620	1110	620	832	487	333	516	189
22	1200	422	e220	1160	595	915	623	862	425	648	507	208
23	777	399	e220	852	694	776	584	750	395	926	2560	248
24	594	391	e220	690	2420	683	540	659	368	533	1710	276
25	502	369	215	735	1630	676	510	597	337	341	923	217
26	441	364	201	3080	932	672	494	1390	313	285	631	184
27	408	391	222	3110	799	616	470	2120	302	255	522	175
28	420	423	212	1580	787	561	446	1180	285	237	398	170
29	486	456	208	1520	---	531	445	2980	274	221	327	166
30	465	423	205	11400	---	548	1010	7750	273	214	321	163
31	456	---	292	3810	---	682	---	2580	---	207	505	---
TOTAL	18329	13683	8038	46246	35599	20585	31638	50320	19879	12276	14112	6083
MEAN	591	456	259	1492	1271	664	1055	1623	663	396	455	203
MAX	4200	1540	363	11400	2420	1380	4320	7750	1660	1030	2560	304
MIN	157	270	201	584	595	429	445	534	273	207	166	163
CFSM	.72	.56	.32	1.83	1.56	.81	1.29	1.99	.81	.48	.56	.25
IN.	.83	.62	.37	2.11	1.62	.94	1.44	2.29	.91	.56	.64	.28

CAL YR 1989 TOTAL 358566 MEAN 982 MAX 13800 MIN 143 CFSM 1.20 IN. 16.33
WTR YR 1990 TOTAL 276788 MEAN 758 MAX 11400 MIN 157 CFSM .93 IN. 12.60

e Estimated

01643020 MONOCACY RIVER AT REICH'S FORD BRIDGE NEAR FREDERICK, MD

LOCATION.--Lat 39°23'16", long 77°22'40", Frederick County, Hydrologic Unit 02070009, at Reich's Ford Bridge, 1.1 mi downstream from U.S. Highway 40, 1.2 mi downstream from gaging station, 2 mi southeast of Frederick, and 15.0 mi upstream from mouth.

PERIOD OF RECORD.--Water years 1961 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1960 to current year.

SUSPENDED-SEDIMENT DISCHARGE: October 1960 to current year.

REMARKS.--Water temperatures are measured daily in field by local observer at time of sampling. Missing record November 1 to January 17 when local observer resigned. Water-discharge records for Monocacy River at Jug bridge near Frederick (station 01643000) are used for computation of sediment loads. Prior to 1970, published as Monocacy River at Jug Bridge near Frederick (station 01643000).

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE (water years 1961-72, 1975, 1977, 1980-87, 1989): Maximum daily, 32.0°C, July 21, 1980; minimum daily, 0.0°C on many days during winter periods.

SEDIMENT CONCENTRATION: Maximum daily mean, 2,000 mg/L, July 10, 1970; minimum daily mean, 1 mg/L on many days in water years 1961-67, 1970, 1972, 1982, 1985, 1989.

SEDIMENT LOAD: Maximum daily, 134,000 tons, June 22, 1972; minimum daily, 0.25 ton, Oct. 14, 1988.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 920 mg/L, Jan. 30; minimum daily mean, 4 mg/L, Oct. 31, Nov. 1-6.

SEDIMENT LOAD: Maximum daily, 30,800 tons, Jan. 30; minimum daily, 2.1 tons, Oct. 16.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	---	---	---	5.5	5.0	9.5	18.0	20.0	---	27.0	---
2	18.5	---	---	---	5.5	6.5	12.0	17.0	---	---	---	28.0
3	18.0	---	---	---	6.0	5.0	11.5	17.0	18.0	---	---	---
4	18.5	---	---	---	6.0	6.5	9.5	17.0	18.0	33.0	---	---
5	18.0	---	---	---	5.5	---	14.0	18.0	---	---	---	26.0
6	18.0	---	---	---	5.5	6.5	---	---	---	---	25.0	26.0
7	---	---	---	---	---	5.0	9.0	18.0	---	25.0	28.0	25.0
8	16.0	---	---	---	4.5	6.5	9.5	19.0	29.0	27.0	29.0	24.0
9	---	---	---	---	5.5	7.0	11.5	19.0	---	30.0	23.0	23.0
10	12.5	---	---	---	6.5	8.0	13.0	16.5	24.0	28.0	25.0	24.0
11	17.5	---	---	---	6.5	7.0	---	17.0	---	25.0	25.0	25.0
12	16.0	---	---	---	6.5	13.0	13.0	15.5	25.0	---	25.0	---
13	19.5	---	---	---	7.0	15.0	12.5	16.0	23.0	22.0	26.0	25.0
14	18.0	---	---	---	7.0	17.0	13.0	19.0	24.0	30.0	26.0	25.0
15	17.5	---	---	---	6.5	17.0	---	---	24.0	25.0	---	25.0
16	22.5	---	---	---	8.0	15.0	---	18.0	---	---	27.0	---
17	24.0	---	---	---	7.5	16.0	---	---	24.5	---	---	19.0
18	18.0	---	---	4.0	9.0	---	---	---	27.0	---	---	---
19	18.0	---	---	4.0	6.0	13.5	---	18.5	---	---	28.0	18.0
20	13.0	---	---	4.0	4.5	8.0	---	---	---	---	22.0	---
21	---	---	---	5.5	7.5	11.0	---	19.0	---	27.0	---	23.0
22	18.0	---	---	---	6.5	14.0	15.0	17.5	---	28.0	---	20.0
23	18.5	---	---	5.0	6.5	14.0	17.0	18.0	27.5	25.0	20.0	21.0
24	18.0	---	---	4.5	8.5	---	20.5	18.5	---	28.0	20.0	18.0
25	14.0	---	---	5.5	4.5	10.0	21.0	---	---	---	25.0	18.0
26	---	---	---	5.5	4.0	10.0	---	17.5	---	28.0	26.0	22.0
27	---	---	---	4.0	3.5	9.5	---	17.5	27.0	24.0	27.0	---
28	18.0	---	---	5.0	4.0	10.0	---	17.5	---	24.0	---	---
29	18.0	---	---	4.5	---	11.0	19.0	17.0	---	27.0	27.0	---
30	16.0	---	---	---	---	10.0	19.0	14.5	29.0	28.0	26.0	23.0
31	16.5	---	---	5.0	---	10.0	---	17.0	---	28.0	25.5	---

SEDIMENT, SUSPENDED CONCENTRATION (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

e Estimated

01643500 BENNETT CREEK AT PARK MILLS, MD

LOCATION.--Lat 39°17'40", long 77°24'30", Frederick County, Hydrologic Unit 02070009, on left bank 75 ft downstream from highway bridge, 0.2 mi south of Park Mills, 1.8 mi upstream from mouth, and 3.7 mi southwest of Urbana.

DRAINAGE AREA.--62.8 mi².

PERIOD OF RECORD.--July 1948 to September 1958. Annual maximum, water years 1960-66. August 1966 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 240 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--40 years (water years 1949-58, 1967-90), 68.9 ft³/s, 14.90 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,200 ft³/s, June 21, 1972, gage height, 22.1 ft, from flood-mark, from rating curve extended above 2,700 ft³/s on basis of contracted-opening measurements at gage heights 11.15 ft, 14.33 ft, and 22.1 ft; minimum discharge, 0.30 ft³/s, Sept. 8, 1966, gage height, 0.80 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 10	1400	*1,450	*5.56	No other peak greater than base discharge.			

Minimum daily discharge, 12 ft³/s, Sept. 9, 11, 12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	25	25	170	92	47	77	63	86	32	16	16
2	47	23	24	73	81	46	241	54	75	34	14	15
3	29	24	25	54	74	47	386	51	115	26	14	14
4	19	22	25	49	90	43	159	57	101	24	14	14
5	17	22	24	58	76	42	119	70	71	23	56	14
6	17	22	24	51	66	42	108	55	64	23	97	14
7	17	23	24	44	64	39	161	50	61	22	37	14
8	15	23	23	41	60	38	122	46	57	22	23	13
9	16	46	24	45	59	41	98	43	75	21	31	12
10	16	40	24	67	118	41	91	633	74	20	67	13
11	16	28	24	72	90	39	101	255	55	21	42	12
12	16	25	24	58	74	39	83	125	51	42	28	12
13	16	24	25	47	67	37	74	108	49	80	24	15
14	14	24	22	45	65	37	71	91	47	48	23	15
15	14	25	22	41	61	35	102	75	46	58	20	15
16	14	125	22	39	62	35	79	71	45	38	19	35
17	23	61	23	37	58	55	73	71	42	30	17	39
18	30	42	e24	37	52	64	69	63	41	27	17	16
19	141	34	e24	35	53	46	64	56	42	25	17	15
20	181	34	e23	35	49	79	62	54	40	24	35	17
21	62	30	e23	37	45	74	69	63	39	24	25	15
22	41	28	e23	34	48	62	66	55	37	26	32	20
23	34	31	e22	32	55	56	61	53	40	27	51	19
24	29	28	e22	31	85	55	58	49	35	23	33	15
25	27	28	e22	57	56	60	55	46	33	21	26	14
26	26	32	22	222	48	62	55	158	32	19	24	14
27	24	31	e23	103	50	54	53	86	30	19	20	16
28	25	32	e23	75	50	51	51	67	29	18	19	15
29	24	28	e23	145	---	50	56	364	28	18	18	14
30	23	25	e26	354	---	58	78	179	27	18	17	14
31	24	---	53	123	---	105	---	107	---	18	17	---
TOTAL	1015	985	757	2311	1848	1579	2942	3318	1567	871	893	486
MEAN	32.7	32.8	24.4	74.5	66.0	50.9	98.1	107	52.2	28.1	28.8	16.2
MAX	181	125	53	354	118	105	386	633	115	80	97	39
MIN	14	22	22	31	45	35	51	43	27	18	14	12
CFSM	.52	.52	.39	1.19	1.05	.81	1.56	1.70	.83	.45	.46	.26
IN.	.60	.58	.45	1.37	1.09	.94	1.74	1.97	.93	.52	.53	.29

CAL YR 1989 TOTAL 24481 MEAN 67.1 MAX 2050 MIN 11 CFSM 1.07 IN. 14.50
WTR YR 1990 TOTAL 18572 MEAN 50.9 MAX 633 MIN 12 CFSM .81 IN. 11.00

e Estimated

01645000 SENECA CREEK AT DAWSONVILLE, MD

LOCATION.--Lat 39°07'41", long 77°20'13", Montgomery County, Hydrologic Unit 02070008, on right bank 60 ft downstream from bridge on State Highway 28, 150 ft downstream from mouth of Great Seneca Creek, 0.5 mi east of Dawsonville, and 5.8 mi upstream from mouth.

DRAINAGE AREA.--101 mi².

PERIOD OF RECORD.--September 1930 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WSP 1232: 1930. WSP 1272: 1933. WSP 1432: 1934-35(M), 1941(M).

WDR MD-DE-74-1: 1970(M).

GAGE.--Water-stage recorder. Concrete control since Mar. 3, 1934. Datum of gage is 214.02 ft above National Geodetic Vertical Datum of 1929. Sept. 26 to Nov. 9, 1930, chain gage, and Nov. 10, 1930, to Apr. 6, 1934, water-stage recorder, at highway bridge 60 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Small diversion at times for irrigation upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--60 years, 104 ft³/s, 13.98 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,100 ft³/s, June 22, 1972, gage height, 16.4 ft, from high-water mark in gage house, from rating curve extended above 3,000 ft³/s on basis of contracted-opening and flow over-road measurement at gage height 12.17 ft at gage; and contracted-opening and flow-over-road measurement at gage height 16.32 ft at site 5.0 mi downstream, adjusted for flow from intervening area; minimum discharge observed, 1.7 ft³/s, Sept. 28, 29, 1930, gage height, 0.56 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 16	2100	1,590	6.27	May 29	1415	1,390	5.79
Apr. 2	2100	*2,270	*7.24				

Minimum discharge, 28 ft³/s, Sept. 5, gage height, 1.88 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	47	53	405	158	82	169	118	119	51	33	37
2	127	45	51	152	138	80	520	97	105	50	30	37
3	77	47	53	106	125	84	1040	94	110	39	30	36
4	58	44	49	95	161	80	297	105	148	38	29	35
5	48	50	46	97	138	73	197	129	101	38	98	33
6	44	42	47	88	115	71	173	100	94	41	532	35
7	43	43	47	84	107	70	309	90	90	37	150	35
8	41	44	46	86	100	67	212	88	87	35	85	34
9	42	73	44	120	96	71	158	94	121	35	145	32
10	41	71	42	143	214	74	139	328	150	33	476	33
11	41	54	49	122	172	71	180	261	93	34	167	31
12	40	55	51	99	134	71	138	141	83	40	108	30
13	39	44	47	86	114	72	121	129	82	241	76	34
14	40	44	47	75	110	70	110	131	74	101	74	36
15	43	45	45	76	110	67	232	126	68	140	56	38
16	40	813	45	73	103	62	149	94	68	91	52	35
17	51	233	e44	81	100	135	133	114	64	87	50	52
18	63	123	e43	82	87	157	126	94	63	83	48	36
19	448	92	e42	77	87	95	106	86	65	74	60	34
20	496	75	e41	66	85	152	100	85	66	44	174	37
21	189	69	e40	71	80	132	120	88	61	64	76	35
22	134	59	e39	65	83	100	125	86	59	88	73	60
23	91	69	e38	62	103	92	105	84	74	56	109	51
24	56	65	e38	61	166	94	96	81	56	47	93	34
25	52	60	e37	137	108	117	94	79	50	43	86	32
26	50	73	e37	504	85	116	93	492	48	40	72	33
27	48	64	e36	228	84	95	89	213	47	37	52	37
28	47	64	e36	146	84	88	87	148	44	36	51	32
29	48	58	e36	240	---	87	108	705	43	39	43	30
30	47	53	e42	619	---	115	154	335	40	39	41	30
31	46	---	101	222	---	341	---	161	---	35	39	---
TOTAL	2672	2718	1412	4568	3247	3081	5680	4976	2373	1856	3208	1084
MEAN	86.2	90.6	45.5	147	116	99.4	189	161	79.1	59.9	103	36.1
MAX	496	813	101	619	214	341	1040	705	150	241	532	60
MIN	39	42	36	61	80	62	87	79	40	33	29	30
CFSM	.85	.90	.45	1.46	1.15	.98	1.87	1.59	.78	.59	1.02	.36
IN.	.98	1.00	.52	1.68	1.20	1.13	2.09	1.83	.87	.68	1.18	.40

CAL YR 1989 TOTAL 52306 MEAN 143 MAX 5210 MIN 32 CFSM 1.42 IN. 19.27
WTR YR 1990 TOTAL 36875 MEAN 101 MAX 1040 MIN 29 CFSM 1.00 IN. 13.58

e Estimated

POTOMAC RIVER BASIN
01646500 POTOMAC RIVER NEAR WASHINGTON, DC

99

LOCATION.--Lat 38°56'58", long 77°07'40", Montgomery County, Md., Hydrologic Unit 02070008, on left bank just above Little Falls Dam, 1 mi upstream from District of Columbia boundary line, 1.2 mi upstream from Chain Bridge, 1.8 mi east of Langley, Fairfax County, Va., and at mile 117.4.

DRAINAGE AREA.--11,560 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1930 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WDR MD-DE-75-1: 1973-74(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 37.95 ft above National Geodetic Vertical Datum of 1929. Prior to June 7, 1930, nonrecording gage, and June 7, 1930, to Jan. 22, 1965, water-stage recorder at site 1 mi upstream on right bank at same datum.

REMARKS.--Water-discharge records good except those for estimated daily discharges (ice effect), which are fair. Diversions at Great Falls through aqueducts, and since June 1959, from gage pool at Little Falls Dam, for municipal supply of Washington, D.C.; since October 1958, at Rockville Filtration Plant, for municipal supply of city of Rockville; since April 1961, at Potomac Filtration Plant for water supply of Washington Suburban Sanitary District; since October 1961, at Fairfax Water Treatment Plant for water supply of city of Fairfax (from Goose Creek); since April 1964, at Violets Lock to Chesapeake and Ohio Canal; and since October 1985, at Fairfax County Water Authority Treatment Plant for water supply of the county. Low flow affected slightly prior to July 1981 by Stony River Reservoir, since December 1950, by Savage River Reservoir (see station 01597500), and since July 1981, by Jennings Randolph Lake. Gage-height telemeter at station.

AVERAGE DISCHARGE.--60 years, 11,480 ft³/s, 13.49 in/yr, adjusted for diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 484,000 ft³/s, Mar. 19, 1936, gage height, 28.1 ft, site then in use; minimum daily discharge observed at gaging station, 121 ft³/s, Sept. 9, 1966, does not include diversion of 489 ft³/s; minimum daily discharge (adjusted), 601 ft³/s, Sept. 10, 1966, includes diversion of 449 ft³/s for municipal use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, was of approximately the same magnitude as that of March 19, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 45,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 31	1130	*61,000	*7.24	No other peak greater than base discharge.			

Minimum daily discharge, 1,530 ft³/s, Aug. 19, does not include diversion for municipal use; minimum daily (adjusted) discharge, 2,450 ft³/s, Aug. 19.

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

MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6610	5620	6720	e4000	35800	8760	10400	8000	46200	2780	2420	4270
2	6760	5240	6380	e5500	27800	8500	10500	7490	30700	2810	2360	3570
3	6390	5160	5740	e7000	23000	8300	20900	6990	22400	2550	2100	3100
4	6610	5150	5450	19600	20800	8080	20100	6520	18600	2510	1810	2550
5	12600	4810	5190	18300	20800	7760	17900	6680	16600	3770	1890	2470
6	11600	4530	5050	16200	21400	7510	16100	7090	14300	3980	5450	2240
7	9480	4290	5020	15900	21200	7200	16500	8450	12100	3370	4890	2030
8	7910	4150	4960	17400	19600	6770	16300	11200	10400	3020	3660	2160
9	6690	4270	4910	15400	17900	6560	15300	10300	9680	2640	3560	2020
10	5770	4490	4680	14200	17300	6320	15300	10600	11300	2530	5800	1890
11	5150	4860	4390	13200	18100	6240	15000	18500	8610	2340	3790	1720
12	4760	5360	4150	13200	19700	6170	14800	16700	7230	3240	2770	1720
13	4340	5200	4370	13200	20000	5900	15000	14300	6480	5900	2580	1890
14	4090	5110	4470	12600	19100	5740	14600	14000	6330	6130	2240	2390
15	3900	4700	4130	11500	17600	5480	14900	13200	5730	12400	2200	2560
16	3490	7010	3670	10400	16100	5420	13900	11100	5240	16200	2220	4000
17	3640	6610	3140	9670	15000	6040	12400	9980	4730	15500	2030	4690
18	3720	17800	2570	9360	14000	7420	11500	10000	4600	15500	1540	3900
19	6150	25300	2400	9290	13000	7290	10500	8990	4650	12500	1530	3750
20	10700	18600	e2350	9250	11900	7120	9560	8360	4960	9300	1910	3530
21	23800	14000	e2300	9550	10900	8840	8970	7470	4810	8020	2780	3260
22	30100	11900	e2250	9940	10400	8720	8810	6860	4250	7170	4000	2880
23	21500	10600	e2300	10400	10300	8420	8290	6560	4030	6860	4500	2850
24	16000	9180	e2350	10900	10600	8040	8020	6260	3670	6880	6660	2620
25	12700	8270	e2400	10900	12400	7950	7680	5750	3320	5950	8660	2530
26	10500	7560	e2350	13800	11700	8070	7460	6340	3170	5470	11400	2750
27	8880	6820	e2300	16600	10500	7860	7000	8640	3110	4730	10600	2710
28	7780	6540	e2400	14800	9390	7650	6450	12900	3210	4040	8370	2430
29	7050	6500	e2600	14000	---	7630	6310	30200	3030	3340	7100	2190
30	6420	6690	e2800	22700	---	7820	7470	44700	2520	3050	5800	2190
31	5990	---	e3000	40600	---	9910	---	58900	---	2740	4690	---
TOTAL	281080	236320	116790	419360	476290	229490	367920	403030	285960	187220	131310	82860
MEAN	9067	7877	3767	13530	17010	7403	12260	13000	9532	6039	4236	2762
MAX	30100	25300	6720	40600	35800	9910	20900	58900	46200	16200	11400	4690
MIN	3490	4150	2250	4000	9390	5420	6310	5750	2520	2340	1530	1720
(†)	603	567	564	556	549	564	593	631	691	707	627	650
MEAN#	9998	8755	4640	14380	17860	8273	13180	13970	10600	7138	5206	3767
CFSM#	.86	.76	.40	1.24	1.54	.72	1.14	1.21	.92	.62	.45	.33
IN#	1.00	.85	.46	1.43	1.61	.83	1.27	1.39	1.02	.71	.52	.36
CAL YR 1989	TOTAL	4365110	MEAN	11920	MAX	92000	MIN	2250	MEAN#	12630	CFSM#	1.09
WTR YR 1990	TOTAL	3217630	MEAN	8815	MAX	58900	MIN	1530	MEAN#	9756	CFSM#	.84
										IN#	14.83	11.46

e Estimated

† Diversions, in cubic feet per second, for municipal supply of Washington, D.C., Washington Suburban Sanitary District, city of Rockville, city of Fairfax (from Goose Creek), Fairfax County, and the Chesapeake and Ohio Canal (insignificant diversion to canal during current water year). Records provided by U.S. Army Corps of Engineers, Washington Suburban Sanitary Commission, city of Rockville, city of Fairfax, and Fairfax County Water Authority.

Adjusted for diversion.

POTOMAC RIVER BASIN

01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1988 to September 1989.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1988 to current year.

WATER TEMPERATURE: October 1988 to current year.

INSTRUMENTATION.--Water-quality monitor October 1988 to current year.

REMARKS--Periods of missing record due to monitor malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD--

SPECIFIC CONDUCTANCE: Maximum, 543 microsiemens, Jan. 9, 1989; minimum, 80 microsiemens, May 6, 1989.

WATER TEMPERATURE: Maximum, 30.6°C, July 6, 1990; minimum, 0.0°C, on many days during winter periods.

EXTREMES FOR CURRENT PERIOD.--

SPECIFIC CONDUCTANCE: Maximum, 532 microsiemens, Jan. 1; minimum, 152 microsiemens, June 9.

WATER TEMPERATURE: Maximum, 30.6°C, July 6; minimum, 0.0°C, on many days during winter periods.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	275	272	273	268	264	265	263	256	258	532	354	419
2	274	184	232	277	268	273	270	263	266	363	354	359
3	268	246	259	284	277	280	272	270	271	361	337	349
4	275	268	271	286	284	285	275	271	273	358	331	346
5	287	271	278	290	286	289	276	274	275	351	305	331
6	284	282	283	292	289	291	278	276	277	308	263	292
7	301	284	293	294	290	292	278	274	276	263	222	239
8	301	284	294	299	292	296	278	274	276	268	219	227
9	284	272	276	297	290	294	280	275	278	353	268	279
10	275	273	274	305	296	302	283	277	280	345	287	320
11	273	260	266	308	300	305	293	280	288	287	249	266
12	263	259	261	307	302	304	305	291	298	249	242	244
13	271	271	268	312	307	310	355	305	330	246	242	243
14	276	272	275	314	309	312	378	353	364	248	245	246
15	282	276	280	321	312	315	366	351	358	252	248	250
16	290	281	286	324	160	280	390	321	345	258	251	255
17	293	261	289	262	245	255	391	368	374	257	253	255
18	286	254	272	308	260	287	374	367	369	262	255	258
19	288	218	244	309	234	280	368	357	360	270	262	265
20	256	158	231	241	220	231	366	358	362	272	269	270
21	300	256	281	220	216	218	369	358	364	274	269	271
22	298	280	288	217	215	216	368	356	360	276	271	273
23	290	248	271	235	215	217	377	360	368	276	271	273
24	246	222	230	238	214	220	366	357	362	270	265	268
25	222	216	219	238	216	224	369	359	365	287	261	272
26	218	214	216	255	238	247	374	362	368	---	---	---
27	228	218	223	256	248	253	381	366	374	---	---	---
28	235	228	232	256	251	254	379	372	375	---	---	---
29	245	235	240	256	254	255	388	373	382	---	---	---
30	255	245	250	256	253	255	385	374	381	---	---	---
31	264	255	260	---	---	---	469	374	393	---	---	---
MONTH	301	158	262	324	160	270	469	256	331	---	---	---

POTOMAC RIVER BASIN

101

01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	273	264	266	262	249	256	262	255	259
2	---	---	---	275	271	273	260	195	253	264	259	261
3	---	---	---	275	268	272	236	179	216	271	264	266
4	---	---	---	275	270	273	240	219	227	278	271	274
5	---	---	---	275	270	273	255	240	249	277	261	269
6	---	---	---	275	270	273	256	248	254	279	268	275
7	---	---	---	275	270	273	248	224	232	281	271	276
8	---	---	---	276	273	275	224	220	222	291	273	281
9	---	---	---	279	276	278	223	221	222	296	283	290
10	---	---	---	280	276	278	227	221	224	283	185	252
11	---	---	---	279	275	277	231	226	228	236	203	219
12	---	---	---	282	279	280	229	226	227	215	209	212
13	---	---	---	286	280	283	233	228	231	241	213	230
14	---	---	---	290	284	286	236	232	234	248	239	245
15	---	---	---	293	284	288	233	191	217	247	223	236
16	---	---	---	296	288	292	227	225	226	238	225	233
17	---	---	---	302	244	285	231	225	227	246	238	241
18	---	---	---	291	259	277	231	224	227	248	240	244
19	---	---	---	301	291	296	229	227	228	248	242	245
20	---	---	---	298	280	290	234	228	229	254	242	247
21	---	---	---	293	279	286	238	233	235	255	252	253
22	---	---	---	299	292	295	237	234	235	257	253	255
23	---	---	---	302	293	296	243	237	241	256	253	255
24	---	---	---	302	296	300	248	243	245	259	252	255
25	---	---	---	301	293	299	251	248	250	260	253	256
26	---	---	---	299	294	296	256	251	254	263	226	253
27	---	---	---	296	280	288	263	256	259	261	254	258
28	268	262	266	280	272	277	267	262	264	256	242	248
29	---	---	---	279	274	276	270	265	267	268	211	236
30	---	---	---	282	276	278	265	246	251	212	199	205
31	---	---	---	277	213	254	---	---	---	203	190	197
MONTH	---	---	---	302	213	282	270	179	238	296	185	249
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	190	181	185	301	287	294	281	277	279	310	300	303
2	183	180	181	300	285	291	278	273	275	308	300	304
3	189	182	185	306	285	294	289	274	280	309	305	307
4	194	188	191	306	285	292	304	286	295	305	295	299
5	202	194	198	305	280	288	304	285	295	295	290	294
6	211	202	207	314	293	303	288	248	265	291	288	289
7	216	211	214	323	297	313	248	219	228	290	286	287
8	225	216	221	329	315	322	237	224	230	291	287	289
9	232	152	224	329	316	322	241	218	228	297	289	293
10	225	163	211	349	323	331	234	181	208	306	297	301
11	239	214	230	358	320	333	236	212	225	308	304	306
12	242	236	238	364	321	343	260	236	251	312	306	308
13	246	242	245	343	273	300	280	260	270	318	311	314
14	254	246	251	322	246	309	287	277	283	321	317	319
15	256	250	253	272	216	252	303	279	290	327	319	323
16	261	254	257	331	221	275	309	295	302	325	300	319
17	260	251	255	342	300	329	314	291	302	330	279	308
18	261	246	253	341	267	313	314	296	304	345	330	336
19	259	240	251	273	263	269	311	297	305	354	345	351
20	266	241	256	280	271	275	303	281	293	365	354	359
21	282	266	274	278	215	264	291	283	286	366	360	363
22	292	282	287	256	222	250	310	288	298	361	357	359
23	290	281	284	256	239	249	310	284	297	359	349	354
24	296	279	288	267	251	261	347	310	328	355	339	350
25	293	281	286	276	267	272	342	314	331	340	328	336
26	293	281	287	278	274	276	350	317	332	329	319	325
27	290	279	286	288	275	278	355	325	337	320	318	319
28	289	285	287	292	282	286	326	302	313	325	318	322
29	300	289	293	297	278	285	311	301	304	334	325	329
30	304	293	296	297	282	288	327	311	323	337	333	335
31	---	---	---	286	280	284	324	310	318	---	---	---
MONTH	304	152	246	364	215	292	355	181	286	366	279	320

POTOMAC RIVER BASIN

01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	18.3	17.9	18.1	15.5	14.9	15.2	5.0	4.3	4.6	.2	.0	.0
2	18.7	17.8	18.2	14.9	13.8	14.1	4.9	3.6	4.2	.2	.0	.0
3	20.0	18.3	19.0	13.8	13.0	13.4	4.2	2.8	3.7	.2	.0	.0
4	18.9	17.6	18.3	13.0	11.6	12.1	2.8	1.4	2.0	.0	.0	.0
5	17.6	16.6	17.0	12.1	10.7	11.4	1.9	1.1	1.5	.2	.0	.0
6	17.1	16.7	16.9	11.9	11.1	11.5	2.6	1.7	2.1	.3	.0	.0
7	17.7	16.5	17.0	11.9	11.2	11.5	3.5	2.3	2.7	.3	.0	.1
8	16.5	15.7	16.1	12.3	11.7	11.9	3.0	1.7	2.4	.2	.0	.1
9	15.8	14.9	15.3	13.1	12.3	12.7	1.7	1.3	1.5	.4	.0	.1
10	15.3	14.1	14.7	12.9	11.9	12.3	1.6	.6	1.1	1.1	.4	.7
11	15.9	13.9	14.8	12.0	10.6	11.2	1.2	.4	.7	1.5	.9	1.2
12	16.5	14.2	15.4	11.7	10.4	11.0	1.1	.8	.9	1.7	1.4	1.5
13	17.5	15.2	16.3	11.4	10.1	10.8	1.5	.8	1.1	1.5	.5	.9
14	18.4	16.5	17.4	12.5	10.5	11.3	1.5	.6	1.0	1.1	.4	.7
15	19.7	17.5	18.5	14.0	12.0	12.8	.9	.3	.6	2.1	1.1	1.6
16	20.6	18.4	19.5	15.3	13.2	14.1	.5	.1	.1	3.2	1.9	2.5
17	20.2	19.4	19.7	13.2	11.1	12.2	.2	.0	.1	4.3	2.7	3.4
18	19.5	18.2	19.0	11.1	8.8	9.7	.3	.0	.2	5.9	3.6	4.9
19	18.2	14.7	15.9	8.8	8.3	8.6	.2	.0	.1	5.8	4.9	5.4
20	15.1	13.7	14.5	8.7	7.8	8.3	.3	.0	.2	4.9	4.6	4.8
21	13.7	12.9	13.2	8.7	6.6	7.8	.3	.0	.1	5.5	4.6	4.9
22	13.4	12.6	13.0	6.6	5.4	6.2	.3	.1	.2	5.5	4.7	5.0
23	13.1	12.1	12.6	5.5	4.3	5.0	.4	.0	.2	5.5	4.7	5.0
24	12.8	12.0	12.5	5.0	4.0	4.5	.2	.0	.1	6.1	5.1	5.6
25	12.8	12.1	12.4	5.1	4.0	4.4	.2	.0	.0	7.4	6.0	6.6
26	13.5	12.4	12.8	5.8	4.4	5.1	.1	.0	.0	---	---	---
27	14.3	12.6	13.3	5.4	4.9	5.1	.1	.0	.0	---	---	---
28	14.6	13.1	13.7	6.6	5.2	5.9	.2	.0	.0	---	---	---
29	15.2	13.8	14.4	6.4	5.7	6.2	.1	.0	.0	---	---	---
30	15.5	14.2	14.8	5.7	4.6	5.1	.1	.0	.0	---	---	---
31	15.6	14.9	15.2	---	---	---	.1	.0	.0	---	---	---
MONTH	20.6	12.0	15.8	15.5	4.0	9.7	5.0	.0	1.0	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	5.7	3.7	4.5	9.9	9.3	9.6	20.8	19.2	19.9
2	---	---	---	5.4	4.3	4.9	12.0	9.8	10.5	20.5	19.2	19.8
3	---	---	---	7.1	5.1	5.9	12.1	11.5	11.8	19.8	18.8	19.2
4	---	---	---	6.8	5.4	6.0	11.7	9.8	10.5	18.9	17.8	18.5
5	---	---	---	6.9	5.1	5.8	10.9	9.1	10.0	18.5	17.0	17.7
6	---	---	---	6.7	5.8	6.3	11.1	9.9	10.5	18.7	17.1	17.7
7	---	---	---	6.9	5.2	5.9	10.0	9.3	9.7	19.0	16.7	17.7
8	---	---	---	6.8	4.7	5.6	10.1	8.5	9.4	19.9	17.8	18.7
9	---	---	---	8.1	5.3	6.6	10.9	9.2	10.1	20.3	19.1	19.6
10	---	---	---	10.2	7.2	8.5	11.9	10.9	11.3	19.8	18.0	19.2
11	---	---	---	11.2	9.1	10.1	12.5	11.6	12.1	18.2	17.5	17.9
12	---	---	---	13.2	10.3	11.5	11.7	10.8	11.2	17.8	16.3	16.8
13	---	---	---	15.1	11.9	13.4	11.7	10.2	11.0	16.9	16.3	16.6
14	---	---	---	16.5	13.8	15.1	12.1	10.9	11.5	18.2	16.4	17.2
15	---	---	---	17.7	15.2	16.4	13.3	12.1	12.8	19.1	18.0	18.6
16	---	---	---	18.2	16.4	17.3	14.6	13.2	13.8	20.3	19.2	19.8
17	---	---	---	17.9	17.0	17.5	14.8	13.4	14.3	21.7	20.0	20.7
18	---	---	---	17.5	16.0	16.8	13.8	12.2	13.0	21.2	20.1	20.5
19	---	---	---	16.0	14.4	15.3	13.9	12.2	12.9	21.0	19.5	20.2
20	---	---	---	14.2	10.7	12.7	14.3	12.7	13.6	21.9	20.1	21.1
21	---	---	---	11.2	9.4	10.2	14.8	13.7	14.4	21.8	21.0	21.4
22	---	---	---	12.2	9.7	10.7	16.3	13.7	14.9	21.0	19.2	20.0
23	---	---	---	13.7	11.0	12.2	18.0	15.0	16.3	19.9	18.1	19.0
24	---	---	---	12.3	10.6	11.6	19.2	16.2	17.6	20.7	18.6	19.7
25	---	---	---	10.6	9.9	10.2	20.4	17.8	19.0	22.0	19.6	20.9
26	---	---	---	10.9	9.3	10.0	22.1	19.0	20.4	21.1	20.3	20.7
27	---	---	---	11.4	9.5	10.2	23.0	20.6	21.8	20.4	19.8	20.1
28	4.9	2.8	3.6	11.5	9.4	10.3	24.0	21.6	22.8	19.8	18.5	19.0
29	---	---	---	10.8	10.2	10.6	23.0	20.9	22.2	18.6	16.5	17.3
30	---	---	---	10.3	9.3	9.6	20.9	19.5	20.0	16.8	15.8	16.3
31	---	---	---	9.4	8.4	9.1	---	---	---	16.2	15.2	15.7
MONTH	---	---	---	18.2	3.7	10.3	24.0	8.5	14.0	22.0	15.2	19.0

POTOMAC RIVER BASIN

103

01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	17.3	15.4	16.3	29.8	28.4	29.2	28.8	26.9	28.1	27.7	25.3	26.6
2	19.0	16.7	17.7	28.7	27.0	27.9	28.1	26.6	27.3	27.6	25.5	26.7
3	20.5	18.5	19.3	27.8	26.4	27.0	28.0	26.7	27.2	27.9	26.0	27.1
4	20.5	19.8	20.1	29.0	26.7	27.7	28.4	27.2	27.8	27.3	25.8	26.7
5	20.3	19.0	19.7	30.3	27.9	29.0	28.2	27.2	27.7	26.6	25.4	26.0
6	21.2	19.4	20.2	30.6	28.4	29.7	27.2	25.1	26.2	26.6	25.6	26.2
7	22.3	21.2	21.9	29.9	28.2	29.1	26.5	24.5	25.4	27.3	26.3	26.8
8	23.5	22.1	22.7	28.8	27.4	28.2	26.6	24.5	25.7	27.0	26.2	26.7
9	25.5	22.9	24.1	29.4	27.5	28.3	26.1	24.6	25.2	26.3	24.8	25.2
10	25.0	23.1	24.2	29.8	28.5	28.9	24.6	22.4	23.3	25.7	24.4	24.9
11	23.7	22.3	23.2	29.8	28.9	29.3	25.1	22.9	23.9	25.5	24.2	24.7
12	23.7	21.4	22.5	29.6	28.4	28.8	26.5	24.2	25.3	26.0	25.2	25.5
13	23.5	22.1	22.9	28.5	24.8	26.1	28.4	25.7	26.8	25.8	25.1	25.5
14	25.1	22.3	23.6	24.8	23.5	24.2	28.2	26.6	27.2	25.3	24.7	25.0
15	24.7	23.7	24.2	24.3	23.4	23.9	28.4	27.2	27.7	25.2	24.1	24.7
16	25.7	23.1	24.5	25.3	23.7	24.3	28.0	27.4	27.7	24.7	22.2	23.8
17	27.5	24.4	26.1	25.5	24.7	25.1	28.4	27.0	27.6	22.4	20.9	21.6
18	28.0	25.5	26.8	25.9	24.9	25.4	30.3	27.2	28.0	21.3	19.6	20.4
19	28.0	25.9	27.0	26.6	25.3	26.0	29.0	27.9	28.5	19.9	18.7	19.2
20	27.5	25.3	26.4	27.7	26.2	26.8	28.6	26.0	27.2	20.7	18.7	19.5
21	28.2	25.6	26.8	27.8	26.1	27.0	25.9	24.4	25.1	20.9	19.0	20.1
22	28.2	26.1	27.2	28.0	26.2	26.9	24.4	23.0	23.5	20.7	19.6	20.2
23	28.0	25.8	26.9	28.8	26.7	27.7	23.0	22.3	22.5	20.4	19.2	19.9
24	27.4	25.7	26.7	28.1	27.2	27.6	23.3	22.1	22.6	19.9	18.3	19.3
25	27.1	25.0	26.2	28.7	26.4	27.5	24.4	22.9	23.6	19.4	17.9	18.8
26	27.1	24.8	26.1	29.1	26.9	27.9	25.8	23.8	24.8	19.0	17.9	18.4
27	27.6	25.6	26.4	29.1	27.1	28.1	26.1	25.0	25.5	19.3	18.1	18.7
28	29.0	26.5	27.6	28.9	27.3	28.1	27.4	25.4	26.3	20.4	18.7	19.4
29	29.8	27.4	28.6	28.5	27.1	27.8	27.8	26.3	26.9	20.9	19.7	20.2
30	30.4	28.4	29.4	29.0	27.0	28.0	27.8	26.1	26.8	21.3	20.4	20.8
31	---	---	---	29.3	27.5	28.5	27.8	25.6	26.7	---	---	---
MONTH	30.4	15.4	24.2	30.6	23.4	27.4	30.3	22.1	26.1	27.9	17.9	23.0

POTOMAC RIVER BASIN

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC
(National stream-quality accounting network station)

LOCATION.--Lat 38°55'46", long 77°07'02", Arlington County, Va., Hydrologic Unit 02070010, under right downstream side of bridge on Virginia State Highway 123, and at river mile 115.9.

DRAINAGE AREA.--11,570 mi².

PERIOD OF RECORD.--Water years 1973 to current year. Prior to October 1977, published as "at Great Falls."

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1978 to September 1981 (discontinued).

pH: June 1978 to September 1981 (discontinued).

WATER TEMPERATURE: June 1978 to September 1981 (discontinued).

DISSOLVED OXYGEN: June 1978 to September 1981 (discontinued).

SUSPENDED SEDIMENT DISCHARGE: October 1978 to September 1981 (discontinued).

INSTRUMENTATION.--Water-quality monitor June 1978 to September 1981.

REMARKS.--High flows are sampled from the George Mason Memorial Bridge (14th Street) located 6 mi downstream from Chain Bridge. Duplicate samples taken on some days for quality-assurance checks.

EXTREMES FOR PERIOD OF DAILY RECORD--

SPECIFIC CONDUCTANCE (water years 1979, 1981): Maximum, 598 microsiemens, Sept. 12, 1981; minimum, 116 microsiemens, Jan. 25, 1979.

pH (water years 1979, 1981): Maximum, 9.3 units, Mar. 29, 1981; minimum, 6.7 units, June 2, 1981.

WATER TEMPERATURE (water years 1979, 1981): Maximum, 31.0°C, July 23-24, 1978; minimum, 0.0°C on many days during winter periods.

DISSOLVED OXYGEN (water years 1979, 1981): Maximum, 16.4 mg/L, on many days in 1979; minimum, 5.6 mg/L, June 2, 1981.

SEDIMENT CONCENTRATION: Maximum daily mean, 812 mg/L, Sept. 6, 1979; minimum daily mean, 1 mg/L on many days during winter periods.

SEDIMENT LOAD: Maximum daily, 281,000 tons, Feb. 27, 1979; minimum daily, 3.2 tons, Jan. 5, 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	Dis-charge, instantaneous (ft3/s)	Spe-cific con-ductance (US/CM)	Ph (stand-ard units)	Temper-ature, water (deg C)	Temper-ature, air (deg C)	Baro-metric pres-sure (mm of Hg)	Tur-bidity (ntu)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent satur-ation)	Coli-form, fecal, 0.7 UM-MF (col/100 ML)	
OCT												
31...	1130	6100	274	7.42	15.0	24.0	762	6.6	9.9	98	200	
*31...	1135	6100	274	7.42	15.0	24.0	762	--	9.9	98	--	
JAN												
30...	1100	17200	272	7.43	5.5	12.0	765	18	13.3	105	--	
*30...	1105	17200	260	6.91	5.5	12.0	765	--	13.3	105	--	
MAR												
06...	1230	7590	285	8.23	9.0	14.0	774	1.8	13.1	112	K5	
*06...	1235	7590	290	8.15	9.0	14.0	774	--	13.1	112	--	
MAY												
01...	1100	8340	258	7.65	18.0	20.0	763	6.6	8.7	92	K90	
*01...	1105	8340	265	7.27	18.0	20.0	763	--	8.7	92	--	
JUN												
26...	1045	3220	305	8.08	24.0	28.0	767	1.1	8.0	95	290	
*26...	1050	3220	293	8.23	24.0	28.0	767	--	8.0	95	--	
SEP												
05...	1100	2550	292	7.43	26.0	25.0	769	7.0	8.0	98	340	
*05...	1105	2550	288	7.35	26.0	25.0	769	--	8.0	98	--	
DATE		Strep-tococci fecal, KF agar (cols. per 100 ML)	Calcium dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)	Potas-sium, dis-solved (mg/L as K)	Alka-linity, wat wh tot fet field (mg/L as CaCO3)	Sulfate dis-solved (mg/L as SO4)	Chlo-ride, dis-solved (mg/L as Cl)	Fluo-ride, dis-solved (mg/L as F)	Silica, dis-solved (mg/L as SiO2)	Solids, residue at 180 deg. C dis-solved (mg/L)
OCT												
31...	310	34	7.4	7.6	2.4	81	28	9.8	0.10	6.2	156	
31...	--	--	--	--	--	82	--	--	--	5.9	--	
JAN												
30...	930	29	6.8	9.0	2.1	62	29	14	0.10	4.5	142	
30...	--	--	--	--	--	62	--	--	--	4.2	--	
MAR												
06...	K15	37	8.2	7.4	1.9	107	28	9.6	0.70	0.44	150	
06...	--	--	--	--	--	109	--	--	--	0.30	--	
MAY												
01...	310	32	7.5	8.1	1.9	80	26	10	0.10	0.90	131	
01...	--	--	--	--	--	85	--	--	--	0.50	--	
JUN												
26...	370	36	9.7	9.3	2.4	96	32	13	0.10	1.9	158	
26...	--	--	--	--	--	92	--	--	--	1.7	--	
SEP												
05...	520	35	9.3	9.5	3.3	89	30	14	<0.10	7.7	161	
05...	--	--	--	--	--	89	--	--	--	7.7	--	

*Note: Water-quality samples collected from an automatic sampler on same day for quality-assurance purposes.
K: Results based on colony count outside the acceptance range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

[illegible]

POTOMAC RIVER BASIN

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	Dis-charge, instantaneous (ft ³ /s)	Sedi-ment, sus-pended (mg/L)	Sedi-ment, dis-charge, sus-pended (T/DAY)	Sed. susp. sieve diam. % finer than .062 MM
OCT					
31...	1130	6100	29	478	94
31...	1135	6100	17	280	--
JAN					
30...	1100	17200	67	3110	95
30...	1105	17200	72	3340	--
MAR					
06...	1230	7590	3	61	97
06...	1235	7590	10	205	--
MAY					
01...	1100	8340	18	405	91
01...	1105	8340	31	698	--
JUN					
26...	1045	3220	18	156	--
26...	1050	3220	20	174	--
SEP					
05...	1100	2550	19	131	94
05...	1105	2550	11	76	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
RADIOCHEMICAL ANALYSES

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
SEP 1989 06...	1050	3460	1.5	<0.4	5.9	0.6	0.07	7.4	0.7	0.35

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
RADIOCHEMICAL ANALYSES

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
MAR 1990 06...	1230	7590	<0.4	<0.4	1.9	<0.4	0.07	2.3	<0.4	<0.01

POTOMAC RIVER BASIN

107

01648000 ROCK CREEK AT SHERRILL DRIVE, WASHINGTON, DC

LOCATION.--Lat 38°58'21", long 77°02'25", District of Columbia, Hydrologic Unit 02070010, on left bank 125 ft downstream from Sherrill Drive Bridge in Rock Creek Park in Washington, and 7.5 mi upstream from mouth.

DRAINAGE AREA.--62.2 mi².

PERIOD OF RECORD.--October 1929 to current year.

REVISED RECORDS.--WSP 1432: 1933(M).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 148.87 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Flow affected by two upstream reservoirs which control flow from about 25 mi², Needwood Lake on Rock Creek since Sept. 1966 and Bernard Frank Lake on North Branch Rock Creek since February 1968. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--61 years, 62.4 ft³/s, 13.62 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft³/s, June 22, 1972, gage height, 16.2 ft, from flood-mark, from rating curve extended above 5,640 ft³/s on basis of contracted-opening measurements at gage heights 13.19 ft and 16.2 ft; minimum discharge, 0.5 ft³/s, Oct. 1-7, 1930, gage height, 1.04 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Aug. 6	0145	1,440	6.44	Aug. 10	1245	*1,500	*6.63

Minimum discharge, 13 ft³/s, Sept. 29, 30, gage height, 1.29 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	34	30	e300	91	40	105	71	97	44	17	21
2	251	28	29	106	71	40	190	55	74	26	16	20
3	57	37	28	77	61	44	241	48	58	21	16	20
4	37	28	27	68	87	38	122	44	113	20	14	19
5	28	26	27	55	61	36	96	120	71	21	41	18
6	25	26	27	46	53	36	106	46	55	19	515	18
7	22	26	28	40	48	35	184	41	46	18	114	18
8	21	56	29	74	45	34	98	39	40	16	57	17
9	20	55	e26	90	44	35	77	37	209	17	224	17
10	19	37	e26	76	141	38	65	360	128	16	696	16
11	20	31	e30	60	77	35	89	165	48	16	151	16
12	19	29	e31	50	64	35	61	98	37	166	103	16
13	18	27	e31	42	51	35	55	95	34	337	94	30
14	20	27	e30	37	47	35	51	69	33	296	118	22
15	22	29	e28	36	45	34	308	53	35	125	47	21
16	22	382	e26	35	55	34	89	50	32	84	38	60
17	165	154	e26	35	46	233	80	71	30	45	33	54
18	94	113	e26	35	41	129	69	51	45	34	30	18
19	547	86	26	34	39	64	56	39	82	28	50	17
20	422	61	e25	34	38	91	53	36	46	27	100	19
21	141	44	e23	35	36	66	96	44	32	238	45	16
22	99	37	e22	33	50	53	65	36	41	62	71	61
23	70	51	e21	32	164	46	56	34	63	155	87	30
24	50	41	e20	32	99	64	52	33	33	41	45	19
25	39	34	e20	160	61	74	49	32	28	30	44	16
26	34	37	e20	331	48	61	48	405	26	25	34	18
27	32	34	e20	125	42	50	48	136	25	22	31	21
28	29	34	e23	94	41	45	44	93	23	21	29	14
29	28	33	e25	184	---	49	139	569	23	20	26	13
30	27	31	30	283	---	89	176	176	23	20	24	15
31	30	---	e67	118	---	233	---	125	---	19	23	---
TOTAL	2453	1668	847	2757	1746	1931	2968	3271	1630	2029	2933	680
MEAN	79.1	55.6	27.3	88.9	62.4	62.3	98.9	106	54.3	65.5	94.6	22.7
MAX	547	382	67	331	164	233	308	569	209	337	696	61
MIN	18	26	20	32	36	34	44	32	23	16	14	13
CFSM	1.27	.89	.44	1.43	1.00	1.00	1.59	1.70	.87	1.05	1.52	.36
IN.	1.47	1.00	.51	1.65	1.04	1.15	1.78	1.96	.97	1.21	1.75	.41

CAL YR 1989 TOTAL 29861 MEAN 81.8 MAX 2380 MIN 14 CFSM 1.32 IN. 17.86
WTR YR 1990 TOTAL 24913 MEAN 68.3 MAX 696 MIN 13 CFSM 1.10 IN. 14.90

e Estimated

POTOMAC RIVER BASIN

01649500 NORTHEAST BRANCH ANACOSTIA RIVER AT RIVERDALE, MD

LOCATION.--Lat 38°57'37", long 76°55'34", Prince Georges County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on Riverdale Road, 1.8 mi downstream from Indian Creek, and 1.8 mi upstream from confluence with Northwest Branch.

DRAINAGE AREA.--72.8 mi².

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WDR MD-DE-75-1: 1972(M).

GAGE.--Water-stage recorders, crest-stage gage, and concrete control. Datum of gage is 12.68 ft above National Geodetic Vertical Datum of 1929 (Washington Suburban Sanitary Commission bench mark). Prior to June 12, 1942, nonrecording gage; June 12, 1942 to Mar. 22, 1966, and Apr. 12, 1967 to Sept. 3, 1969, water-stage recorder, all at bridge at datum 14.00 ft above mean sea level. Mar. 23, 1966 to Apr. 11, 1967, nonrecording gage 600 ft downstream from bridge at datum 9.25 ft above mean sea level.

REMARKS.--Records good except those for estimated daily discharges (ice effect and manometer malfunction), which are fair. Some regulation at low flow by sand and gravel plants upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--52 years, 84.3 ft³/s, 15.72 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s, June 22, 1972, gage height, 9.52 ft, from rating curve extended above 3,800 ft³/s on basis of the average of contracted-opening and slope-area measurements at gage height 9.52 ft; maximum gage height, 12.93 ft, prior to major channel improvements, Oct. 16, 1942; minimum daily discharge, 1.4 ft³/s Sept. 12, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 23 or 24, 1933, reached a stage of about 15.5 ft at datum 14.00 ft above mean sea level, from floodmarks, discharge, 10,500 ft³/s, from rating curve extended above 3,000 ft³/s on basis of velocity-area study.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 16	1115	2,650	5.71	July 14	1638	2,190	5.24
Apr. 15	0343	2,860	5.92	July 21	0940	2,760	5.82
May 26	0915	2,810	5.87	Aug. 6	0015	*3,610	* 6.61
May 29	1115	2,650	5.71				

Minimum daily discharge, 14 ft³/s, Aug. 3.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	e50	36	e600	90	e45	128	107	67	33	16	27
2	530	e40	35	140	76	e50	256	67	56	30	15	27
3	124	55	35	84	73	e54	331	58	49	21	14	27
4	51	42	36	72	116	e45	119	55	48	20	15	27
5	38	39	35	71	78	e42	82	221	48	19	200	26
6	35	38	35	59	62	e44	116	74	39	18	759	25
7	34	38	34	50	59	e40	284	51	39	18	92	24
8	31	114	34	145	54	e38	115	43	38	18	42	24
9	30	95	e33	167	52	e43	77	40	184	18	480	24
10	e28	53	e32	126	216	e46	65	513	104	16	629	25
11	e28	42	e36	80	117	e42	92	266	43	18	128	22
12	e28	39	e39	62	78	e42	61	86	35	237	64	25
13	e26	37	e38	51	60	e42	55	95	32	367	61	30
14	e26	35	e36	44	54	e42	56	71	32	484	78	32
15	e26	40	e35	43	51	e41	996	57	52	234	40	29
16	e26	813	e33	43	63	e50	177	57	37	66	35	60
17	e240	169	e32	41	55	e450	115	86	33	39	32	51
18	e200	77	e32	40	46	e190	90	60	31	30	32	29
19	e900	55	e31	39	45	e70	70	42	52	26	58	29
20	e800	46	e30	38	43	e85	63	39	40	31	89	30
21	e120	42	e29	40	42	e60	107	48	30	296	44	26
22	e70	38	e29	38	56	e52	79	41	35	58	88	61
23	e55	68	e28	38	e200	e49	62	38	46	49	153	35
24	e46	48	e28	37	e110	e70	56	36	31	25	65	30
25	e40	45	e27	295	e54	e80	52	35	32	22	87	38
26	e50	53	e27	683	e40	e66	50	824	27	19	65	31
27	e46	49	e27	178	e40	53	44	179	24	19	42	23
28	e40	44	e27	96	e45	47	43	79	23	19	35	22
29	e40	41	e30	311	---	48	204	1150	23	21	33	25
30	e40	37	e35	519	---	93	276	290	21	19	29	25
31	e46	---	e150	135	---	351	---	97	---	18	27	---
TOTAL	3846	2382	1124	4365	2075	2470	4321	4905	1351	2308	3547	909
MEAN	124	79.4	36.3	141	74.1	79.7	144	158	45.0	74.5	114	30.3
MAX	900	813	150	683	216	450	996	1150	184	484	759	61
MIN	26	35	27	37	40	38	43	35	21	16	14	22
CFSM	1.70	1.09	.50	1.93	1.02	1.09	1.98	2.17	.62	1.02	1.57	.42
IN.	1.97	1.22	.57	2.23	1.06	1.26	2.21	2.51	.69	1.18	1.81	.46

CAL YR 1989 TOTAL 40636 MEAN 111 MAX 3280 MIN 17 CFSM 1.53 IN. 20.76
WTR YR 1990 TOTAL 33603 MEAN 92.1 MAX 1150 MIN 14 CFSM 1.26 IN. 17.17

e Estimated

POTOMAC RIVER BASIN

109

01651000 NORTHWEST BRANCH ANACOSTIA RIVER NEAR HYATTSVILLE, MD

LOCATION.--Lat 38°57'09", long 76°58'00", Prince Georges County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on Queens Chapel Road (State Highway 500), 0.8 mi downstream from Sligo Branch, 1.0 mi west of Hyattsville, and 1.6 mi upstream from confluence with Northeast Branch.

DRAINAGE AREA.--49.4 mi².

PERIOD OF RECORD.--July 1938 to current year. Monthly discharge only for July 1938 published in WSP 1302.

REVISED RECORDS.--WSP 971: 1942(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 17.10 ft above National Geodetic Vertical Datum of 1929 (Washington Suburban Sanitary Commission bench mark). Prior to Oct. 22, 1938, nonrecording gage; Oct. 22, 1938 to Sept. 17, 1951, water-stage recorder; Sept. 17, 1951 to Aug. 29, 1952, nonrecording gage and crest-stage gage.

REMARKS.--Records good except for those for Oct. 2-3 (manometer malfunction) and Dec. 9 to Jan. 1 (ice effect), which are fair, and those for May 27 to Sept. 30 (leaking control), which are poor. Prior to June 1961, low flow regulated by storage at Burnt Mills Dam, 7.0 mi upstream from station. Inflow pumped from Patuxent River to augment water supply for Washington Suburban Sanitary District, August 1939 to August 1960. Small diversion since 1962 for irrigation of golf courses upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--52 years, 47.1 ft³/s, 12.95 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft³/s, June 22, 1972, gage height, 14.47 ft, from rating curve extended above 4,000 ft³/s on the basis of the average of slope-area and step-backwater measurements of peak flow 14.47 ft; minimum discharge, 0.2 ft³/s, Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Aug. 5	2400	*3,570	*5.60	No other peak greater than base discharge.			

Minimum daily discharge, 10 ft³/s, Sept. 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	28	24	e280	49	33	69	56	e70	e30	e13	e17
2	e275	23	23	60	45	35	152	41	e55	e20	e12	e16
3	e50	34	23	42	47	38	198	39	e45	e17	e12	e15
4	24	25	21	47	74	32	61	35	e80	e16	e12	e15
5	19	21	22	46	49	30	50	114	e50	e16	e100	e14
6	19	22	22	38	41	31	79	36	e40	e14	e400	e14
7	19	22	23	33	40	29	153	31	e32	e13	e70	e14
8	17	64	22	86	38	27	67	29	e50	e12	e45	e13
9	16	45	e21	74	38	31	50	29	e180	e12	e250	e13
10	17	31	e22	71	134	33	48	319	e80	e12	e600	e12
11	17	24	e24	49	59	30	69	118	e36	e15	e90	e12
12	17	24	e25	39	41	30	46	44	e28	e120	e80	e12
13	16	24	e25	33	36	30	41	56	e25	e250	e70	e22
14	16	24	e24	31	36	30	44	45	e25	e300	e90	e17
15	16	31	23	32	35	29	415	35	e30	e100	e40	e16
16	16	444	21	32	49	30	71	37	e24	e60	e28	e48
17	133	60	e20	31	40	251	62	64	e22	e30	e24	e40
18	109	36	e20	32	33	122	53	41	e35	e24	e22	e14
19	521	29	19	30	32	46	44	28	e60	e22	e40	e13
20	436	30	19	29	30	57	44	29	e30	e20	e75	e14
21	66	25	18	30	29	44	75	34	e25	e180	e35	e12
22	36	25	e17	29	41	37	53	29	e30	e50	e50	e40
23	29	49	e17	27	125	35	45	26	e45	e100	e70	e20
24	26	32	e17	27	75	52	43	24	e24	e40	e35	e15
25	23	27	e17	170	37	57	41	23	e20	e24	e30	e13
26	27	32	e17	364	30	49	40	445	e19	e19	e26	e14
27	24	31	e17	75	30	36	38	e90	e18	e17	e24	e16
28	22	28	e18	49	33	34	36	e60	e17	e16	e22	e11
29	22	27	19	193	---	37	146	e650	e17	e15	e20	e10
30	22	25	e20	272	---	70	149	e150	e19	e15	e19	e12
31	26	---	e25	62	---	223	---	e90	---	e14	e18	---
TOTAL	2121	1342	645	2413	1346	1648	2482	2847	1231	1593	2422	514
MEAN	68.4	44.7	20.8	77.8	48.1	53.2	82.7	91.8	41.0	51.4	78.1	17.1
MAX	521	444	25	364	134	251	415	650	180	300	600	48
MIN	16	21	17	27	29	27	36	23	17	12	12	10
CFSM	1.39	.91	.42	1.58	.97	1.08	1.67	1.86	.83	1.04	1.58	.35
IN.	1.60	1.01	.49	1.82	1.01	1.24	1.87	2.14	.93	1.20	1.82	.39

CAL YR 1989 TOTAL 24450.7 MEAN 67.0 MAX 2400 MIN 9.1 CFSM 1.36 IN. 18.41
WTR YR 1990 TOTAL 20604 MEAN 56.4 MAX 650 MIN 10 CFSM 1.14 IN. 15.52

e Estimated

POTOMAC RIVER BASIN

01653600 PISCATAWAY CREEK AT PISCATAWAY, MD

LOCATION.--Lat 38°42'20", long 76°58'00", Prince Georges County, Hydrologic Unit 02070010, on left bank 75 ft downstream from bridge on State Highway 223, at Piscataway, 0.4 mi upstream from Tinker Creek, and 4.8 mi upstream from mouth.

DRAINAGE AREA.--39.5 mi².

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

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--25 years, 45.6 ft³/s, 15.68 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,540 ft³/s, Sept. 6, 1979, gage height, 11.21 ft, from rating curve extended above 1,700 ft³/s on basis of contracted-opening measurement of peak flow at bridge 100 ft upstream; no flow at times in 1966, 1970, 1977, 1980-83, 1985-89.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 450 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 2	1600	*646	6.34	May 30	0300	547	5.99
Jan. 1	0800	ice jam	*6.51	July 6	0200	569	6.07
Jan. 26	1300	502	5.81	Aug. 10	0600	527	5.91

Minimum discharge, 2.2 ft³/s, Aug. 5, gage height, 2.22 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	35	24	e500	65	33	61	74	52	20	5.7	19
2	422	28	24	116	62	34	89	55	42	21	4.2	17
3	291	35	24	69	61	39	238	44	37	12	3.3	15
4	50	29	21	64	101	34	85	40	39	9.8	2.7	14
5	33	26	23	63	71	31	68	72	29	100	2.4	13
6	28	26	23	55	60	30	65	47	27	341	196	13
7	25	25	22	49	58	29	153	35	25	41	46	12
8	21	63	22	86	53	28	88	31	24	26	18	11
9	19	94	25	140	52	29	68	28	31	22	211	10
10	18	43	25	85	103	30	63	158	136	17	392	11
11	19	33	25	62	86	31	67	142	35	15	85	9.5
12	16	30	e25	57	61	29	56	50	25	17	46	9.0
13	15	28	e25	51	54	29	50	63	21	21	33	9.6
14	15	28	e25	46	52	28	49	105	20	28	72	14
15	14	29	e25	45	48	27	86	49	141	58	31	12
16	13	50	e24	43	53	27	63	40	52	25	24	14
17	18	45	24	41	50	98	56	40	31	17	22	36
18	46	29	e23	40	42	210	58	33	26	14	19	12
19	308	26	e22	39	44	69	45	28	36	11	16	11
20	356	27	e21	37	40	63	43	26	42	10	79	12
21	153	24	e21	40	38	56	48	33	24	9.4	41	8.7
22	65	22	e20	40	39	45	52	33	23	18	42	12
23	47	30	e20	38	54	41	42	30	43	11	208	14
24	40	32	e19	35	43	41	38	25	22	8.8	72	9.2
25	36	28	e19	131	36	52	37	23	17	8.6	48	7.3
26	33	39	e19	408	32	44	35	99	14	8.2	35	7.9
27	31	38	e19	142	34	37	33	63	13	6.4	29	8.8
28	30	32	e19	87	36	35	31	38	13	5.5	24	7.5
29	29	28	e19	80	---	35	63	311	11	20	30	6.6
30	29	26	e19	124	---	50	162	261	10	17	52	6.4
31	32	---	e40	76	---	79	---	69	---	8.4	23	---
TOTAL	2269	1028	706	2889	1528	1443	2092	2145	1061	947.1	1912.3	362.5
MEAN	73.2	34.3	22.8	93.2	54.6	46.5	69.7	69.2	35.4	30.6	61.7	12.1
MAX	422	94	40	500	103	210	238	311	141	341	392	36
MIN	13	22	19	35	32	27	31	23	10	5.5	2.4	6.4
CFSM	1.85	.87	.58	2.36	1.38	1.18	1.77	1.75	.90	.77	1.56	.31
IN.	2.14	.97	.66	2.72	1.44	1.36	1.97	2.02	1.00	.89	1.80	.34

CAL YR 1989 TOTAL 22387.35 MEAN 61.3 MAX 695 MIN .00 CFSM 1.55 IN. 21.08
WTR YR 1990 TOTAL 18382.9 MEAN 50.4 MAX 500 MIN 2.4 CFSM 1.28 IN. 17.31

e Estimated

POTOMAC RIVER BASIN

111

01660920 ZEKIAH SWAMP RUN NEAR NEWTOWN, MD

LOCATION.--Lat 38°29'26", long 76°55'37", Charles County, Hydrologic Unit 02070011, on left-center downstream side of bridge on Maryland Route 6, 1.0 miles southeast of Newtown, and 1.7 miles downstream from Kerrick Swamp.

DRAINAGE AREA.--79.9 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 34.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for Dec. 9 to Jan. 5 (ice effect) and Sept. 5-30 (backwater from beaver dams), which are fair. Low flow affected by ground-water diversions from municipal well fields at Waldorf and St. Charles, and occasional farm irrigation upstream from station during summer months. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years, 93.2 ft³/s, 15.84 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,740 ft³/s, Mar. 29, 1984, gage height, 4.71 ft; no flow for several days in 1983, 1985-89.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft³/s (revised) and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 3	1430	805	3.86	May 29	2300	*1,250	4.23
Jan. 2	1430	ice jam	*4.30	June 11	0100	795	3.85
Jan. 27	0100	805	3.86	June 16	1030	857	3.91

Minimum discharge, 9.7 ft³/s, July 26, 27, gage height, 1.93 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	115	68	e530	179	89	230	435	201	27	41	20
2	357	98	63	e850	159	87	242	193	152	96	25	20
3	775	95	61	e550	157	105	459	117	126	58	20	23
4	435	91	57	e270	251	103	442	98	118	28	19	22
5	130	79	55	e210	266	86	229	550	109	26	19	e20
6	83	73	57	185	184	79	157	549	83	219	20	e19
7	71	70	57	159	158	74	277	219	70	211	65	e18
8	59	82	52	160	148	69	328	136	61	63	59	e17
9	54	251	e54	326	137	73	219	110	69	38	119	e16
10	49	368	e54	332	195	82	161	175	591	29	455	e17
11	47	199	e54	211	328	81	155	348	563	23	459	e15
12	45	113	e52	152	241	76	151	197	147	31	178	e14
13	42	91	e52	120	172	72	128	144	94	211	83	e20
14	41	81	e50	105	148	68	119	387	76	164	131	e25
15	40	79	e50	98	136	64	158	200	316	122	128	e20
16	39	99	e50	96	136	63	187	124	730	96	59	e23
17	40	133	e48	93	141	96	139	105	308	61	41	e45
18	65	114	e48	90	121	411	126	86	164	36	32	e54
19	258	87	46	86	123	405	112	68	228	26	26	e18
20	554	77	e46	83	123	189	102	62	164	19	29	e15
21	590	73	e46	90	106	149	105	74	110	22	51	e16
22	391	64	e45	88	104	118	116	89	93	124	63	e20
23	163	72	e45	77	120	103	104	80	238	54	412	e25
24	110	85	e45	74	119	91	92	63	157	23	466	e16
25	95	89	e45	131	101	95	84	55	98	14	193	e12
26	87	101	e45	579	82	101	79	140	66	11	98	e13
27	80	131	e45	764	83	89	73	244	51	13	62	e12
28	74	117	e45	454	91	78	63	119	55	17	47	e11
29	71	92	e45	253	---	80	98	600	38	72	37	e11
30	69	77	e48	237	---	106	398	1110	30	224	30	e10
31	79	---	e90	228	---	183	---	509	---	157	24	---
TOTAL	5046	3296	1618	7681	4309	3565	5333	7386	5306	2315	3491	587
MEAN	163	110	52.2	248	154	115	178	238	177	74.7	113	19.6
MAX	775	368	90	850	328	411	459	1110	730	224	466	54
MIN	39	64	45	74	82	63	63	55	30	11	19	10
CFSM	2.04	1.38	.65	3.10	1.93	1.44	2.22	2.98	2.21	.93	1.41	.24
IN.	2.35	1.53	.75	3.58	2.01	1.66	2.48	3.44	2.47	1.08	1.63	.27

CAL YR 1989 TOTAL 52633.5 MEAN 144 MAX 1140 MIN 3.2 CFSM 1.80 IN. 24.51
WTR YR 1990 TOTAL 49933 MEAN 137 MAX 1110 MIN 10 CFSM 1.71 IN. 23.25

e Estimated

POTOMAC RIVER BASIN

01661050 ST. CLEMENT CREEK NEAR CLEMENTS, MD

LOCATION.--Lat 38°20'00", long 76°43'31", St. Marys County, Hydrologic Unit 02070011, on left bank 60ft downstream from bridge on State Highway 242, 0.5 mi north of Clements, 2.3 mi upstream from mouth, and 5.7 mi northwest of Leonardtown.

DRAINAGE AREA.--18.5 mi².

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

REVISED RECORDS.--WDR MD-DE-79-1: 1974(P).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Elevation of gage is 8 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years, 19.8 ft³/s, 14.54 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,500 ft³/s, Sept. 6, 1979, from rating curve extended above 480 ft³/s on basis of contracted-opening and flow-over-road measurement of peak flow; maximum gage height, 6.96 ft, Sept. 6, 1979 (backwater from tide); maximum gage height unaffected by backwater, 6.55 ft, June 22, 1972; no flow at times in 1977, 1980, 1981, 1983, 1985-89.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 220 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 29	1500	*1,230	*5.55	No other peak greater than base discharge.			

Minimum discharge, 1.7 ft³/s, July 27, gage height, 0.92 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	24	12	e130	20	16	34	31	31	7.2	5.2	5.4
2	56	14	12	43	20	17	44	22	25	8.4	3.7	4.2
3	32	19	12	27	22	23	94	17	22	7.3	3.0	3.8
4	12	16	11	26	52	20	37	16	22	5.9	2.6	3.3
5	8.2	13	11	33	31	16	27	145	18	5.0	2.4	3.0
6	7.5	12	12	35	23	16	25	42	16	4.8	2.8	3.0
7	6.8	12	13	31	22	15	52	25	16	4.8	4.1	3.7
8	6.1	20	12	41	21	14	33	20	15	4.4	3.5	4.2
9	5.6	55	e12	58	20	16	25	17	15	4.6	19	3.8
10	5.4	32	e12	32	66	19	23	63	62	4.2	52	3.6
11	5.5	18	e12	24	61	17	23	104	21	3.4	28	3.3
12	5.3	15	e11	21	30	16	20	31	14	3.6	11	2.8
13	5.1	13	e11	18	24	16	18	29	12	5.5	6.9	3.4
14	5.1	13	e11	15	22	17	19	95	12	11	5.2	6.5
15	5.1	13	e11	17	21	14	43	32	55	15	4.6	6.6
16	4.9	18	e11	17	24	14	32	24	44	9.7	4.2	4.5
17	5.1	20	e11	16	25	22	23	21	18	7.2	4.1	4.8
18	8.7	14	11	16	19	65	23	17	33	6.0	3.8	4.0
19	42	12	11	16	24	28	19	15	66	4.8	3.4	3.3
20	70	12	11	15	22	30	18	14	25	4.1	3.7	3.6
21	41	11	e10	18	18	23	21	19	16	3.5	5.7	3.1
22	17	10	e9.0	17	18	18	23	20	13	3.4	9.2	5.8
23	13	14	e8.0	15	21	16	18	17	12	3.8	45	9.7
24	11	15	7.6	14	21	15	17	15	11	2.7	19	5.5
25	11	15	6.7	35	17	16	16	13	9.4	2.2	10	3.5
26	10	23	e7.5	114	14	16	15	46	8.6	1.9	7.7	3.0
27	9.6	26	e7.5	54	16	15	14	60	8.2	1.9	6.2	3.0
28	9.2	19	e7.5	30	17	13	13	27	8.3	2.2	5.0	2.9
29	9.3	15	e7.5	26	---	15	37	495	7.9	18	5.0	2.6
30	9.3	14	e8.0	27	---	28	89	185	6.6	33	26	2.5
31	20	---	e19	22	---	45	---	42	---	9.3	10	---
TOTAL	464.0	527	328.3	1003	711	631	895	1719	643.0	208.8	322.0	122.4
MEAN	15.0	17.6	10.6	32.4	25.4	20.4	29.8	55.5	21.4	6.74	10.4	4.08
MAX	70	55	19	130	66	65	94	495	66	33	52	9.7
MIN	4.9	10	6.7	14	14	13	13	13	6.6	1.9	2.4	2.5
CFSM	.81	.95	.57	1.75	1.37	1.10	1.61	3.00	1.16	.36	.56	.22
IN.	.93	1.06	.66	2.02	1.43	1.27	1.80	3.46	1.29	.42	.65	.25

CAL YR 1989 TOTAL 7222.6 MEAN 19.8 MAX 290 MIN 2.1 CFSM 1.07 IN. 14.52
WTR YR 1990 TOTAL 7574.5 MEAN 20.8 MAX 495 MIN 1.9 CFSM 1.12 IN. 15.23

• Estimated

01661500 ST. MARYS RIVER AT GREAT MILLS, MD

LOCATION.--Lat 38°14'36", long 76°30'13", St. Marys County, Hydrologic Unit 02070011, on left bank at downstream side of bridge on State Highway 471 in Great Mills, 0.3 mi downstream from Western Branch, and 12.0 mi upstream from mouth.

DRAINAGE AREA.--24.0 mi².

PERIOD OF RECORD.--June 1946 to current year.

REVISED RECORDS.--WSP 1702: 1946, 1948-49, 1955, 1957-58. WDR MD-DE-83-1: 1981-82(M).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good. Occasional regulation by reservoir on Western Branch of St. Marys River, 2.0 mi upstream since 1975, total capacity, 3,200 acre feet. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--44 years, 23.9 ft³/s, 13.52 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,950 ft³/s, Aug. 20, 1969, gage height, 13.34 ft, from rating curve extended above 1,500 ft³/s on basis of contracted-opening measurement at gage height 12.08 ft; minimum discharge, 0.2 ft³/s, Sept. 7, 1966, gage height, 1.13 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 10	2400	623	5.89	June 15	1700	553	5.38
May 29	1430	*2,360	*10.28				

Minimum discharge, 2.1 ft³/s, July 26, 27, 28, gage height, 1.29 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	18	12	185	15	14	83	38	185	9.5	6.6	4.8
2	41	12	50	90	15	15	61	34	87	8.9	4.7	4.8
3	23	21	143	42	17	21	234	26	51	7.1	3.5	6.4
4	14	15	135	23	60	19	113	22	46	6.8	4.2	4.8
5	9.5	12	125	23	29	16	65	129	32	6.1	3.9	5.0
6	7.9	10	105	26	20	16	47	63	25	5.7	3.3	3.4
7	7.0	10	82	22	18	14	73	41	20	4.6	4.2	3.2
8	6.0	13	65	38	15	13	52	29	17	4.8	3.6	3.2
9	5.6	33	45	62	14	15	38	24	18	5.3	15	3.5
10	5.6	28	32	30	46	15	33	197	55	5.3	36	3.5
11	5.5	17	25	20	40	16	32	231	29	8.2	23	3.2
12	5.3	14	23	16	24	14	26	71	21	7.1	14	2.9
13	5.1	12	25	16	18	14	24	49	16	7.5	9.6	8.6
14	4.9	11	23	14	16	13	21	49	13	8.8	7.2	9.2
15	5.1	14	20	13	15	14	38	32	246	7.2	7.4	7.0
16	4.8	18	19	12	21	13	47	26	135	6.0	8.6	5.0
17	4.9	15	17	11	24	27	34	22	54	5.6	6.3	6.3
18	5.9	12	15	11	19	157	30	17	35	4.5	4.5	3.9
19	24	10	13	10	25	54	25	14	35	4.4	4.2	4.4
20	40	10	12	9.4	24	48	23	13	30	5.1	4.7	3.7
21	29	9.7	12	13	19	33	25	17	23	4.7	7.3	3.4
22	16	7.9	10	11	19	26	27	16	19	7.5	16	8.9
23	11	14	9.7	9.7	20	23	22	15	15	5.6	59	12
24	10	14	9.7	9.4	23	18	19	13	14	6.2	26	7.7
25	8.6	13	9.8	44	19	21	18	12	12	4.2	16	5.4
26	8.1	22	10	195	15	20	16	46	9.5	2.4	12	5.7
27	7.0	22	9.1	62	15	19	15	125	8.7	2.1	9.5	5.2
28	6.5	17	9.4	33	15	15	15	52	16	2.5	7.0	4.6
29	6.7	15	9.7	22	---	18	27	977	11	18	7.5	4.2
30	11	13	11	22	---	40	60	397	8.4	12	11	4.7
31	21	---	30	17	---	116	---	223	---	9.6	6.7	---
TOTAL	369.5	452.6	1116.4	1111.5	620	877	1343	3020	1286.6	203.3	352.5	158.6
MEAN	11.9	15.1	36.0	35.9	22.1	28.3	44.8	97.4	42.9	6.56	11.4	5.29
MAX	41	33	143	195	60	157	234	977	246	18	59	12
MIN	4.8	7.9	9.1	9.4	14	13	15	12	8.4	2.1	3.3	2.9
CFSM	.50	.63	1.50	1.49	.92	1.18	1.87	4.06	1.79	.27	.47	.22
IN.	.57	.70	1.73	1.72	.96	1.36	2.08	4.68	1.99	.32	.55	.25

CAL YR 1989 TOTAL 9208.0 MEAN 25.2 MAX 368 MIN 2.3 CFSM 1.05 IN. 14.27
WTR YR 1990 TOTAL 10911.0 MEAN 29.9 MAX 977 MIN 2.1 CFSM 1.25 IN. 16.91

• Estimated

MONONGAHELA RIVER BASIN

03075500 YOUGHIOGHENY RIVER NEAR OAKLAND, MD

LOCATION.--Lat 39°25'19", long 79°25'32", Garrett County, Hydrologic Unit 05020006, on left bank 200 ft downstream from Baltimore and Ohio Railroad bridge, 250 ft downstream from Little Youghiogheny River, 1.2 mi northwest of Oakland, and 1.5 mi upstream from Dunkard Lick Run.

DRAINAGE AREA.--134 mi².

PERIOD OF RECORD.--August 1941 to current year.

REVISED RECORDS.--WSP 1113: 1947(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,353.61 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1946, nonrecording gage at bridge 200 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Town of Oakland diverted an average of 0.4 ft³/s for water supply. The diversion is returned upstream from station as sewage. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--49 years, 302 ft³/s, 30.60 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft³/s, Oct. 16, 1954, gage height, 12.16 ft, from rating curve extended above 7,000 ft³/s; minimum daily discharge, 2.5 ft³/s, Oct. 4, 1953.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage of 15.3 ft, from floodmarks.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 1	0415	3,710	6.90	July 13	1815	*6,420	*8.95
May 27	0445	2,930	6.20				

Minimum discharge, 28 ft³/s, Aug. 17, gage height, 2.02 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	195	358	3080	611	248	272	145	503	1170	69	43
2	173	145	293	1210	579	235	357	137	386	823	59	40
3	125	133	259	687	712	262	366	153	345	427	51	40
4	97	126	230	757	973	270	336	221	387	290	46	37
5	82	117	213	1260	902	232	387	744	287	264	51	33
6	105	113	219	804	647	215	492	686	217	465	110	36
7	481	109	485	569	517	187	486	518	188	236	68	191
8	326	128	323	458	437	169	453	388	184	179	49	145
9	296	537	e277	395	509	185	545	305	321	148	43	139
10	234	469	e251	441	1570	211	567	404	946	146	38	199
11	249	402	e224	404	1060	184	1010	441	459	541	35	123
12	201	319	199	401	718	175	751	316	310	465	35	94
13	173	266	181	328	560	160	546	299	236	4120	36	225
14	154	233	162	e285	543	149	429	305	190	3100	62	167
15	137	270	e149	259	443	141	409	234	173	1320	47	252
16	125	1240	137	446	419	134	329	233	154	972	35	193
17	449	1020	138	611	367	142	294	370	125	620	30	276
18	494	639	124	729	286	144	291	358	112	439	29	187
19	1370	450	114	572	260	124	238	267	127	315	36	217
20	981	388	118	779	216	131	215	227	107	248	55	363
21	604	324	110	1250	191	126	355	222	92	242	47	268
22	445	265	102	836	185	136	483	198	85	231	56	353
23	330	241	e100	587	189	127	359	184	145	253	612	463
24	272	211	e99	458	221	128	291	151	116	200	395	377
25	233	190	e98	402	182	133	242	132	142	155	206	284
26	203	360	e96	408	161	133	210	1190	94	131	136	224
27	181	448	e94	324	179	145	183	2470	71	114	104	188
28	162	646	e92	320	275	131	167	1190	60	98	82	155
29	147	567	e92	503	---	131	161	1090	57	86	66	130
30	135	444	e140	1470	---	130	181	1000	266	77	63	119
31	137	---	e900	837	---	181	---	691	---	72	55	---
TOTAL	9186	10995	6377	21870	13912	5199	11405	15269	6885	17947	2806	5561
MEAN	296	366	206	705	497	168	380	493	229	579	90.5	185
MAX	1370	1240	900	3080	1570	270	1010	2470	946	4120	612	463
MIN	82	109	92	259	161	124	161	132	57	72	29	33
CFSM	2.21	2.74	1.54	5.26	3.71	1.25	2.84	3.68	1.71	4.32	.68	1.38
IN.	2.55	3.05	1.77	6.07	3.86	1.44	3.17	4.24	1.91	4.98	.78	1.54

CAL YR 1989 TOTAL 141156 MEAN 387 MAX 3020 MIN 47 CFSM 2.89 IN. 39.19
WTR YR 1990 TOTAL 127412 MEAN 349 MAX 4120 MIN 29 CFSM 2.61 IN. 35.37

e Estimated

MONONGAHELA RIVER BASIN

115

03076000 DEEP CREEK RESERVOIR NEAR OAKLAND, MD

LOCATION.--Lat 39°30'34", long 79°23'28", Garrett County, Hydrologic Unit 05020006, on Deep Creek at dam, 1.8 mi upstream from mouth and 7.0 mi north of Oakland.

DRAINAGE AREA.--64.7 mi².

PERIOD OF RECORD.--July 1925 to current year. Prior to October 1950, monthend contents published in WSP 1305, and October 1950 to September 1955, monthend contents published in WSP 1385.

GAGE.--Water-stage recorder at right end of spillway. Datum of gage is at mean sea level, unadjusted.

REMARKS.--Reservoir is formed by an earthfill dam completed January 1925, with storage beginning at that time. Usable capacity, 92,975 acre-ft between elevations 2,425 ft, top of intake to outlet tunnel, and 2,462 ft, crest of spillway. Dead storage, 13,085 acre-ft. Figures given herein represent usable contents. Reservoir is used for hydroelectric power.

COOPERATION.--Elevations and capacity table furnished by Pennsylvania Electric Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 93,800 acre-ft, July 14, 1990, elevation, 2,462.25 ft; minimum observed, 11,763 acre-ft, Sept. 30, 1925, elevation, 2,433.45 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 93,800 acre-ft, July 14, elevation, 2,461.25 ft; minimum, 56,600 acre-ft, Oct. 31, elevation, 2,451.6 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2454.5	66000	
Oct. 31	2451.6	56600	-9400
Nov. 30	2453.7	63400	+6800
Dec. 31	2454.7	66700	+3300
CAL YR 1989			-5500
Jan. 31	2456.7	73600	+6900
Feb. 28	2456.7	73600	0
Mar. 31	2457.4	76100	+2500
Apr. 30	2458.9	81500	+5400
May 31	2460.7	88100	+6600
June 30	2460.5	87400	- 700
July 31	2459.8	84800	-2600
Aug. 31	2458.4	79700	-5100
Sept. 30	2458.5	80000	+ 300
WTR YR 1990			+14000

MONONGAHELA RIVER BASIN

03076500 YOUGHIOGHENY RIVER AT FRIENDSVILLE, MD

LOCATION.--Lat 39°39'13", long 79°24'31", Garrett County, Hydrologic Unit 05020006, on left bank 0.7 mi upstream from bridge on State Highway 42 at Friendsville, and 1.5 mi upstream from Bear Creek.

DRAINAGE AREA.--295 mi².

PERIOD OF RECORD.--August 1898 to December 1904 and October 1940 to current year. Annual maximum, water years 1905, 1923-31, 1940, published in WSP 1675. October, November 1940 monthly discharge only, published in WSP 1305. September 1922 to September 1926 (gage heights only) in reports of Pennsylvania Department of Forests and Waters.

REVISED RECORDS.--WSP 1385: Drainage area at former site, 1898-1905, 1941(M), 1942, 1944-45, 1948-49, 1951(M).

GAGE.--Water-stage recorder. Datum of gage is 1,487.33 ft above National Geodetic Vertical Datum of 1929. Aug. 17, 1898, to Dec. 31, 1904, and Sept. 1, 1922, to Sept. 30, 1926, nonrecording gages at bridge 0.7 mi downstream at datum 16.24 ft and 16.29 ft lower, respectively.

REMARKS.--Records good except those for Dec. 16-22, 28-31 (ice effect) and Dec. 23-27 (frozen well), which are fair. Low and medium flow regulated since July 1925 by Deep Creek Reservoir, 12 mi upstream from station (see station 03076000). U.S. Army Corps of Engineers satellite telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--56 years (water years 1899-1904, 1941-90), 646 ft³/s, 29.74 in/yr, adjusted for storage since October 1940.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,600 ft³/s, Mar. 29, 1924, gage height, 14.2 ft, from flood-marks, site and datum then in use or 10.2 ft, present site and datum, from rating curve extended above 5,800 ft³/s on basis of slope-area measurement of peak flow; minimum daily discharge, 8.2 ft³/s, Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,490 ft³/s, July 13, gage height, 7.05 ft; minimum discharge, 58 ft³/s, Aug. 18, 19, gage height, 2.09 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	211	337	623	5340	1180	410	400	268	861	2670	240	87		
2	602	299	530	2360	1230	384	514	241	582	2110	224	84		
3	555	261	485	1330	1340	400	554	247	514	804	210	172		
4	501	248	565	1160	1670	418	521	362	617	527	199	128		
5	475	232	416	2190	1690	371	550	1040	529	504	105	142		
6	476	224	396	1460	1500	351	775	1080	418	760	216	210		
7	611	216	801	1070	1120	314	715	855	383	541	236	432		
8	578	218	607	1160	1040	282	620	636	397	300	189	366		
9	748	624	509	843	975	304	754	521	800	429	183	211		
10	721	739	476	822	2600	376	757	553	1850	834	178	378		
11	718	645	444	812	1910	331	1290	784	957	1470	170	212		
12	768	525	382	894	1630	312	1100	505	573	1640	76	164		
13	674	453	355	662	1290	292	831	473	461	6300	166	478		
14	502	400	377	566	1320	273	659	563	390	5660	133	378		
15	483	437	355	573	1120	250	638	409	392	3070	144	440		
16	338	1770	e270	632	1060	240	558	396	349	2330	81	351		
17	818	1800	e250	965	746	245	492	545	244	1700	103	547		
18	1190	1110	e250	1140	511	259	501	638	275	1380	136	422		
19	2300	804	e230	1040	564	228	427	446	257	1180	62	430		
20	2100	676	e230	1030	613	232	435	390	251	1060	144	741		
21	1170	603	e270	2100	509	242	416	418	217	905	140	590		
22	899	496	e300	1700	454	236	679	354	216	909	146	872		
23	879	440	e240	1120	461	224	526	333	232	913	670	963		
24	670	395	e210	918	394	218	442	279	217	838	747	864		
25	536	355	e200	726	326	222	387	288	278	673	344	849		
26	490	481	e190	771	387	227	347	1210	225	424	256	801		
27	446	774	e190	601	326	245	311	3190	204	421	357	530		
28	313	955	e180	491	419	236	284	1710	203	332	398	436		
29	287	1000	e180	740	---	227	268	1520	217	180	347	339		
30	341	816	e250	2460	---	227	311	1570	258	247	295	241		
31	285	---	e1600	1510	---	268	---	1140	---	270	238	---		
TOTAL	21685	18333	12361	39186	28385	8844	17062	22964	13367	41381	7133	12858		
MEAN	700	611	399	1264	1014	285	569	741	446	1335	230	429		
MAX	2300	1800	1600	5340	2600	418	1290	3190	1850	6300	747	963		
MIN	211	216	180	491	326	218	268	241	203	180	62	84		
(†)	-153	+114	+53.4	+112	0	+40.6	+90.8	+107	-11.7	-42.3	-83.2	+5.0		
MEAN*	547	725	452	1376	1014	326	660	848	434	1293	147	434		
CFSM*	1.85	2.46	1.53	4.66	3.44	1.11	2.24	2.87	1.47	4.38	0.50	1.47		
IN*	2.13	2.74	1.76	5.37	3.58	1.28	2.50	3.31	1.68	5.05	0.58	1.64		
CAL YR 1989	TOTAL	287907	MEAN	789	MAX	4410	MIN	129	MEAN*	781	CFSM*	2.65	IN*	35.95
WTR YR 1990	TOTAL	243559	MEAN	667	MAX	6300	MIN	62	MEAN*	686	CFSM*	2.33	IN*	31.60

† Change in contents, equivalent in cubic feet per second, in Deep Creek Reservoir, provided by Pennsylvania Electric Co.

* Adjusted for change in contents.

MONONGAHELA RIVER BASIN

117

03076600 BEAR CREEK AT FRIENDSVILLE, MD

LOCATION.--Lat 39°39'22", long 79°23'41", Garrett County, Hydrologic Unit 05020006, on right bank 0.2 mi downstream from bridge on Accident-Friendsville Road, 0.6 mi downstream from South Branch Bear Creek, 0.8 mi southeast of Friendsville, and 1.2 mi upstream from mouth.

DRAINAGE AREA.--48.9 mi².

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,551.34 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--26 years, 91.6 ft³/s, 25.44 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,650 ft³/s, Sept. 14, 1971, gage height, 9.6 ft, from flood-marks, from rating curve extended above 2,000 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 1.5 ft³/s, Sept. 12, 1966, gage height, 0.42 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 31	2400	1,280	4.41	July 12	2245	2,060	5.69
May 26	0745	701	3.50	July 13	1000	*2,360	*6.16
July 1	0415	1,060	4.05	July 15	1645	714	3.52
July 9	2215	921	3.83	Aug. 23	0830	681	3.47
July 11	0630	1,090	4.11	Sept. 22	0930	687	3.48

Minimum discharge, 12 ft³/s, Aug. 18, gage height, 1.03 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	61	82	820	176	56	53	41	154	599	34	17
2	39	51	74	391	328	56	65	39	117	192	30	16
3	29	49	70	260	417	61	75	39	95	94	27	19
4	24	47	66	261	401	60	84	61	92	65	25	14
5	23	45	59	430	354	57	96	151	71	98	26	14
6	25	43	62	334	296	55	111	176	61	90	27	14
7	32	41	94	240	219	50	118	165	59	61	22	18
8	28	44	80	162	149	48	111	131	52	50	20	17
9	30	64	77	125	175	51	107	106	81	137	18	27
10	29	62	84	114	484	55	104	115	66	318	17	27
11	35	65	67	96	390	50	134	89	55	612	16	18
12	32	66	59	91	272	48	116	73	48	673	16	51
13	31	62	54	77	184	46	107	77	43	1800	16	355
14	30	58	50	e75	160	45	101	72	40	988	19	141
15	28	66	e47	70	135	44	99	62	40	657	14	89
16	26	261	e46	115	122	43	85	68	36	477	13	72
17	81	252	e44	154	103	44	80	90	32	327	12	70
18	86	160	e43	188	87	41	73	77	30	198	12	53
19	323	117	e42	142	85	39	66	68	28	124	12	70
20	261	104	e41	272	75	40	64	62	27	102	18	111
21	157	87	e40	377	68	37	70	59	25	164	17	94
22	109	76	e38	309	66	38	65	53	23	130	36	413
23	85	71	e37	229	66	36	60	48	24	105	203	479
24	75	62	e36	159	64	37	57	44	22	85	70	318
25	67	58	e35	125	57	37	54	40	24	71	44	179
26	60	80	e34	110	e55	38	51	377	20	58	34	117
27	54	85	e33	88	e53	39	49	366	18	50	29	86
28	50	98	e33	82	e55	38	47	286	17	45	25	67
29	46	93	33	102	---	38	47	269	16	41	24	55
30	44	88	49	231	---	38	45	260	40	38	27	49
31	54	---	305	182	---	44	---	226	---	40	19	---
TOTAL	2016	2516	1914	6411	5096	1409	2394	3790	1456	8489	922	3070
MEAN	65.0	83.9	61.7	207	182	45.5	79.8	122	48.5	274	29.7	102
MAX	323	261	305	820	484	61	134	377	154	1800	203	479
MIN	23	41	33	70	53	36	45	39	16	38	12	14
CFSM	1.33	1.72	1.26	4.23	3.72	.93	1.63	2.50	.99	5.60	.61	2.09
IN.	1.53	1.91	1.46	4.88	3.88	1.07	1.82	2.88	1.11	6.46	.70	2.34

CAL YR 1989 TOTAL 40462 MEAN 111 MAX 946 MIN 15 CFSM 2.27 IN. 30.78
WTR YR 1990 TOTAL 39483 MEAN 108 MAX 1800 MIN 12 CFSM 2.21 IN. 30.04

e Estimated

MONONGAHELA RIVER BASIN

03078000 CASSELMAN RIVER AT GRANTSVILLE, MD

LOCATION.--Lat 39°42'08", long 79°08'12", Garrett County, Hydrologic Unit 05020006, on left bank at downstream side of highway bridge, 0.3 mi upstream from Slaubaugh Run, 0.7 mi downstream from U.S. Highway 40, and 1.0 mi north-east of Grantsville.

DRAINAGE AREA.--62.5 mi².

PERIOD OF RECORD.--July 1947 to current year.

REVISED RECORDS.--WSP 1143: 1948.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,088.97 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. U. S. Army Corps of Engineers satellite telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 119 ft³/s, 25.86 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,400 ft³/s, Oct. 15, 1954, gage height, 10.70 ft, from rating curve extended above 1,600 ft³/s on basis of contracted-opening measurement at gage height 8.13 ft; no flow Aug. 31, 1962, result of regulation from unknown source.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 1	0300	1,090	3.84	July 13	1445	*1,660	*4.47
May 26	1145	1,140	3.90				

Minimum discharge, 6.7 ft³/s, Aug. 19, gage height, 1.05 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	128	94	744	190	e92	97	55	160	319	32	16
2	68	80	84	306	398	e86	112	48	130	107	26	14
3	45	68	74	221	489	e80	106	50	115	42	22	14
4	33	63	74	305	418	e76	98	141	132	29	21	13
5	26	55	78	556	323	73	126	340	104	34	21	13
6	26	53	87	312	243	68	146	257	80	95	24	13
7	36	49	193	229	216	62	134	185	81	39	20	23
8	35	55	106	189	188	57	121	141	73	28	17	23
9	37	122	e88	163	228	62	125	117	113	24	16	46
10	34	110	e84	178	465	81	115	138	96	172	15	51
11	45	104	e78	159	285	70	173	137	67	390	14	27
12	38	86	e70	150	227	65	140	101	51	266	13	68
13	32	73	e67	119	200	57	119	109	44	1250	13	422
14	28	68	e64	125	192	52	106	124	40	564	14	145
15	26	92	e62	123	163	48	110	91	37	340	13	108
16	24	409	e61	249	155	46	100	91	35	258	11	90
17	151	238	e60	295	149	48	96	144	31	168	9.1	119
18	141	157	e58	336	120	47	96	108	27	123	8.0	73
19	396	125	e56	240	112	43	82	81	28	96	7.4	109
20	221	129	e54	355	95	45	75	72	26	82	13	189
21	154	119	e52	430	87	43	79	69	23	159	15	110
22	128	96	e50	279	e83	45	79	65	20	144	61	410
23	103	88	e49	216	e78	42	66	59	22	118	293	328
24	90	82	e48	183	e76	42	59	49	20	88	127	199
25	82	98	e47	163	74	43	53	45	24	66	55	142
26	74	169	e46	159	e74	45	49	651	19	51	35	141
27	67	162	e45	133	e100	51	46	425	14	43	26	132
28	62	163	e45	130	e100	46	45	272	12	38	23	96
29	57	133	e45	146	---	46	49	376	11	36	21	79
30	51	107	e70	268	---	45	78	301	13	33	27	68
31	62	---	e330	193	---	62	---	208	---	36	21	---
TOTAL	2393	3481	2419	7654	5528	1768	2880	5050	1648	5238	1033.5	3281
MEAN	77.2	116	78.0	247	197	57.0	96.0	163	54.9	169	33.3	109
MAX	396	409	330	744	489	92	173	651	160	1250	293	422
MIN	21	49	45	119	74	42	45	45	11	24	7.4	13
CFSM	1.24	1.86	1.25	3.95	3.16	.91	1.54	2.61	.88	2.70	.53	1.75
IN.	1.42	2.07	1.44	4.56	3.29	1.05	1.71	3.01	.98	3.12	.62	1.95

CAL YR 1989 TOTAL 50155.5 MEAN 137 MAX 1130 MIN 9.5 CFSM 2.20 IN. 29.85
WTR YR 1990 TOTAL 42373.5 MEAN 116 MAX 1250 MIN 7.4 CFSM 1.86 IN. 25.22

e Estimated

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

Records collected at partial-record stations are presented in a table of annual maximum stage and discharge at crest-stage stations.

Crest-stage partial-record stations

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

Annual maximum discharge at crest-stage partial-record stations during water year 1990

					Annual Maximum		
Station No.	Station Name	Location	Drainage area (mi ²)	Period of record	Date	Gage height (ft)	Dis- charge (ft ³ /s)
POTOMAC RIVER BASIN							
01595500	North Branch Potomac River at Kitzmiller, Md.	Lat 39°23'38", long 79°10'55", Garrett County, Hydrologic Unit 02070002, on left bank 0.6 mi downstream from bridge on State Highway 38 in Kitz- miller.	225	1950-85#, 1986-90	5-26-90	7.95	6,160
01595800	North Branch Potomac River at Barnum, W. Va.	Lat 39°26'44", long 79°06'39", Garrett County, Hydrologic Unit 02070002, on right bank at highway bridge at Barnum.	266	1967-85#, 1986-90	7-13-90	6.93	4,240
01600000	North Branch Potomac River at Pinto, Md.	Lat 39°26'44", long 79°06'39", Mineral County, W. Va., Hydrologic Unit 02070002, on right bank at downstream side of Western Maryland railroad bridge at Pinto, 2.8 mi down- stream from Mill Run.	596	1939-85#, 1986-90	7-13-90	10.18	9,100

[#] Operated as a continuous-record station.

GROUND-WATER SPRING DISCHARGE

MARYLAND--Continued

FREDERICK COUNTY

SPRING NUMBER.--FR Fb 12. SITE ID.--391846077370501.

LOCATION.--Lat 39°18'46", long 77°37'05", Hydrologic Unit 02070008, at Brunswick, off Park Ave., 300 ft north of intersection of Potomac St.

Owner: Town of Brunswick.

AQUIFER.--Precambrian Erathem of Precambrian age. Aquifer code: 400PCMB.

SPRING IMPROVEMENTS.--2 in. outflow pipe.

INSTRUMENTATION.--Monthly volumetric measurements by USGS personnel.

DATUM.--Elevation of land surface is 300 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Maryland Water-Level and Water Quality Network observation spring. Temperatures are available.

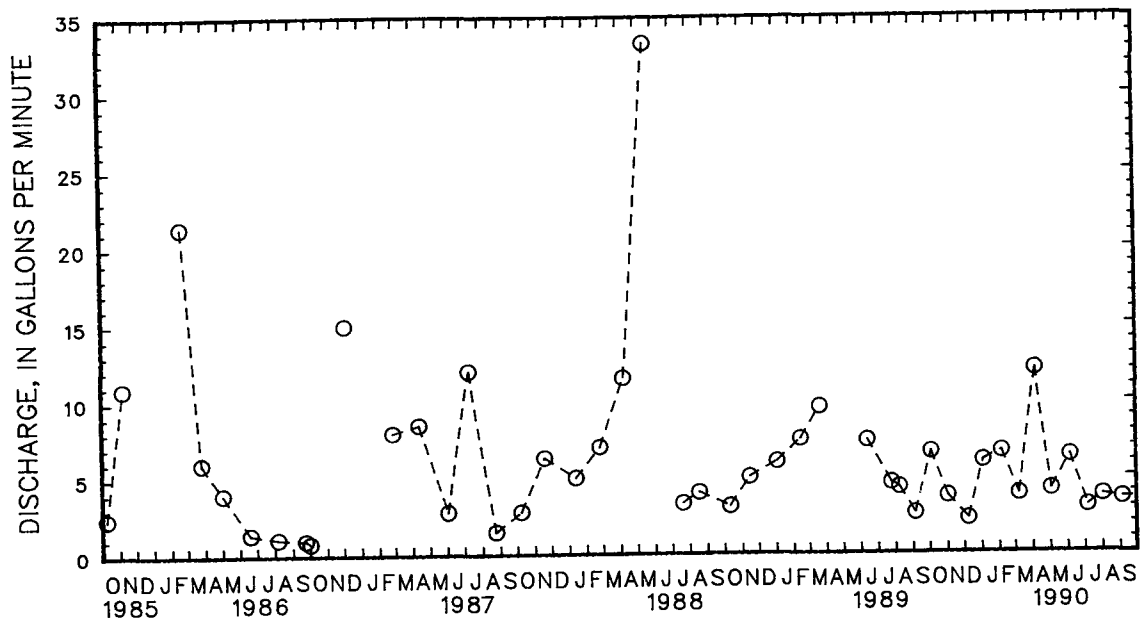
PERIOD OF RECORD.--Jan. 1960 to April 1964, March 1965, Aug. 1967, Dec. 1968, July 1972,

April 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge measured, 36.0 gal/min, Apr. 30, 1964;
minimum discharge measured, 0.8 gal/min, Oct. 1, 1966.

DISCHARGE, IN GALLONS PER MINUTE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	DISCHARGE	DATE	DISCHARGE	DATE	DISCHARGE	DATE	DISCHARGE	DATE	DISCHARGE
OCT 4	6.60	JAN 4	6.00	APR 6	12.00	JUN 6	6.38	AUG 2	3.75
NOV 2	3.75	FEB 6	6.67	MAY 3	4.13	JUL 6	3.00	SEP 5	3.53
DEC 8	2.22	MAR 8	3.87						



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

121

MARYLAND

ALLEGANY COUNTY

WELL NUMBER.--AL Ah 1. SITE ID.--394024078273401.

LOCATION.--Lat 39°40'24", long 78°27'34", Hydrologic Unit 02070003, near Fifteen Mile Creek, 2.8 mi southeast of Pratt.

Owner: Green Ridge State Forest.

AQUIFER.--Jennings Formation of Upper Devonian Age. Aquifer code: 341JNGS.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, reported depth 300 ft, measured depth 113 ft; casing diameter 8 in. to unknown depth; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 720 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of sanitary seal in casing, 0.3 ft above land surface.

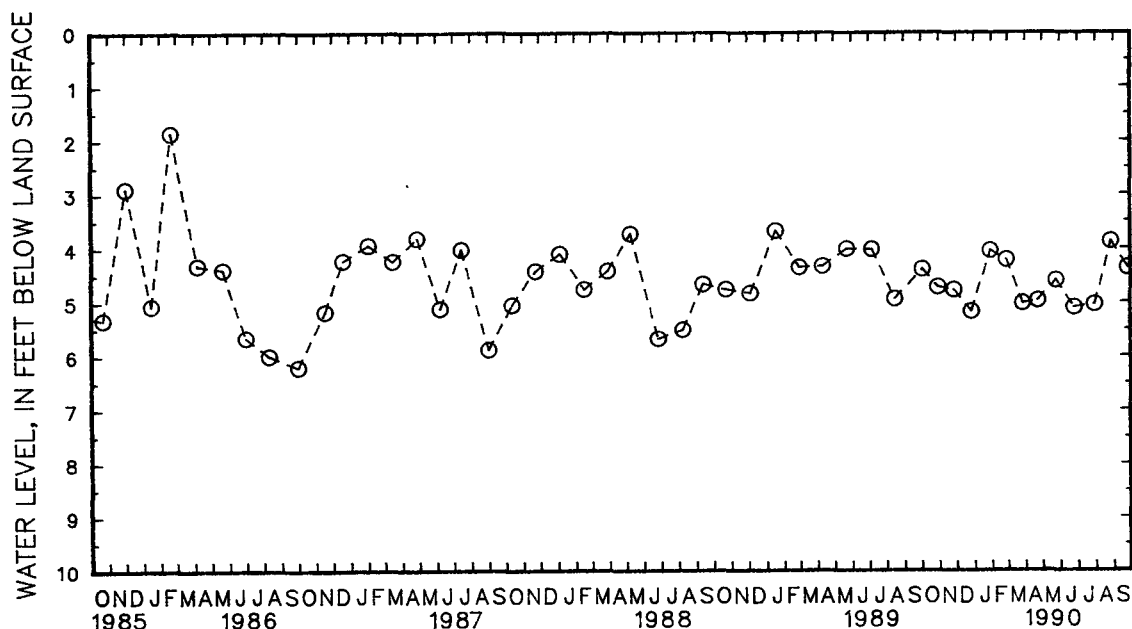
REMARKS.--Maryland Water-Level Network observation well. Water level was deeper than 40 ft below land-surface datum on Nov. 19, 1969, and Feb. 12, 1970, when well was being pumped. Water levels may be affected by nearby pumping.

PERIOD OF RECORD.--December 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.80 ft below land surface, May 18, 1978; lowest measured 19.75 ft below land surface, July 17, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	4.40	DEC 27	5.18	FEB 26	4.22	APR 23	4.98	JUN 25	5.11	AUG 27	3.88
30	4.72	JAN 29	4.05	MAR 27	5.03	MAY 24	4.60	JUL 30	5.05	SEP 25	4.37
NOV 27	4.78										



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

ALLEGANY COUNTY--Continued

WELL NUMBER.--AL Bd 2. SITE ID.--393930078460901.

LOCATION.--Lat 39°39'30", long 78°46'09", Hydrologic Unit 02070002, at Henderson Ave. and Valley St., Cumberland.

Owner: formerly Cumberland Brewing Company.

AQUIFER.--Tonoloway Limestone of Upper Silurian age. Aquifer code: 351TNLY.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, depth 100 ft; casing diameter 6 in. to unknown depth; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 640 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing at land surface.

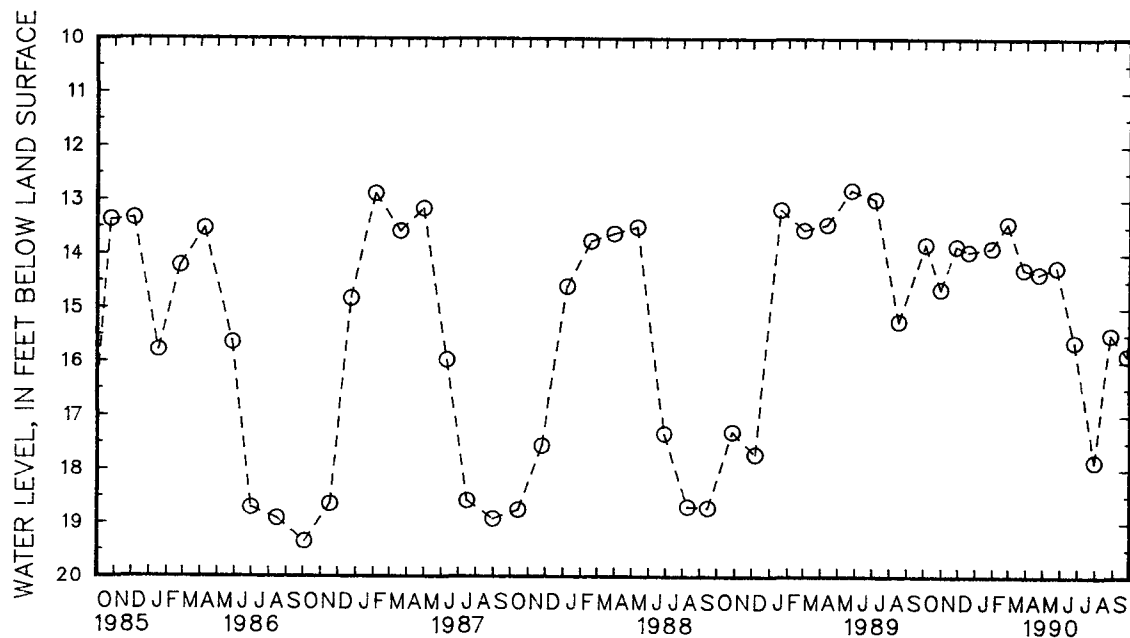
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--October 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.24 ft below land surface, Feb. 8, 1973; lowest measured, 32.55 ft below land surface, Sept. 7, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	13.82	DEC 19	13.95	FEB 26	13.43	APR 23	14.36	JUN 25	15.63	AUG 27	15.49
30	14.65	JAN 29	13.88	MAR 27	14.28	MAY 24	14.24	JUL 30	17.85	SEP 25	15.88
NOV 27	13.85										



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

123

MARYLAND--Continued

ALLEGANY COUNTY--Continued

WELL NUMBER.--AL Ca 19. SITE ID.--393009079025201. PERMIT NUMBER.--AL-05-0057.

LOCATION.--Lat 39°30'09", long 79°02'52", Hydrologic Unit 02070002, north end of Franklin.

Owner: Carl Arthur.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, unused, water-table well, reported depth 93 ft, measured depth 84.5 ft; casing diameter 6 in., to 46 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 1,035 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 2.0 ft above land surface.

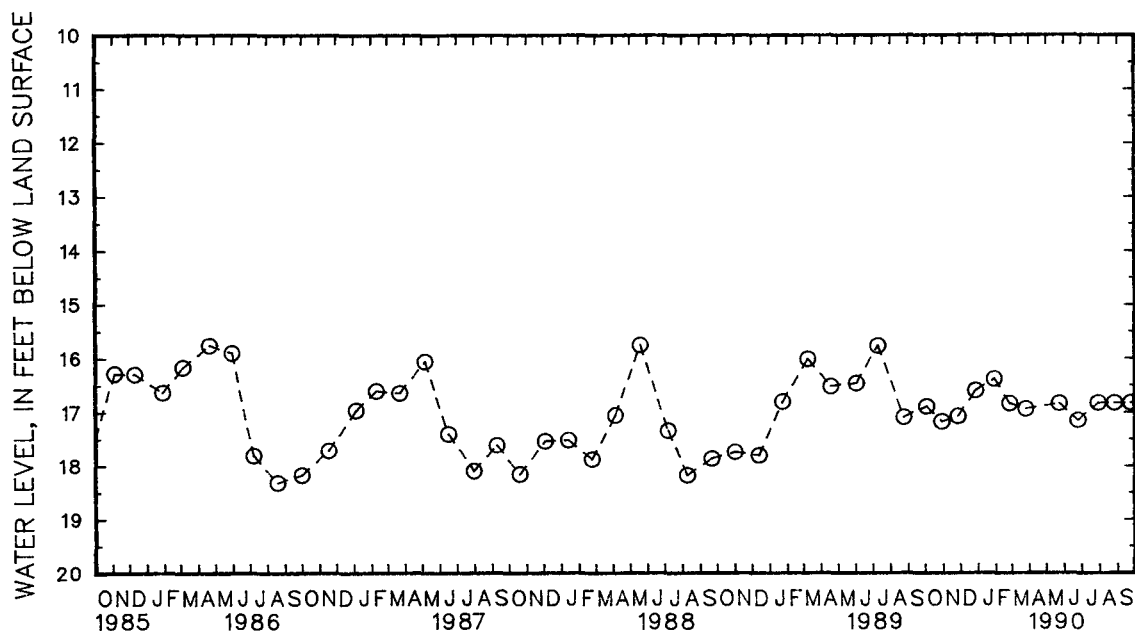
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--July 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.88 ft below land surface, March 19, 1984; lowest measured, 19.30 ft below land surface, Nov. 1, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	16.90	NOV 27	17.08	JAN 29	16.39	MAR 26	16.94	JUN 25	17.15	AUG 27	16.83
30	17.18	DEC 27	16.60	FEB 26	16.84	MAY 24	16.84	JUL 30	16.83	SEP 24	16.83



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

MARYLAND--Continued

CARROLL COUNTY

WELL NUMBER.--CL Ad 47. SITE ID.--394008077005601. PERMIT NUMBER.--CL-73-3178.

LOCATION.--Lat 39°40'08", long 77°00'56", Hydrologic Unit 02070009, at Union Mills Homestead Park.

Owner: U.S. Geological Survey.

AQUIFER.--Marburg Formation of Paleozoic age. Aquifer code: 300MRBG.

WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 310 ft; casing diameter 6 in., to 35 ft.; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 540 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing 2.9 ft above land surface.

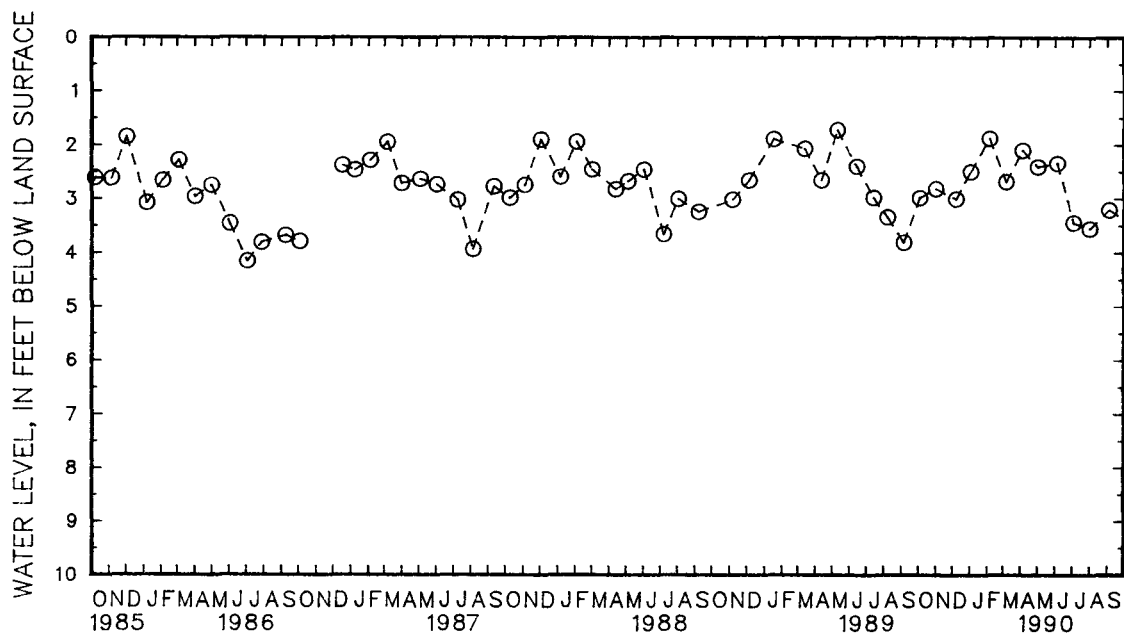
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--August 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.72 ft below land surface, May 10, 1989;
lowest measured, 4.17 ft below land surface, July 3, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL						
OCT	3	2.99	DEC	7	3.01	FEB	5	1.88	APR	5	2.10	JUN	5	2.34	AUG	1	3.56
NOV	1	2.82	JAN	3	2.50	MAR	7	2.69	MAY	2	2.41	JUL	3	3.45	SEP	4	3.21



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY

WELL NUMBER.--CH Bb 17. SITE ID.--383524077111802.

LOCATION.--Lat 38°35'24" long 77°11'18", Hydrologic Unit 02070011, at Farnum Rd.; U.S. Naval Ordnance Station, about 2.5 miles southwest of Indian Head.

Owner: U.S. Navy.

AQUIFER.--Patapsco Formation of Lower Cretaceous age. Aquifer code: 217PPSC.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 294 ft; casing diameter 16 in., to 230 ft; casing diameter 10 in. to 240 ft; screen diameter 10 in. from 240 to 294 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval, May 29, 1988 to current year.

DATUM.--Elevation of land surface is 52 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of recorder shelf, 3.0 ft above land surface.

REMARKS.--Indian Head Project observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 113.26 ft below land surface, Aug. 22, 1990; lowest measured, 121.22 ft below land surface, Dec. 22, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	118.19	117.35	117.74	117.40	118.48	118.06	120.17	119.54	---	---	---	---
2	117.56	117.08	117.94	117.58	118.33	117.76	120.60	120.12	---	---	---	---
3	117.79	117.17	117.94	117.53	119.15	117.78	120.79	120.31	---	---	---	---
4	118.32	117.56	118.05	117.51	119.62	118.61	120.76	120.24	---	---	---	---
5	118.26	117.87	117.74	117.42	118.69	118.33	120.44	119.97	---	---	---	---
6	118.17	117.90	117.70	117.38	118.76	118.35	120.40	119.93	---	---	---	---
7	118.52	117.84	117.80	117.32	118.92	118.26	120.21	119.77	---	---	---	---
8	118.33	118.07	117.79	117.29	118.80	118.36	120.22	119.67	---	---	---	---
9	118.45	117.97	117.64	117.15	118.84	118.40	120.14	119.51	---	---	---	---
10	118.12	117.65	117.95	117.38	118.79	118.23	119.90	119.47	---	---	---	---
11	118.33	117.80	118.03	117.59	118.60	118.12	120.05	119.49	---	---	---	---
12	118.33	117.76	118.20	117.71	118.75	118.30	120.09	119.64	---	---	---	---
13	118.21	117.78	118.32	117.61	118.87	118.31	120.67	120.05	---	---	---	---
14	118.32	117.69	118.03	117.52	118.74	118.30	---	---	---	---	---	---
15	118.17	117.63	118.00	117.53	118.88	118.40	---	---	---	---	---	---
16	118.16	117.51	117.88	117.29	119.83	118.60	---	---	---	---	118.25	117.70
17	118.00	117.44	118.31	117.70	120.40	119.68	---	---	---	---	118.37	117.94
18	117.91	117.29	118.42	117.87	120.88	120.15	---	---	---	---	118.51	117.98
19	---	---	118.61	118.15	121.09	120.55	---	---	---	---	118.52	117.93
20	---	---	118.27	117.91	120.75	120.50	---	---	---	---	---	---
21	117.78	116.98	119.71	118.13	120.61	120.12	---	---	---	---	---	---
22	118.35	117.32	119.35	118.30	121.22	120.62	---	---	---	---	---	---
23	118.16	117.62	118.18	117.91	121.18	121.14	---	---	---	---	---	---
24	117.86	117.52	118.15	117.49	121.14	120.70	---	---	---	---	---	---
25	117.85	117.44	117.69	117.37	120.85	119.87	---	---	---	---	---	---
26	117.71	117.31	118.22	117.69	120.23	119.67	---	---	---	---	---	---
27	117.94	117.52	118.33	117.71	120.63	120.25	---	---	---	---	---	---
28	117.94	117.44	117.95	117.60	120.42	120.09	---	---	---	---	---	---
29	117.91	117.52	118.48	117.96	120.39	119.92	---	---	---	---	---	---
30	117.87	117.30	118.48	117.98	120.25	119.77	---	---	---	---	---	---
31	117.62	117.11	---	---	120.11	119.45	---	---	---	---	---	---
MONTH	118.52	116.98	119.71	117.15	121.22	117.76	120.79	119.47	---	---	118.52	117.70

GROUND-WATER LEVELS

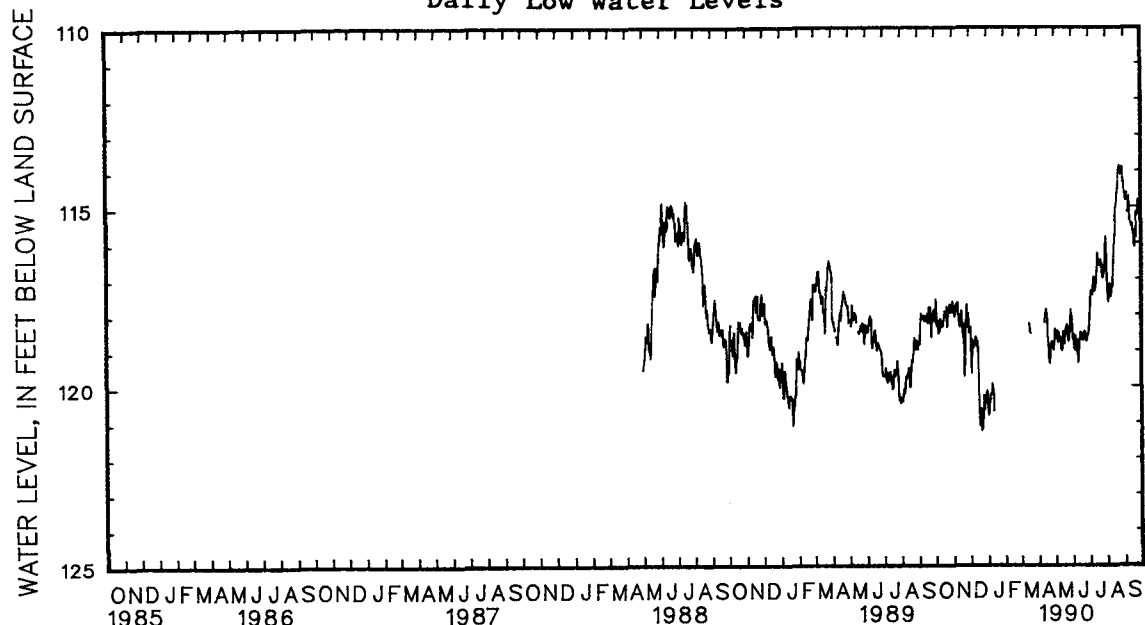
MARYLAND--Continued

CHARLES COUNTY

CH Bb 17-- Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	118.39	117.94	118.47	117.69	118.12	117.74	116.85	115.95	114.59	113.91
2	---	---	118.68	117.99	118.69	118.15	117.80	117.44	117.20	116.43	114.61	114.14
3	---	---	118.59	118.14	118.57	118.22	117.43	116.72	117.56	116.84	114.77	114.18
4	---	---	118.49	118.03	118.96	118.07	117.33	116.47	117.65	117.21	114.82	114.00
5	---	---	118.45	117.87	118.99	118.45	117.41	116.98	117.46	116.91	114.61	113.99
6	---	---	118.79	118.21	118.60	118.03	117.44	116.93	117.13	116.60	---	---
7	---	---	118.60	118.05	118.90	118.36	117.31	116.69	117.39	116.85	115.14	114.59
8	---	---	118.51	118.03	119.02	118.51	117.08	116.61	117.49	116.96	115.15	114.41
9	---	---	118.69	118.24	118.72	118.27	116.95	116.41	117.35	116.84	114.71	114.21
10	---	---	118.63	117.92	118.90	118.46	117.35	116.80	117.19	116.76	114.96	114.24
11	---	---	118.73	118.07	119.35	118.73	117.31	116.77	117.22	116.57	115.38	114.54
12	118.21	117.78	118.97	118.54	119.30	118.67	117.23	116.66	116.85	116.05	115.47	114.91
13	118.05	117.64	118.71	118.19	118.74	118.14	117.12	116.65	116.30	115.75	115.55	115.01
14	117.94	117.60	119.02	118.48	118.68	118.15	116.77	115.86	115.98	115.55	115.48	115.06
15	117.85	117.40	118.75	118.22	118.49	118.02	116.27	115.76	115.79	115.28	115.69	114.94
16	117.96	117.54	118.48	118.04	118.69	118.11	116.43	115.83	115.38	114.72	115.66	115.15
17	118.11	117.51	118.56	118.11	118.65	118.20	116.47	115.89	115.08	114.68	116.04	115.37
18	118.64	118.13	118.83	118.26	118.53	118.09	116.62	115.96	115.01	114.48	116.12	115.26
19	118.67	118.28	118.57	118.20	118.60	117.91	116.62	116.04	114.85	114.11	115.70	115.15
20	119.11	118.46	118.46	117.99	118.71	118.15	116.57	116.04	114.61	114.00	115.72	115.18
21	119.32	118.79	118.35	117.85	118.67	117.98	116.48	115.90	114.51	113.82	115.86	114.93
22	119.37	118.87	118.28	117.49	118.55	117.95	116.68	116.06	113.99	113.26	115.17	114.42
23	119.17	118.44	118.35	117.50	118.46	117.83	116.60	116.01	113.89	113.30	115.17	114.50
24	118.88	118.33	118.68	118.02	118.55	118.00	116.96	116.29	113.85	113.29	115.24	114.83
25	118.77	118.22	118.75	118.13	118.72	118.14	116.98	116.45	114.02	113.47	115.10	114.56
26	118.76	118.14	118.52	117.76	118.75	118.16	116.88	116.33	114.10	113.79	114.82	114.48
27	118.81	118.19	118.42	117.85	118.57	118.08	116.64	116.18	113.94	113.58	115.11	114.55
28	118.94	118.39	118.23	117.43	118.59	118.11	116.78	116.16	113.91	113.46	114.98	114.58
29	118.99	118.44	117.86	117.27	118.56	118.15	116.29	115.68	113.91	113.35	115.13	114.73
30	118.69	118.03	118.36	117.70	118.44	118.02	115.83	115.47	114.31	113.65	115.41	114.79
31	---	---	118.06	117.61	---	---	116.12	115.50	114.29	113.94	---	---
MONTH	119.37	117.40	119.02	117.27	119.35	117.69	118.12	115.47	117.65	113.26	115.86	113.91

Daily Low Water Levels



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH Bc 5. SITE ID.--383524077094401.

LOCATION.--Lat 38°35'24", long 77°09'44", Hydrologic Unit 02070011, at Benson Rd.;
U.S. Naval Ordnance Station, about 2.5 miles southwest of Indian Head.

Owner: U.S. Navy.

AQUIFER.--Patuxent Formation of Lower Cretaceous age. Aquifer code: 217PTKN.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 430 ft; casing diameter 8 in. to unknown depth;
screen diameter 8 in, depth unknown.INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital
water-level recorder--60-minute recorder interval, April 28, 1988 to current year.

DATUM.--Elevation of land surface is 38.2 ft above National Geodetic Vertical Datum of 1929.

Measuring Point: Top of recorder shelf, 2.5 ft above land surface.

REMARKS.--Indian Head Project observation well. Recorder data missing because of malfunctioning
float/counter-weight system. Water levels affected by nearby pumping.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 119.12 ft below land surface, Nov. 13, 1988;
lowest measured, 126.78 ft below land surface, Jan. 11, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

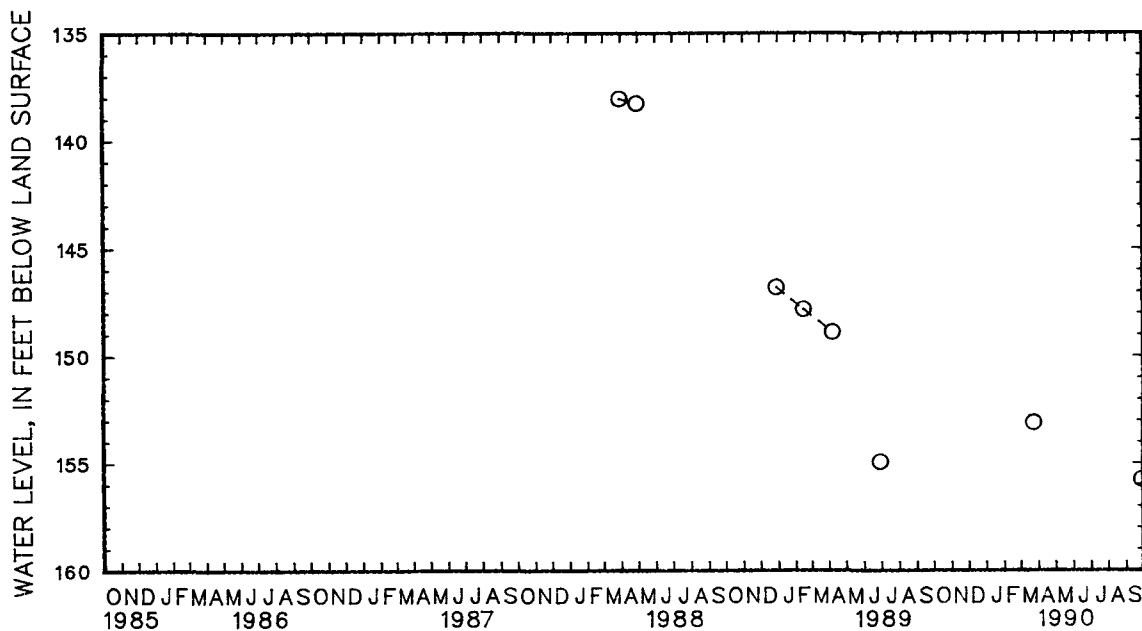
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	122.90	122.56	123.80	123.45	122.33	122.13	122.79	122.26	121.92	121.51	121.32	120.98
2	122.66	122.51	123.91	123.56	122.29	121.83	122.93	122.76	121.72	121.34	121.15	120.79
3	122.99	122.57	123.75	123.47	122.35	121.88	122.98	122.78	121.79	121.45	121.07	120.79
4	123.09	122.82	123.75	123.29	122.35	121.97	122.95	122.62	121.54	121.07	121.10	120.88
5	123.01	122.80	123.56	123.24	122.10	121.87	---	---	121.75	121.44	120.94	120.60
6	122.93	122.77	123.38	123.08	122.15	121.94	122.70	122.34	121.58	121.17	120.95	120.68
7	122.98	122.60	123.33	123.01	122.48	121.99	122.65	122.23	121.63	121.35	120.96	120.71
8	122.61	122.50	123.10	122.68	122.39	122.14	122.55	122.09	121.68	121.22	120.86	120.50
9	122.95	122.61	122.87	122.49	122.39	122.09	122.51	121.97	121.55	121.13	120.75	120.34
10	122.90	122.64	122.97	122.53	122.29	121.96	122.38	121.99	121.50	121.13	120.67	120.30
11	123.09	122.72	122.91	122.53	122.31	121.95	122.43	121.85	121.60	121.15	120.59	120.19
12	123.19	122.73	122.91	122.56	122.36	121.97	122.26	121.96	121.64	121.16	120.53	120.21
13	123.28	122.84	122.96	122.46	122.24	121.86	122.38	122.20	121.55	121.10	120.47	120.16
14	123.28	122.79	122.85	122.45	122.22	121.89	122.34	121.99	121.51	121.15	120.36	120.09
15	123.18	122.74	122.81	122.37	122.34	121.94	122.28	122.01	121.51	121.08	120.32	120.01
16	---	---	122.62	122.06	122.56	122.17	122.26	122.00	121.17	120.90	120.27	119.88
17	---	---	122.70	122.43	122.63	122.39	122.20	121.94	121.55	121.06	120.22	119.92
18	123.21	122.73	122.66	122.43	122.62	122.40	122.06	121.79	121.55	121.18	120.55	120.17
19	122.92	122.29	122.66	122.33	122.59	122.29	122.24	122.01	121.21	120.92	120.62	120.32
20	122.80	122.29	122.35	122.13	122.69	122.27	122.09	121.76	121.47	121.21	120.88	120.58
21	123.00	122.48	122.56	122.17	123.02	122.51	121.95	121.66	121.42	121.09	120.92	120.79
22	123.14	122.62	122.56	122.26	123.19	123.02	121.95	121.57	121.32	120.88	120.88	120.58
23	123.07	122.79	122.35	122.16	123.15	122.92	121.94	121.66	121.06	120.71	121.15	120.70
24	122.97	122.62	122.35	122.05	122.96	122.75	121.96	121.61	121.14	120.87	121.15	120.84
25	123.04	122.71	122.24	121.99	122.79	122.25	121.93	121.41	121.42	121.19	121.09	120.75
26	123.18	122.80	122.25	122.14	122.71	122.21	121.89	121.52	121.42	121.12	121.14	120.82
27	123.29	123.00	122.31	121.84	122.74	122.49	121.98	121.67	121.30	120.95	121.13	120.81
28	123.36	123.07	122.01	121.75	122.70	122.48	122.00	121.80	121.31	120.95	121.11	120.76
29	123.57	123.30	122.15	122.06	122.75	122.46	122.00	121.37	---	---	121.07	120.75
30	123.63	123.28	122.14	121.98	122.71	122.38	121.87	121.51	---	---	121.03	120.66
31	123.57	123.21	---	---	122.68	122.09	121.93	121.62	---	---	120.97	120.58
MONTH	123.63	122.29	123.91	121.75	123.19	121.83	122.98	121.37	121.92	120.71	121.32	119.88

GROUND-WATER LEVELS
MARYLAND--Continued
CHARLES COUNTY--Continued

WELL NUMBER.--CH Bc 6. SITE ID.--383631077083501.
LOCATION.--Lat 38°36'31", long 77°08'35", Hydrologic Unit 02070011, Cedar Lane, Potomac Heights.
Owner: Potomac Heights Mutual Home Owners Association.
AQUIFER.--Patapsco Formation of Lower Cretaceous age. Aquifer code: 217PPSC.
WELL CHARACTERISTICS.--Drilled, production, artesian well, depth 417 ft; casing diameter 18 in., to 350 ft; casing diameter 8 in. from 322 to 362 ft; screen diameter 8 in. from 362 to 412 ft.
INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.
DATUM.--Elevation of land surface is 65 ft above National Geodetic Vertical Datum of 1929, from topographic map.
Measuring Point: Top of casing, 1.5 ft above land surface.
REMARKS.--Indian Head Project observation well.
PERIOD OF RECORD.--March 1988 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 138.05 ft below land surface, March 31, 1988; lowest measured, 155.78 ft below land surface, Sept. 28, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 24	153.11	SEP 28	155.78



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY--Continued

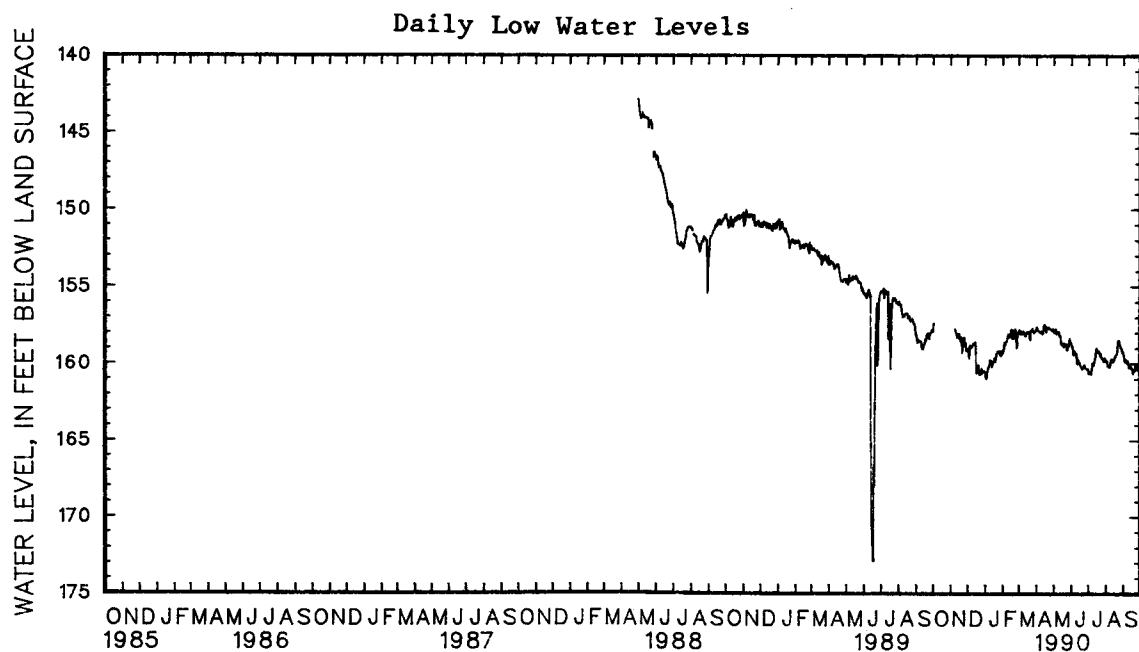
WELL NUMBER.--CH Bc 24. SITE ID.--383633077083001. PERMIT NUMBER.--CH-02-0874.
 LOCATION.--Lat 38°36'33" long 77°08'30", Hydrologic Unit 0207001, at Cedar Lane, Potomac Heights.
 Owner: Potomac Heights Mutual Home Owners Association.
 AQUIFER.--Patuxent Formation of Lower Cretaceous age. Aquifer code: 217PTXN.
 WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 435 ft; casing diameter 10 in., to 383.5 ft; and 398.5 to 415 ft; screen diameter 10 in. from 383.5 to 398.5 ft and 415 to 435 ft.
 INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval, April 30, 1988 to current year.
 DATUM.--Elevation of land surface is 72 ft above National Geodetic Vertical Datum of 1929, from topographic map.
 Measuring Point: Top of recorder shelf, 1.6 ft above land surface.
 REMARKS.--Indian Head Project observation well. Water levels affected by nearby pumping.
 PERIOD OF RECORD.--May 1988 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 142.26 ft below land surface, April 30, 1988; lowest measured, 172.86 ft below land surface, June 17, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	157.92	157.14	---	---	159.05	158.69	160.60	160.01	159.35	158.83	157.98	157.56
2	157.41	156.96	---	---	159.02	158.30	160.93	160.56	159.19	158.63	157.83	157.37
3	---	---	---	---	159.31	158.36	161.01	160.68	159.03	158.62	157.85	157.45
4	---	---	---	---	159.66	158.73	160.83	160.34	158.63	158.09	158.05	157.71
5	---	---	---	---	158.84	158.54	160.52	160.12	158.80	158.39	157.89	157.48
6	---	---	---	---	158.83	158.44	160.42	159.96	158.62	158.04	158.02	157.62
7	---	---	---	---	158.97	158.39	160.27	159.75	158.56	158.19	158.08	157.74
8	---	---	---	---	158.90	158.47	160.17	159.64	158.58	157.98	158.00	157.57
9	---	---	157.76	157.29	158.90	158.47	160.07	159.43	158.31	157.77	157.92	157.54
10	---	---	157.98	157.43	158.84	158.32	159.78	159.39	158.11	157.69	158.03	157.63
11	---	---	158.00	157.55	158.70	158.25	159.92	159.37	158.25	157.77	158.01	157.64
12	---	---	158.18	157.68	158.77	158.27	159.85	159.48	158.27	157.76	158.17	157.78
13	---	---	158.33	157.79	158.68	158.18	160.23	159.79	158.25	157.63	158.21	157.83
14	---	---	158.25	157.73	158.62	158.17	160.08	159.53	158.08	157.68	158.12	157.74
15	---	---	158.19	157.70	158.66	158.20	159.90	159.54	158.17	157.64	158.06	157.69
16	---	---	158.06	157.45	160.21	158.43	159.90	159.49	157.78	157.41	157.96	157.60
17	---	---	158.37	157.85	160.62	160.18	159.79	159.41	158.28	157.55	157.93	157.44
18	---	---	158.43	157.98	160.56	160.22	159.64	159.26	158.37	157.88	157.97	157.56
19	---	---	158.58	158.14	160.43	159.83	159.87	159.50	157.87	157.53	157.95	157.50
20	---	---	158.27	157.94	160.12	159.76	159.69	159.17	158.37	157.87	158.30	157.70
21	---	---	159.35	158.11	160.18	159.67	159.33	158.93	158.30	157.78	158.45	157.92
22	---	---	159.07	158.38	160.75	160.19	159.32	158.88	158.05	157.52	157.85	157.38
23	---	---	158.51	158.17	160.75	160.48	159.21	158.86	157.77	157.33	157.89	157.41
24	---	---	158.51	157.97	160.68	160.48	159.28	158.88	158.02	157.63	157.90	157.42
25	---	---	158.31	157.98	160.64	159.91	159.23	158.70	159.01	158.11	157.73	157.31
26	---	---	158.76	158.30	160.34	159.81	159.18	158.81	158.90	158.02	157.90	157.45
27	---	---	158.87	158.40	160.66	160.32	159.35	158.93	158.20	157.55	157.99	157.58
28	---	---	158.68	158.33	160.49	160.21	159.43	159.09	157.95	157.50	157.99	157.53
29	---	---	159.19	158.77	160.51	160.18	159.52	158.78	---	---	157.92	157.52
30	---	---	159.18	158.71	160.52	160.18	159.21	158.81	---	---	157.87	157.40
31	---	---	---	---	160.51	159.95	159.29	158.88	---	---	157.85	157.32
MONTH	157.92	156.96	159.35	157.29	160.75	158.17	161.01	158.70	159.35	157.33	158.45	157.31

GROUND-WATER LEVELS
MARYLAND--Continued
CHARLES COUNTY--Continued
CH Bc 24--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	157.68	157.26	157.78	157.39	158.77	158.31	160.64	160.24	159.85	159.44	159.38	158.90
2	157.63	157.19	157.99	157.45	158.89	158.42	160.61	160.26	159.80	159.40	159.54	159.14
3	157.83	157.12	157.92	157.53	158.92	158.55	160.55	160.11	159.94	159.48	159.77	159.27
4	157.84	157.48	157.84	157.47	159.40	158.60	160.62	159.99	160.15	159.73	159.88	159.31
5	157.87	157.37	157.76	157.25	159.44	159.03	160.69	160.33	160.14	159.76	159.72	159.25
6	157.89	157.55	158.07	157.61	159.17	158.69	160.70	160.10	160.11	159.64	159.83	159.36
7	157.95	157.41	157.96	157.55	159.22	158.75	160.33	159.71	160.26	159.80	159.87	159.42
8	157.98	157.56	158.02	157.61	159.32	158.94	160.00	159.59	160.21	159.66	159.98	159.53
9	157.99	157.59	158.04	157.61	159.33	158.90	159.96	159.54	160.04	159.46	159.83	159.30
10	157.93	157.45	157.95	157.40	159.59	159.19	160.13	159.72	159.80	159.35	159.99	159.30
11	---	---	158.18	157.58	160.04	159.49	160.01	159.48	159.70	159.31	160.25	159.63
12	158.07	157.67	158.25	157.84	159.95	159.64	159.77	159.18	159.77	159.30	160.27	159.85
13	157.85	157.42	158.22	157.80	159.78	159.33	159.59	159.16	159.72	159.35	160.28	159.90
14	157.58	157.16	158.76	158.09	159.93	159.44	159.22	158.68	159.87	159.29	160.20	159.85
15	157.43	157.06	158.71	158.40	159.92	159.53	158.99	158.57	159.80	159.43	160.31	159.73
16	157.51	157.18	158.68	158.31	160.09	159.62	159.22	158.64	159.66	159.26	160.32	159.87
17	157.60	157.12	158.74	158.36	160.16	159.73	159.24	158.83	159.62	159.16	160.55	160.13
18	157.97	157.58	158.91	158.50	160.21	159.77	159.17	158.75	159.50	159.05	160.65	160.05
19	157.73	157.41	158.71	158.37	160.31	159.74	159.17	158.70	159.44	158.98	160.42	159.86
20	157.65	157.27	158.71	158.28	160.38	159.94	159.26	158.79	159.40	158.89	160.49	159.87
21	157.65	157.28	158.73	158.24	160.32	159.75	159.43	158.91	159.23	158.54	160.47	159.79
22	157.73	157.35	158.72	158.08	160.25	159.75	159.50	158.99	158.85	158.20	160.07	159.57
23	157.67	157.20	158.94	158.17	160.09	159.54	159.36	158.88	158.53	158.06	160.11	159.61
24	157.70	157.21	159.11	158.62	160.10	159.62	159.62	159.14	158.47	158.09	160.32	159.86
25	157.74	157.22	159.09	158.54	160.25	159.75	159.60	159.19	158.56	158.13	160.23	159.94
26	157.77	157.28	158.90	158.21	160.29	159.84	159.70	159.21	158.75	158.21	160.38	159.85
27	157.80	157.31	158.71	158.23	160.35	159.88	159.68	159.34	158.93	158.45	160.45	160.09
28	157.84	157.38	158.63	158.06	160.35	159.01	159.85	159.36	158.97	158.62	160.14	159.84
29	157.86	157.41	158.37	157.89	160.35	160.14	159.85	159.48	159.06	158.64	160.18	159.83
30	157.76	157.31	158.73	158.22	160.35	160.09	159.63	159.34	159.25	158.74	160.30	159.90
31	---	---	158.62	158.22	---	---	159.70	159.24	159.21	158.90	---	---
MONTH	158.07	157.12	159.11	157.25	160.38	158.31	160.70	158.57	160.26	158.06	160.65	158.90



GROUND-WATER LEVELS

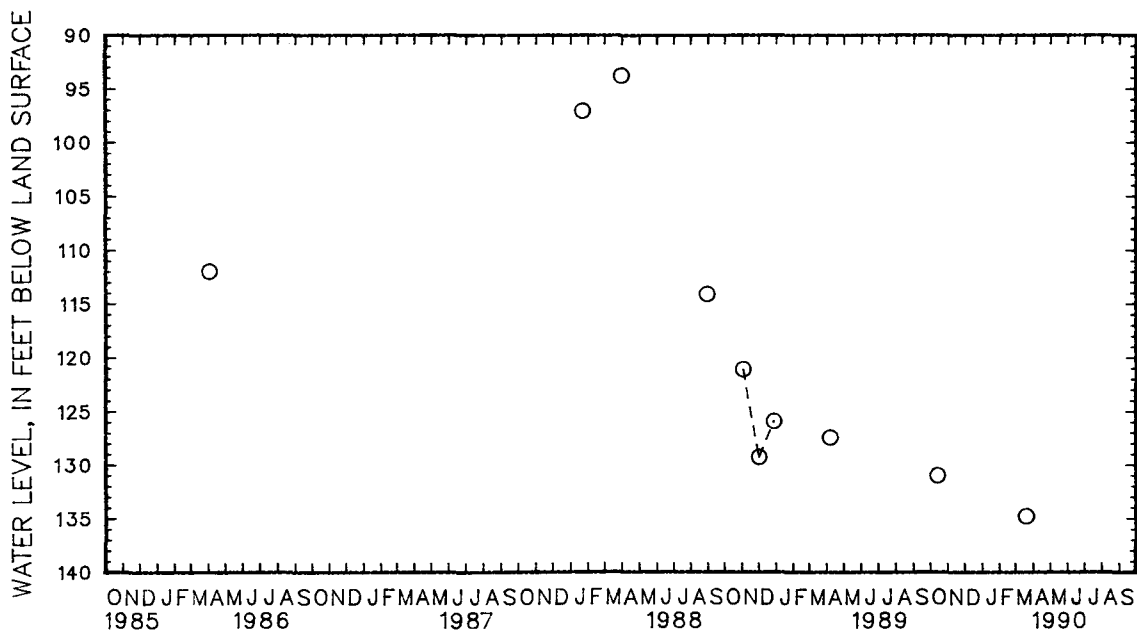
MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH Bc 71. SITE ID.--383554077085601. PERMIT NUMBER.--CH-73-2415.
 LOCATION.--Lat 38°35'54", long 77°08'56", Hydrologic Unit 02070011, Woodlawn Dr. in Indian Head.
 Owner: Town of Indian Head.
 AQUIFER.--Patapsco Formation of Lower Cretaceous age. Aquifer code: 217PPSC.
 WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 440 ft; casing diameter 2 in., to 440 ft; screen diameter 2 in. from 400 to 410 ft.
 INSTRUMENTATION.--Periodic measurements with chalked steel tape by USGS personnel.
 DATUM.--Elevation of land surface is 30 ft above National Geodetic Vertical Datum of 1929, from topographic map.
 Measuring Point: Top of casing, 2.4 ft above land surface.
 REMARKS.--Indian Head Project observation well. Water levels affected by nearby pumping.
 PERIOD OF RECORD.--September 1981 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 81.58 ft below land surface, Sept. 23, 1981; lowest measured, 141.96 ft below land surface, Oct. 2, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

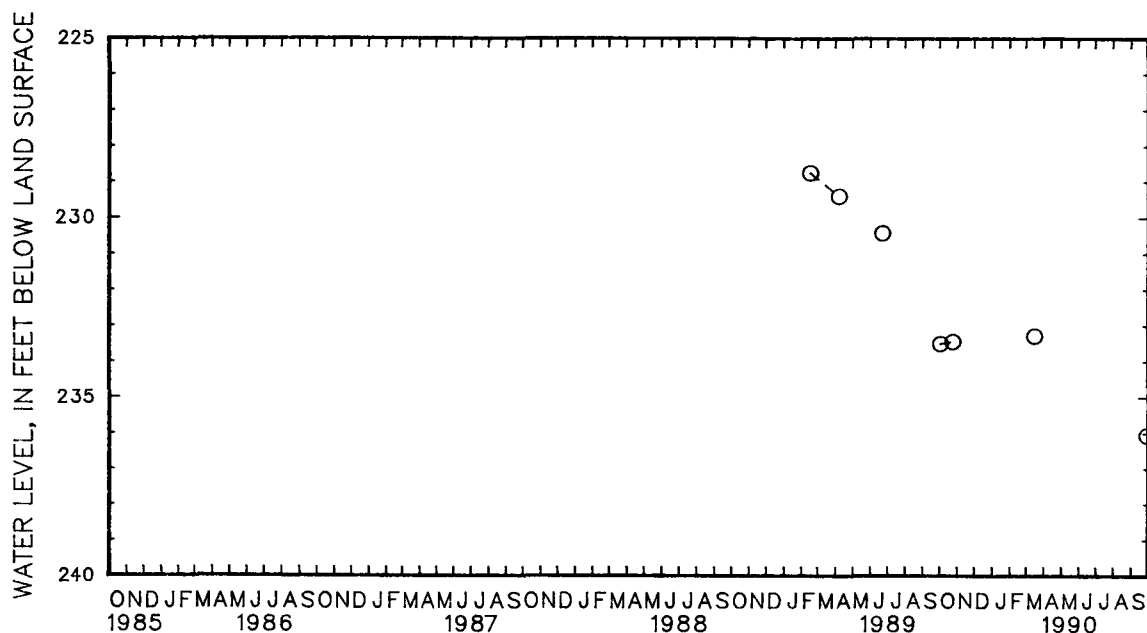
DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 13	131.01	MAR 19	134.79



5 YEAR HYDROGRAPH
 OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	233.53	OCT 25	233.47	MAR 16	233.30	SEP 28	236.07



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH Be 43. SITE ID.--383819076555501. PERMIT NUMBER.--CH-71-0066.
 LOCATION.--Lat 38°38'19", long 76°55'55", Hydrologic Unit 02070011, at Sun Valley housing
 development, 1.5 mi. northwest of Waldorf.
 Owner: Lennart Larson.

AQUIFER.--Magothy Formation of Lower Cretaceous age. Aquifer code: 211MGTY.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 459 ft; casing diameter 6 in., to 428 ft;
 screen diameter 5 in. from 433 to 459 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with graphic
 water-level recorder from Feb. 10, 1977 to Jan. 27, 1978. Equipped with digital water-level recorder--60-minute
 recorder interval from Feb. 27, 1978 to current year.

DATUM.--Elevation of land-surface is 216.79 ft above National Geodetic Vertical Datum of 1929.

Measuring Point: Top of casing, 2.0 ft above land surface.

REMARKS.--Southern Maryland Observation Well Network. Water levels are affected by nearby pumping.

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

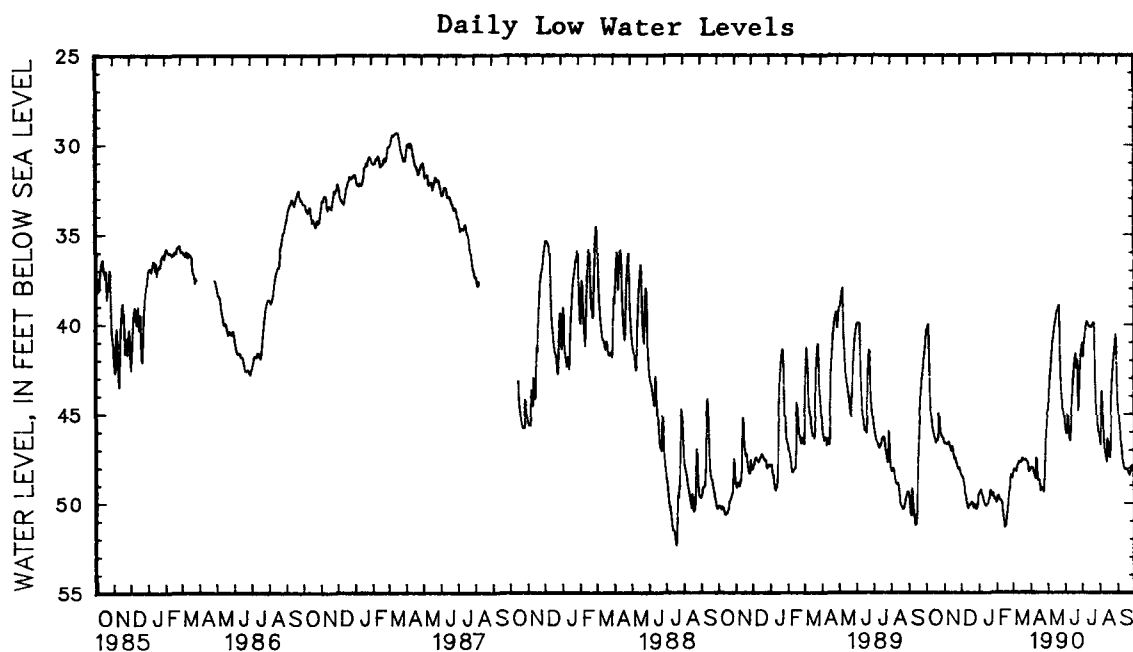
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.05 ft above sea level, Feb. 22, 1977;
 lowest measured, 52.58 ft below sea level, July 20, 1988.

WATER LEVEL, IN FEET BELOW SEA LEVEL, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	40.73	41.24	46.63	46.70	48.39	48.58	49.51	49.57	49.92	50.01	48.46	48.59
2	40.31	40.70	46.66	46.71	48.46	48.59	49.41	49.58	49.64	49.91	48.23	48.45
3	40.25	40.30	46.61	46.66	48.50	48.59	49.36	49.41	49.68	49.77	48.11	48.22
4	40.13	40.25	46.65	46.67	48.60	48.65	49.27	49.36	49.55	49.71	48.11	48.14
5	39.99	40.55	46.66	46.71	48.65	48.86	49.27	49.47	49.65	49.81	48.11	48.14
6	40.64	42.22	46.71	46.71	48.86	49.04	49.43	49.53	49.81	49.87	48.10	48.23
7	42.28	43.40	46.70	46.73	49.06	49.47	49.53	49.63	49.82	49.87	48.23	48.26
8	43.44	44.28	46.61	46.70	49.47	49.54	49.63	49.76	49.86	49.89	48.04	48.22
9	44.32	45.06	46.56	46.62	49.55	49.74	49.77	49.91	49.88	49.93	47.87	48.03
10	45.08	45.53	46.62	46.76	49.75	49.99	49.91	50.10	49.93	50.28	47.83	47.88
11	45.54	45.84	46.77	46.86	50.00	50.19	50.04	50.12	50.29	50.53	47.74	47.83
12	45.85	46.00	46.86	47.03	50.20	50.24	50.09	50.16	50.54	50.91	47.65	47.74
13	46.00	46.21	47.03	47.07	50.22	50.29	50.17	50.22	50.93	51.09	47.65	47.67
14	46.21	46.31	47.07	47.09	50.29	50.31	50.17	50.23	51.11	51.35	47.65	47.71
15	46.31	46.38	46.94	47.08	50.09	50.30	50.06	50.16	51.36	51.44	47.71	47.77
16	46.38	46.53	46.80	47.04	50.11	50.13	50.06	50.10	51.29	51.41	47.70	47.78
17	46.53	46.60	47.06	47.31	50.09	50.14	50.02	50.10	51.29	51.40	47.49	47.70
18	46.61	46.64	47.32	47.54	50.08	50.09	49.84	50.01	51.03	51.40	47.48	47.55
19	46.51	46.62	47.53	47.57	49.94	50.08	49.72	49.84	50.66	51.01	47.56	47.59
20	46.44	46.51	47.42	47.53	49.94	49.95	49.40	49.71	50.46	50.65	47.58	47.59
21	46.45	46.48	47.48	47.73	49.95	50.08	49.27	49.39	50.14	50.45	47.58	47.63
22	46.27	46.55	47.71	47.82	50.08	50.27	49.31	49.41	49.65	50.12	47.56	47.63
23	44.97	46.17	47.69	47.92	50.27	50.27	49.42	49.59	49.33	49.63	47.53	47.67
24	45.17	45.79	47.93	48.08	50.13	50.26	49.59	49.70	49.20	49.32	47.61	47.70
25	45.80	46.05	48.04	48.08	50.08	50.12	49.47	49.70	48.39	49.22	47.63	47.67
26	46.06	46.18	47.99	48.10	50.09	50.32	49.44	49.65	48.45	48.59	47.67	47.73
27	46.19	46.25	48.08	48.11	50.32	50.35	49.66	49.77	48.58	48.59	47.74	47.99
28	46.25	46.29	48.01	48.14	50.34	50.42	49.78	49.83	48.58	48.60	47.99	48.24
29	46.30	46.34	48.15	48.30	50.32	50.42	49.71	49.83	---	---	48.25	48.33
30	46.34	46.49	48.28	48.38	50.10	50.31	49.76	49.98	---	---	48.22	48.28
31	46.50	46.63	---	---	49.52	50.08	49.98	50.01	---	---	48.14	48.21
MONTH	39.99	46.64	46.56	48.38	48.39	50.42	49.27	50.23	48.39	51.44	47.48	48.59

GROUND-WATER LEVELS
MARYLAND--Continued
CHARLES COUNTY--Continued
CH Be 43--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	48.09	48.14	44.89	45.18	45.84	45.97	41.10	41.35	46.40	46.72	44.00	44.70
2	48.00	48.09	44.79	44.88	45.97	46.10	41.04	41.91	46.74	47.02	44.71	45.19
3	47.99	48.03	44.40	44.78	46.09	46.11	41.81	42.28	45.61	47.06	45.20	45.72
4	48.01	48.03	43.67	44.37	46.10	46.33	41.18	41.78	44.20	45.54	45.73	46.06
5	48.03	48.20	43.08	43.64	45.05	46.34	40.82	41.16	43.74	44.33	46.07	46.44
6	48.20	48.33	42.67	43.07	45.14	45.78	40.55	40.80	44.38	45.57	46.45	46.68
7	48.33	48.42	42.26	42.65	45.80	46.25	40.30	40.55	45.61	46.41	46.69	47.05
8	48.42	48.57	41.85	42.24	46.26	46.48	40.06	40.29	46.43	46.95	47.07	47.44
9	48.58	48.67	41.44	41.83	46.49	46.66	39.85	40.06	46.96	47.11	47.45	47.68
10	48.64	48.71	40.95	41.42	46.48	46.76	39.83	39.89	47.11	47.29	47.69	47.88
11	47.44	48.64	40.80	40.95	45.76	46.77	39.89	40.01	47.29	47.48	47.89	48.04
12	47.59	48.30	40.46	40.80	45.11	45.80	40.02	40.10	47.49	47.68	48.04	48.10
13	48.32	48.72	40.12	40.44	44.70	45.55	40.10	40.17	47.69	47.72	48.10	48.15
14	48.72	48.77	39.95	40.12	44.05	44.66	40.11	40.17	46.40	47.66	48.11	48.15
15	48.71	48.75	39.73	39.94	43.46	44.02	40.10	40.14	46.54	47.07	48.08	48.10
16	48.71	48.74	39.44	39.71	42.95	43.45	40.15	40.19	47.09	47.30	48.07	48.10
17	48.74	48.99	39.28	39.43	42.54	42.93	40.17	40.19	47.31	47.40	48.07	48.17
18	49.00	49.30	39.21	39.29	42.10	42.52	40.09	40.17	47.40	47.44	48.17	48.27
19	49.31	49.47	39.15	39.24	41.77	42.09	39.99	40.09	47.43	47.44	48.27	48.36
20	49.15	49.44	38.99	39.13	41.63	42.36	39.97	39.99	46.86	47.50	48.36	48.50
21	49.14	49.23	38.93	39.76	42.44	43.31	39.89	39.97	44.97	46.79	48.44	48.51
22	49.24	49.28	39.88	41.71	41.99	42.89	39.89	40.81	43.87	44.94	48.26	48.44
23	49.26	49.36	41.76	42.78	42.03	43.63	40.92	42.68	43.09	43.86	48.22	48.26
24	49.37	49.53	42.81	43.51	43.69	44.78	42.74	43.77	42.52	43.08	47.92	48.24
25	49.26	49.55	43.53	44.00	44.83	45.55	43.80	44.54	42.03	42.51	47.92	47.94
26	48.35	49.19	44.01	44.34	44.58	45.69	44.57	45.11	41.64	42.01	47.93	47.94
27	46.86	48.26	44.38	44.72	43.17	44.49	45.13	45.62	41.29	41.63	47.94	47.98
28	46.20	46.82	44.73	44.92	42.37	43.13	45.64	45.99	40.87	41.28	47.98	48.00
29	45.61	46.18	44.84	44.96	41.71	42.35	46.00	46.15	40.58	41.12	47.97	47.98
30	45.20	45.60	45.00	45.45	41.36	41.69	46.06	46.26	41.18	42.89	47.97	48.05
31	---	---	45.47	45.84	---	---	46.06	46.38	42.92	43.98	---	---
MONTH	45.20	49.55	38.93	45.84	41.36	46.77	39.83	46.38	40.58	47.72	44.00	48.51



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS
MARYLAND--Continued
CHARLES COUNTY--Continued

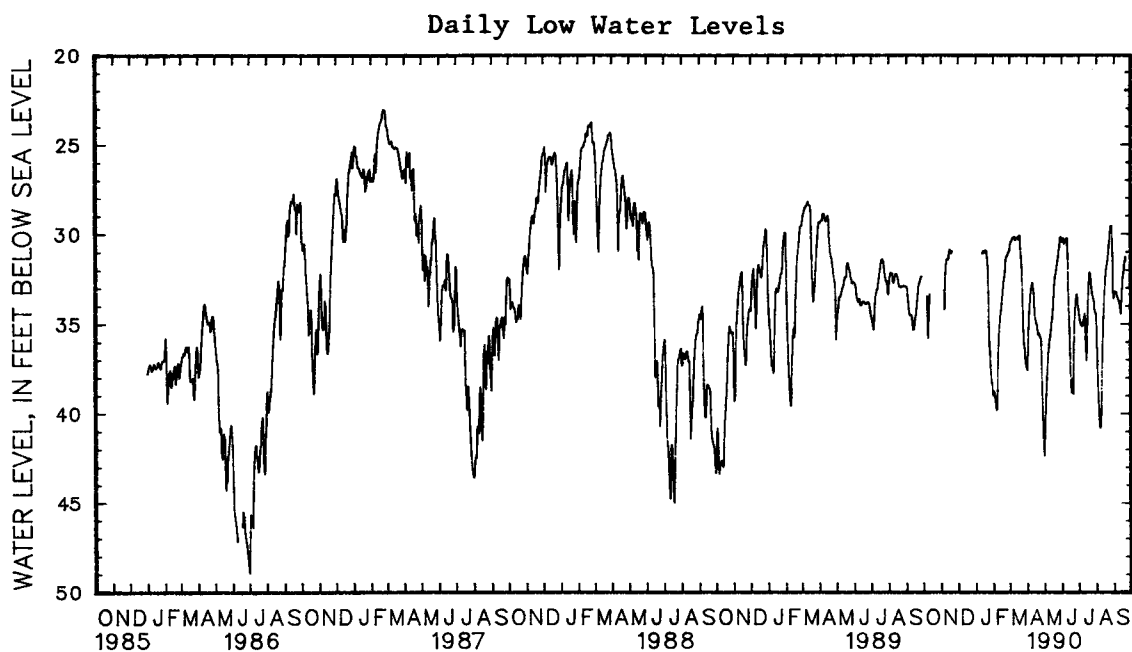
WELL NUMBER.--CH Bf 101. SITE ID.--383853076532601. PERMIT NUMBER.--CH-01-1882.
LOCATION.--Lat 38°38'53", long 76°53'26", Hydrologic Unit 02070011, at Martha Washington Motel,
1.7 mi. northwest of Waldorf.
Owner: Martha Washington Motel.
AQUIFER.--Magothy Formation of Upper Cretaceous age. Aquifer code: 211MGTY.
WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 465 ft; casing diameter 6 in., to 423 ft, and
from 438 to 449 ft; screen diameter 6 in. from 423 to 438 ft, and 449 to 465 ft.
INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with graphic
water-level recorder from Nov. 20, 1976 to Feb. 6, 1978. Equipped with digital water-level recorder--60-minute
recorder interval from Feb. 26, 1978 to current year.
DATUM.--Elevation of land surface is 216.45 ft above National Geodetic Vertical Datum of 1929.
Measuring Point: Top of casing, 3.0 ft above land surface.
REMARKS.--Southern Maryland Observation Well Network. Water levels are affected by nearby pumping.
PERIOD OF RECORD.--November 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.60 ft above sea level, Jan. 16, 1977;
lowest measured, 49.05 ft below sea level, July 1, 1986.

WATER LEVEL, IN FEET BELOW SEA LEVEL, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	---	---	---	---	39.03	39.05	30.82	30.99
2	---	---	---	---	---	---	---	---	38.80	39.03	30.54	30.82
3	---	---	---	---	---	---	---	---	38.89	39.19	30.41	30.53
4	---	---	---	---	---	---	---	---	39.18	39.35	30.39	30.41
5	---	---	---	---	---	---	---	---	39.36	39.72	30.29	30.39
6	---	---	33.13	34.18	---	---	---	---	39.72	39.85	30.21	30.27
7	33.47	34.72	34.22	34.65	---	---	---	---	39.83	39.92	30.24	30.26
8	34.76	35.77	32.73	34.18	---	---	---	---	39.20	39.93	30.24	30.26
9	35.81	36.35	32.02	32.73	---	---	---	---	37.10	39.10	30.16	30.24
10	34.63	35.89	31.64	32.02	---	---	---	---	35.97	37.03	30.17	30.34
11	33.85	34.59	31.40	31.64	---	---	---	---	35.24	35.95	30.34	30.36
12	33.35	33.82	31.38	31.41	---	---	31.07	31.09	34.97	35.20	30.25	30.35
13	---	---	31.41	31.42	---	---	31.09	31.10	34.54	34.96	30.19	30.25
14	---	---	31.33	31.42	---	---	30.97	31.09	34.28	34.52	30.19	30.22
15	---	---	31.09	31.33	---	---	30.94	30.97	33.90	34.27	30.22	30.27
16	---	---	30.87	31.09	---	---	30.97	31.08	33.53	33.88	30.28	30.29
17	---	---	30.89	31.00	---	---	31.03	31.09	33.40	33.52	30.09	30.28
18	---	---	31.00	31.07	---	---	30.90	31.02	32.97	33.40	30.08	30.12
19	---	---	31.07	31.11	---	---	30.91	31.01	32.60	32.93	30.09	30.91
20	---	---	30.95	31.09	---	---	31.02	31.32	32.41	32.58	30.99	32.05
21	---	---	---	---	---	---	31.33	31.84	32.13	32.41	31.36	31.81
22	---	---	---	---	---	---	31.85	33.15	31.58	32.12	31.88	33.35
23	---	---	---	---	---	---	33.26	35.14	31.32	31.57	33.39	34.62
24	---	---	---	---	---	---	35.19	36.17	31.20	31.31	34.62	35.70
25	---	---	---	---	---	---	36.20	36.59	31.21	31.23	35.72	36.20
26	---	---	---	---	---	---	36.61	37.14	31.08	31.23	36.21	36.39
27	---	---	---	---	---	---	37.17	37.73	30.98	31.07	36.37	36.90
28	---	---	---	---	---	---	37.75	38.10	30.99	31.00	36.92	37.20
29	---	---	---	---	---	---	38.12	38.34	---	---	37.21	37.39
30	---	---	---	---	---	---	38.37	38.81	---	---	37.39	37.50
31	---	---	---	---	---	---	38.82	39.03	---	---	37.50	37.58
MONTH	33.35	34.65	30.87	34.65	---	---	30.90	39.03	30.98	39.93	30.08	37.58

GROUND-WATER LEVELS
MARYLAND--Continued
CHARLES COUNTY--Continued
CH Bf 101--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	37.59	37.70	42.36	42.73	30.42	30.44	34.46	34.74	35.49	36.84	33.35	33.58
2	36.64	37.73	40.80	42.28	30.39	30.43	34.75	34.89	36.89	38.02	33.22	33.35
3	35.23	36.56	39.94	40.75	30.25	30.38	34.89	34.99	38.06	38.92	33.22	33.23
4	34.38	35.18	38.94	39.89	30.24	30.52	35.00	35.08	38.96	39.72	33.23	33.25
5	33.85	34.35	38.16	38.89	30.53	30.60	35.08	35.17	39.75	40.38	33.25	33.42
6	33.40	33.82	37.59	38.14	30.36	30.54	35.14	35.21	40.37	40.82	33.43	33.51
7	33.21	33.38	37.05	37.56	30.31	30.36	35.12	35.22	40.84	41.08	33.52	33.60
8	32.95	33.20	36.58	37.03	30.33	30.40	34.93	35.11	40.77	41.08	33.61	33.73
9	32.73	32.94	36.34	36.57	30.24	30.39	34.79	35.08	40.17	40.75	33.72	33.74
10	32.73	33.06	35.89	36.31	30.24	31.11	34.74	35.06	39.11	40.15	33.74	34.02
11	33.06	33.28	35.76	35.90	31.22	33.34	34.44	35.03	36.92	39.00	34.03	34.17
12	33.32	34.07	35.43	35.76	33.41	34.51	35.11	36.41	35.62	36.86	34.18	34.44
13	34.10	34.63	35.08	35.42	34.56	35.34	36.46	37.03	34.62	35.59	34.44	34.48
14	34.65	34.79	34.87	35.08	35.38	36.62	37.04	37.17	33.91	34.59	33.75	34.43
15	34.80	34.99	34.57	34.86	36.66	37.64	36.57	37.21	33.26	33.88	33.07	33.73
16	34.99	35.07	34.21	34.55	37.67	38.37	34.84	36.47	32.74	33.24	32.45	33.05
17	35.02	35.17	33.52	34.20	38.39	38.84	33.61	34.78	32.29	32.72	32.28	32.42
18	35.19	35.47	32.85	33.48	38.86	39.26	32.81	33.56	31.94	32.27	32.01	32.28
19	35.47	35.65	32.55	32.83	38.06	39.07	32.18	32.77	31.76	31.93	31.62	32.01
20	35.64	35.67	32.30	32.53	38.42	39.45	32.13	32.37	31.52	31.76	31.49	31.62
21	35.56	35.63	32.20	32.29	38.91	39.57	32.38	32.66	31.24	31.51	31.28	31.49
22	35.61	35.71	31.97	32.20	36.52	38.80	32.67	33.05	30.91	31.23	---	---
23	35.72	35.79	31.72	31.96	35.05	36.43	33.06	33.31	30.56	30.90	---	---
24	35.80	35.96	31.51	31.71	34.40	35.01	33.32	33.45	30.21	30.56	---	---
25	35.97	36.90	31.28	31.51	33.95	34.38	33.46	33.60	29.86	30.21	---	---
26	37.01	38.84	30.88	31.27	33.39	33.93	33.60	33.73	29.57	29.85	---	---
27	38.91	40.10	30.77	30.88	33.36	33.55	33.75	34.10	29.55	29.56	---	---
28	40.15	41.06	30.53	30.76	33.57	33.93	34.12	34.30	29.55	30.92	---	---
29	41.09	41.89	30.17	30.51	33.94	34.13	34.31	34.44	31.00	33.24	---	---
30	41.93	42.47	30.17	30.34	34.14	34.44	34.44	34.47	33.29	34.40	31.54	33.95
31	---	---	30.34	30.41	---	---	34.43	35.40	33.59	34.20	---	---
MONTH	32.73	42.47	30.17	42.73	30.24	39.57	32.13	37.21	29.55	41.08	31.28	34.48



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH Bf 151 . SITE ID.--383508076540703 . PERMIT NUMBER.--CH-81-1265.
LOCATION.--Lat 38°35'08", long 76°54'07", Hydrologic Unit 02070011, 0.3 mi south of St. Pauls Dr.,
Waldorf.

Owner: U.S. Geological Survey.

AQUIFER.--Lower Patapsco Formation of Lower Cretaceous age. Aquifer code: 217PPSC .
WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 660 ft; casing diameter 6 in., to 399 ft;
casing diameter 4 in. from 399 to 645 ft; screen diameter 4 in. from 645 to 660 ft.

INSTRUMENTATION.--Measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval from August 18, 1987 to current year.

DATUM.--Elevation of land surface is 192.80 ft above National Geodetic Vertical Datum of 1929.

Measuring Point: Top of casing, 2.20 ft above land surface.

REMARKS.--Southern Maryland Observation Well Network.

PERIOD OF RECORD.--August 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.39 ft below sea level, March 27, 1988;
lowest measured, 53.45 ft below sea level, June 3, 1986.

WATER LEVEL, IN FEET BELOW SEA LEVEL, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	44.89	44.89	44.82	44.82	38.59	38.61	39.26	39.54	40.54	40.57	40.50	40.58
2	44.89	44.89	44.82	44.82	38.52	38.62	39.56	39.59	40.49	40.54	40.32	40.49
3	44.89	44.89	41.67	44.82	38.61	38.83	39.59	39.70	40.54	40.62	40.24	40.39
4	44.89	44.89	41.67	41.67	38.84	38.93	39.59	39.71	40.41	40.54	40.28	40.36
5	44.89	44.89	41.67	41.67	38.93	39.03	39.68	39.90	40.55	40.67	40.35	40.37
6	44.89	44.89	41.55	41.66	38.99	39.03	39.72	39.84	40.65	40.68	40.33	40.44
7	44.89	44.89	41.44	41.55	39.03	39.28	39.58	39.74	40.64	40.72	40.45	40.49
8	44.89	44.89	41.10	41.44	39.18	39.28	39.38	39.57	40.71	40.74	40.34	40.48
9	44.89	44.89	40.94	41.08	39.15	39.18	39.37	39.43	40.50	40.71	40.16	40.32
10	44.89	44.89	40.82	40.98	39.16	39.26	39.31	39.42	40.35	40.49	40.16	40.20
11	44.89	44.89	40.56	40.82	39.14	39.27	39.26	39.43	40.34	40.43	40.11	40.18
12	44.89	44.89	40.46	40.54	39.22	39.33	39.35	39.59	40.34	40.44	40.06	40.13
13	44.82	44.89	40.38	40.50	39.26	39.41	39.61	39.84	40.39	40.45	40.05	40.08
14	44.82	44.82	40.37	40.40	39.40	39.44	39.85	39.96	40.40	40.49	40.05	40.09
15	44.82	44.82	40.05	40.38	39.26	39.47	39.97	40.07	40.49	40.65	40.10	40.14
16	44.82	44.82	39.78	40.04	39.34	39.39	40.08	40.23	40.65	40.69	40.11	40.15
17	44.82	44.82	39.78	39.85	39.34	39.41	40.23	40.27	40.71	40.86	39.94	40.10
18	44.82	44.82	39.65	39.78	39.28	39.34	40.26	40.33	40.87	40.93	39.94	40.07
19	44.82	44.82	39.44	39.71	39.10	39.27	40.34	40.57	40.78	40.89	40.03	40.08
20	44.82	44.82	39.11	39.43	39.09	39.11	40.35	40.57	40.85	40.96	40.03	40.05
21	44.82	44.82	39.15	39.27	39.01	39.10	40.24	40.34	40.90	40.96	40.05	40.11
22	44.82	44.82	39.13	39.27	39.10	39.14	40.27	40.35	40.61	40.90	40.01	40.11
23	44.82	44.82	39.07	39.15	39.08	39.14	40.28	40.43	40.49	40.60	39.98	40.09
24	44.82	44.82	39.14	39.17	38.93	39.06	40.35	40.50	40.49	40.56	40.08	40.12
25	44.82	44.82	38.93	39.13	38.80	38.92	40.21	40.50	40.58	40.74	40.03	40.09
26	44.82	44.82	38.81	38.92	38.75	38.99	40.10	40.20	40.71	40.76	39.99	40.05
27	44.82	44.82	38.74	38.89	38.99	39.02	40.18	40.21	40.57	40.71	40.03	40.09
28	44.82	44.82	38.58	38.72	39.00	39.23	40.20	40.27	40.57	40.58	40.09	40.13
29	44.82	44.82	38.66	38.69	39.24	39.38	40.10	40.28	---	---	40.14	40.21
30	44.82	44.82	38.54	38.69	39.38	39.48	40.18	40.44	---	---	40.11	40.18
31	44.82	44.82	---	---	39.25	39.49	40.45	40.57	---	---	40.04	40.11
MONTH	44.82	44.89	38.54	44.82	38.52	39.49	39.26	40.57	40.34	40.96	39.94	40.58

GROUND-WATER LEVELS

139

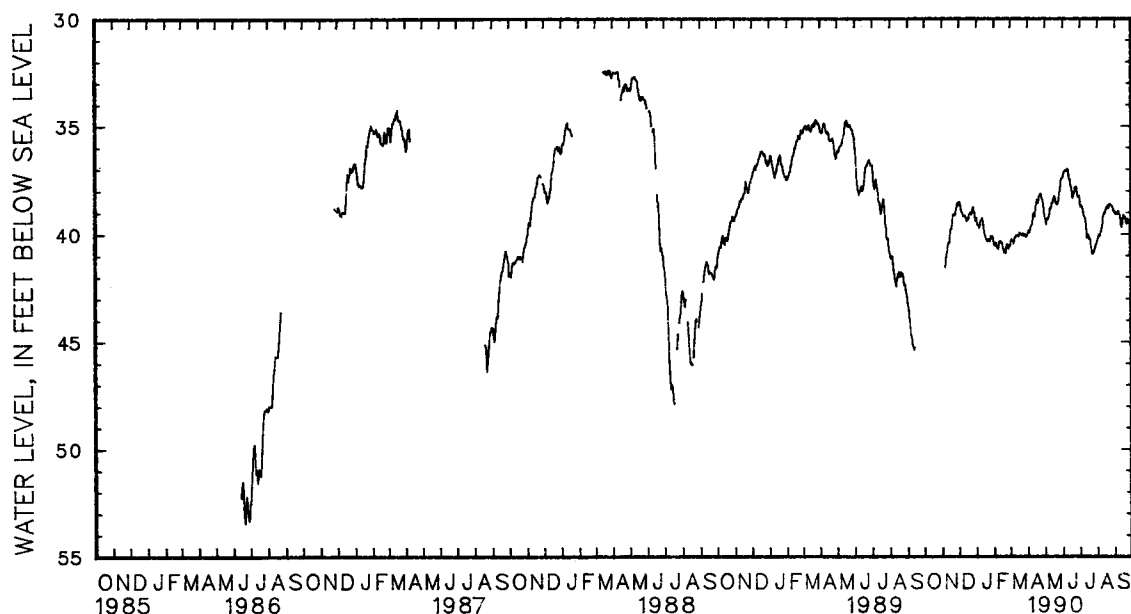
MARYLAND--Continued

CHARLES COUNTY--Continued

CH Bf 151--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	39.97	40.04	39.27	39.36	37.34	37.43	38.63	38.79	40.27	40.38	39.06	39.22
2	39.84	39.97	39.37	39.56	37.22	37.33	38.75	38.78	40.17	40.30	38.99	39.11
3	39.83	39.94	39.56	39.64	37.10	37.21	38.67	38.75	40.04	40.16	39.06	39.25
4	39.92	39.94	39.43	39.63	37.09	37.12	38.72	38.80	40.12	40.31	39.08	39.23
5	39.83	39.92	39.27	39.40	37.09	37.16	38.81	38.88	40.08	40.31	39.05	39.12
6	39.66	39.82	39.32	39.39	37.05	37.10	38.89	39.05	39.96	40.08	39.08	39.30
7	39.62	39.68	39.25	39.34	37.06	37.12	39.08	39.27	39.87	40.00	38.95	39.31
8	39.57	39.68	39.16	39.26	37.06	37.14	39.14	39.22	39.81	39.92	38.94	39.11
9	39.44	39.59	39.05	39.15	36.98	37.09	39.19	39.32	39.65	39.94	39.08	39.13
10	39.10	39.43	38.80	39.06	37.04	37.30	39.27	39.41	39.52	39.63	39.11	39.27
11	39.03	39.09	38.86	38.91	37.31	37.42	39.43	39.65	39.19	39.56	39.28	39.65
12	39.05	39.20	38.76	38.92	37.43	37.46	39.69	40.15	39.09	39.19	39.59	39.65
13	39.19	39.26	38.56	38.75	37.46	37.70	40.17	40.24	39.02	39.09	39.68	39.92
14	38.91	39.19	38.57	38.59	37.72	37.83	40.09	40.22	39.03	39.09	39.57	39.92
15	38.66	38.90	38.47	38.57	37.81	37.90	40.04	40.09	38.92	39.02	39.34	39.55
16	38.51	38.65	38.34	38.46	37.91	38.21	40.06	40.25	38.81	38.92	39.14	39.33
17	38.40	38.50	38.24	38.34	38.23	38.49	40.24	40.31	38.77	38.88	39.12	39.29
18	38.49	38.58	38.29	38.42	38.34	38.49	40.18	40.24	38.76	38.89	39.26	39.32
19	38.56	38.59	38.43	38.64	38.24	38.34	40.25	40.51	38.66	38.81	39.20	39.33
20	38.39	38.55	38.59	38.64	38.15	38.27	40.53	40.79	38.83	39.01	39.28	39.49
21	38.25	38.38	38.56	38.65	38.08	38.15	40.81	41.20	38.79	38.96	39.46	39.51
22	38.20	38.27	38.64	38.72	37.89	38.08	40.94	41.12	38.62	38.79	39.52	39.61
23	38.12	38.21	38.58	38.65	37.79	37.88	40.82	40.93	38.60	38.62	39.44	39.59
24	38.14	38.30	38.49	38.58	37.80	37.86	40.89	41.08	38.63	38.65	39.31	39.44
25	38.31	38.35	38.36	38.49	37.87	38.08	40.79	40.94	38.66	38.70	39.42	39.56
26	38.37	38.48	38.07	38.35	38.10	38.28	40.82	41.08	38.70	38.72	39.39	39.53
27	38.49	38.56	38.00	38.07	38.28	38.41	40.66	40.81	38.72	38.75	39.48	41.44
28	38.56	38.86	37.80	37.99	38.30	38.39	40.61	40.68	38.75	38.95	41.18	41.40
29	38.88	39.12	37.51	37.79	38.22	38.30	40.50	40.66	38.93	38.98	41.26	41.43
30	39.13	39.26	37.44	37.65	38.31	38.61	40.45	40.55	38.90	38.98	40.80	41.25
31	---	---	37.43	37.46	---	---	40.31	40.48	38.97	39.05	---	---
MONTH	38.12	40.04	37.43	39.64	36.98	38.61	38.63	41.20	38.60	40.38	38.94	41.44

Daily Low Water Levels



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS
MARYLAND--Continued
CHARLES COUNTY--Continued

WELL NUMBER.--CH Bg 12. SITE ID.--383746076482901. PERMIT NUMBER.--CH-81-0600.

LOCATION.--Lat 38°37'46", long 76°48'29", Hydrologic Unit 02070011, Cedarville State Forest, near Forest Rd.

Owner: U.S. Geological Survey.

AQUIFER.--Calvert Formation of Miocene age. Aquifer code: 122CLVR.

WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 24.5 ft; casing diameter 4 in., to 13.5 ft; perforated casing diameter 2 in. from 13.5 to 18.5 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 149.69 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 2.0 ft above land surface.

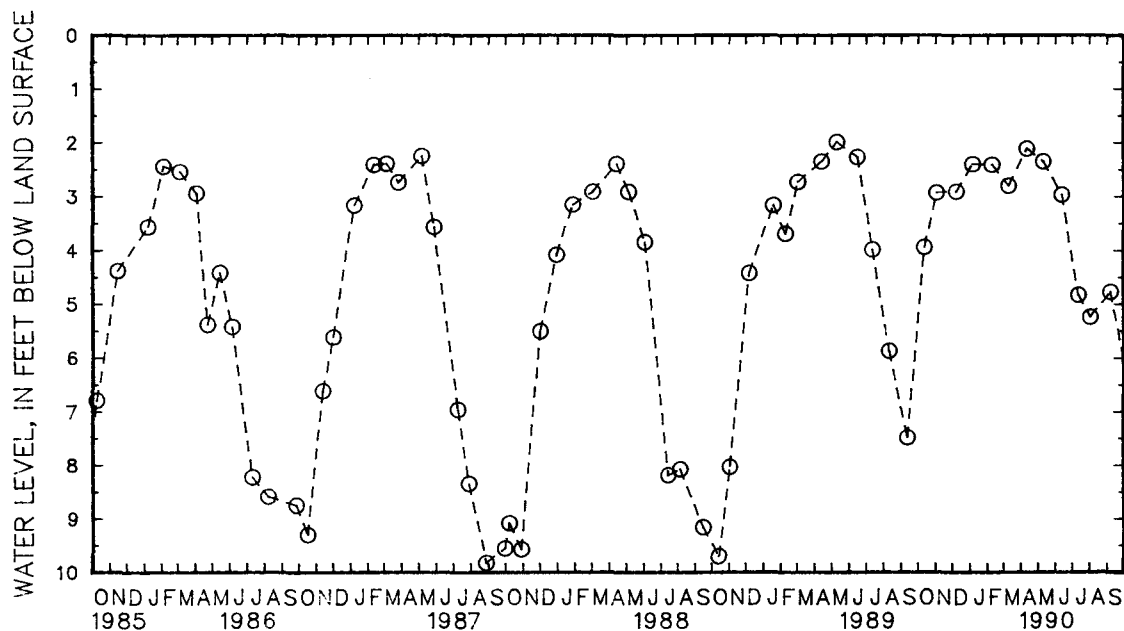
REMARKS.--Maryland Water-Level Network observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.99 ft below land surface, May 10, 1989;
lowest measured, 9.82 ft below land surface, Aug. 28, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	3.94	DEC 7	2.91	FEB 8	2.41	APR 11	2.11	JUN 12	2.97	AUG 2	5.25
NOV 2	2.93	JAN 5	2.40	MAR 9	2.80	MAY 10	2.35	JUL 12	4.84	SEP 7	4.78



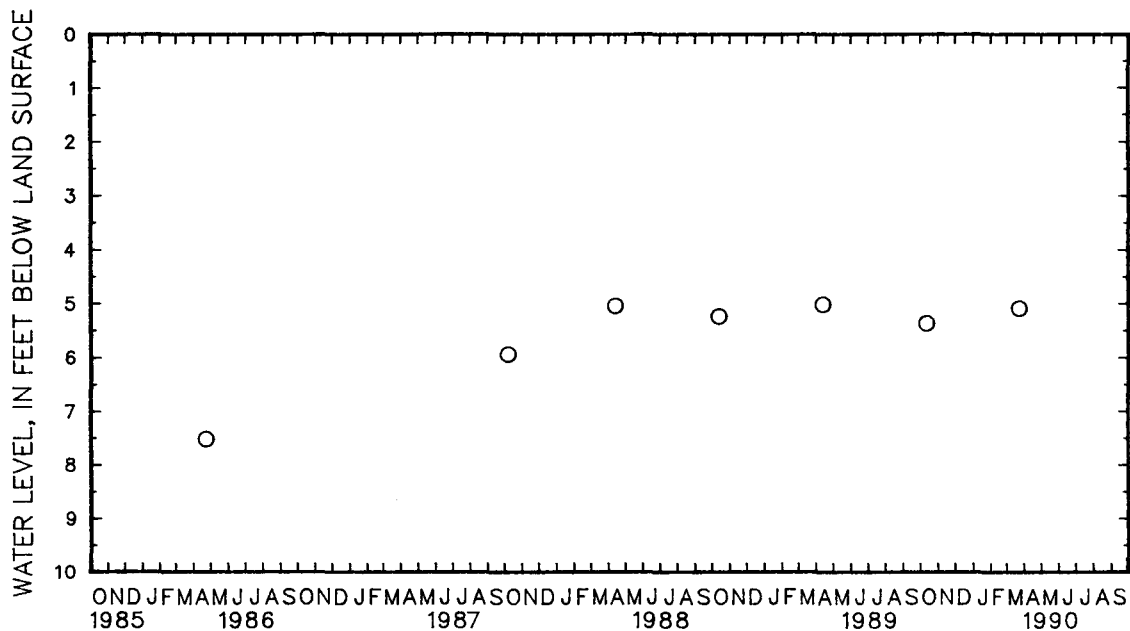
5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS
MARYLAND--Continued
CHARLES COUNTY--Continued

WELL NUMBER.--CH Bg 13. SITE ID.--383652076495701. PERMIT NUMBER.--CH-81-0601.
LOCATION.--Lat 38°36'52", long 76°49'57", Hydrologic Unit 02070011, southside of MD Rt. 382,
4.1 mi east of Waldorf at Zekiah Swamp.
Owner: U.S. Geological Survey.
AQUIFER.--Calvert Formation of Miocene age. Aquifer code: 122CLVR.
WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 22.6 ft; casing diameter 4 in., to 13.5 ft;
casing diameter 2 in. from 17.6 to 22.6 ft; screen diameter 2 in. from 12.6 to 17.6.
INSTRUMENTATION.--Measured twice yearly with chalked steel tape by USGS personnel.
DATUM.--Elevation of land surface is 126.27 ft above National Geodetic Vertical Datum of 1929.
Measuring Point: Top of casing, 2.07 ft above land surface.
REMARKS.--Maryland Water-Level Network observation well.
PERIOD OF RECORD.--August 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.64 ft below land surface, Dec. 13, 1984;
lowest measured, 7.53 ft below land surface, April 23, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	5.37	MAR 23	5.09



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH Cb 7. SITE ID.--383422077114601. PERMIT NUMBER.--CH-01-1908.

LOCATION.--Lat 38°34'22", long 77°11'46", Hydrologic Unit 02070011, at Caffee and Greenslade Rds., U.S. Naval Ordnance Station, about 2.5 mi southwest of Indian Head.

Owner: U.S. Navy.

AQUIFER.--Patapsco Formation of Lower Cretaceous age. Aquifer code: 217PPSC.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 400 ft; casing diameter 8 in., to 400 ft; screen diameter 6 in. from 154.1 to 167 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with graphic water-level recorder Sept. 21, 1953 to July 8, 1965 and digital water-level recorder--60-minute recorder interval, April 28, 1988 to current year.

DATUM.--Elevation of land surface is 36 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of recorder shelf, 1.1 ft above land surface.

REMARKS.--Maryland Water-Level Network observation well. Indian Head Project observation well. Water levels affected by nearby pumping.

PERIOD OF RECORD.--March and April 1952, August 1953 to current year.

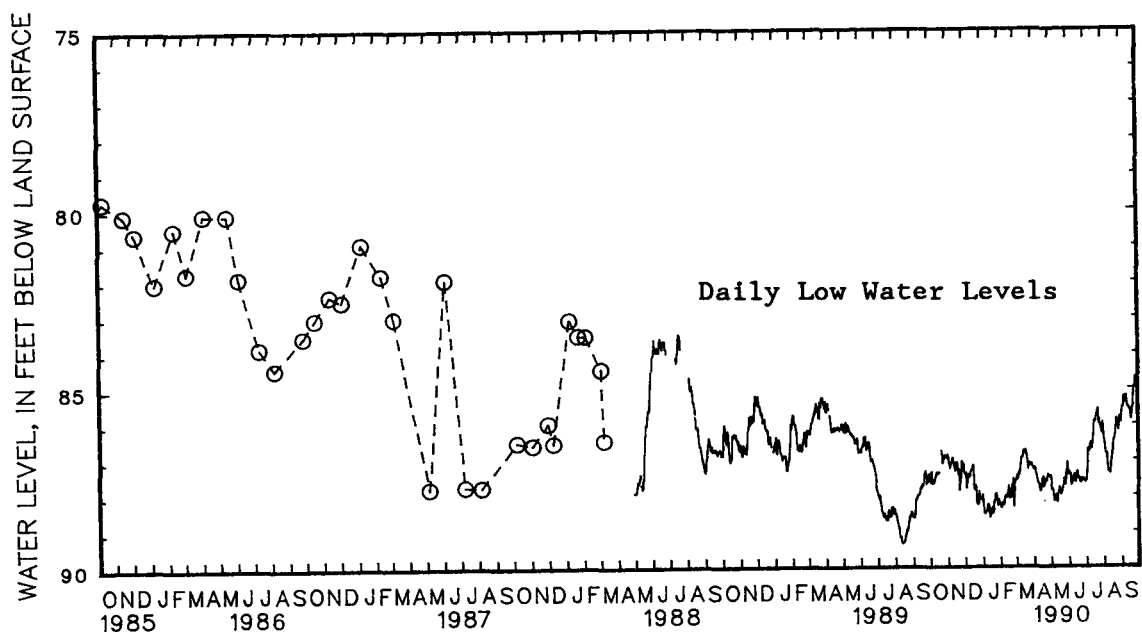
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 57.35 ft below land surface, April 18, 1952; lowest measured, 89.33 ft below land surface, Aug. 12 and 14, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	87.65	87.36	86.93	86.73	87.42	87.29	87.99	87.72	88.26	88.14	87.51	87.34
2	87.36	87.13	87.08	86.92	87.37	87.08	88.26	88.01	88.34	88.14	87.44	87.33
3	87.34	87.13	87.13	86.99	87.61	87.08	88.47	88.25	88.36	88.20	87.55	87.45
4	87.60	87.33	87.24	87.12	87.81	87.59	88.51	88.34	88.23	88.04	87.47	87.27
5	87.67	87.54	87.18	87.04	87.55	87.40	88.47	88.31	88.26	88.16	87.35	87.24
6	87.57	87.44	87.07	87.00	87.41	87.25	88.50	88.37	88.21	87.99	87.41	87.26
7	87.66	87.41	87.09	86.99	87.49	87.25	88.47	88.34	88.28	88.09	87.28	87.10
8	87.59	87.42	87.07	86.87	87.47	87.30	88.45	88.23	88.22	88.01	87.15	86.97
9	87.52	87.39	86.94	86.79	87.46	87.37	88.39	88.21	88.07	87.82	87.05	86.88
10	87.47	87.29	87.05	86.88	87.41	87.22	88.25	88.13	88.02	87.77	86.95	86.84
11	87.37	87.25	87.07	86.97	87.29	87.15	88.29	88.14	88.06	87.94	86.95	86.85
12	87.36	87.23	87.21	87.04	87.29	87.17	88.30	88.17	88.08	87.90	86.94	86.79
13	87.35	87.25	87.32	87.16	87.27	87.11	88.62	88.33	88.01	87.84	86.82	86.72
14	87.40	87.28	87.22	87.02	87.18	87.05	88.60	88.47	87.94	87.87	86.76	86.64
15	87.37	87.25	87.11	86.99	87.15	87.02	88.52	88.42	87.91	87.75	---	---
16	87.36	87.19	87.07	86.82	87.51	87.06	88.50	88.34	87.73	87.56	---	---
17	---	---	87.15	86.90	87.75	87.52	88.41	88.27	88.09	87.72	86.73	86.54
18	---	---	87.32	87.07	87.83	87.68	88.34	88.16	88.09	87.81	86.84	86.56
19	---	---	87.43	87.31	87.85	87.64	88.50	88.37	87.85	87.63	86.87	86.63
20	---	---	87.28	87.14	87.72	87.61	88.43	88.15	88.06	87.87	87.06	86.65
21	86.75	86.39	87.85	87.20	87.76	87.59	88.17	88.08	87.97	87.73	87.27	87.07
22	87.10	86.66	87.85	87.53	88.22	87.78	88.18	87.95	87.74	87.50	87.12	86.87
23	87.09	87.00	87.50	87.22	88.26	88.10	87.99	87.88	87.54	87.40	87.09	86.86
24	87.01	86.86	87.31	87.04	88.26	88.21	88.03	87.92	88.05	87.55	87.17	87.06
25	86.97	86.84	87.03	86.86	88.24	87.86	87.95	87.80	88.32	88.06	87.11	86.95
26	86.87	86.74	87.18	86.92	87.89	87.73	88.10	87.81	88.05	87.54	87.10	87.01
27	86.90	86.80	87.29	87.10	88.11	87.92	88.21	88.06	87.58	87.46	87.11	87.01
28	86.93	86.81	87.12	86.96	88.07	88.00	88.29	88.18	87.56	87.46	87.17	87.07
29	86.95	86.85	87.35	87.04	88.11	87.97	88.24	88.08	---	---	87.20	87.09
30	86.95	86.81	87.37	87.26	88.08	87.97	88.13	88.00	---	---	87.23	87.09
31	86.85	86.67	---	---	88.05	87.71	88.27	88.07	---	---	87.28	87.15
MONTH	87.67	86.39	87.85	86.73	88.26	87.02	88.62	87.72	88.36	87.40	87.55	86.54

GROUND-WATER LEVELS
MARYLAND--Continued
CHARLES COUNTY--Continued
CH Cb 7--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	87.23	87.10	87.56	87.37	87.34	87.21	87.55	87.38	86.42	86.07	85.70	85.46
2	87.23	87.08	87.81	87.53	87.38	87.24	87.36	87.10	86.49	86.34	85.57	85.42
3	87.30	87.02	87.86	87.75	87.40	87.32	87.08	86.62	86.66	86.47	85.51	85.38
4	87.38	87.27	87.84	87.75	87.64	87.30	86.70	86.49	86.83	86.66	85.52	85.18
5	87.45	87.24	87.89	87.69	87.73	87.65	86.76	86.67	86.85	86.75	85.22	85.09
6	87.55	87.43	88.15	87.89	87.66	87.42	86.77	86.65	86.83	86.69	85.33	85.18
7	87.63	87.42	88.15	88.02	87.55	87.40	86.71	86.54	87.14	86.87	85.38	85.25
8	87.67	87.56	88.15	88.05	87.59	87.43	86.60	86.50	87.33	87.15	85.41	85.21
9	87.70	87.61	88.16	87.97	87.45	87.32	86.53	86.39	87.35	87.21	85.21	85.00
10	87.68	87.55	88.00	87.74	87.42	87.32	86.68	86.50	87.32	87.19	85.22	85.00
11	87.79	87.52	88.10	87.77	87.62	87.41	86.69	86.54	87.39	87.25	85.42	85.14
12	87.88	87.81	88.19	87.98	87.63	87.46	86.56	86.31	87.31	87.14	85.53	85.32
13	87.88	87.76	87.97	87.69	87.45	87.22	86.40	86.30	87.12	87.04	85.55	85.44
14	87.77	87.53	87.92	87.69	87.35	87.20	86.27	85.94	87.01	86.86	85.54	85.43
15	87.54	87.43	87.88	87.75	87.33	87.22	85.91	85.83	86.89	86.76	85.60	85.39
16	87.52	87.44	87.78	87.69	87.49	87.27	85.94	85.82	86.77	86.53	85.62	85.53
17	87.48	87.33	87.85	87.70	87.54	87.41	85.91	85.83	86.59	86.38	85.85	85.60
18	87.78	87.50	87.98	87.80	87.51	87.41	85.85	85.68	86.46	86.36	85.88	85.69
19	87.75	87.59	87.96	87.86	87.53	87.34	85.74	85.61	86.43	86.27	85.73	85.51
20	87.58	87.46	87.92	87.77	87.64	87.46	85.71	85.59	86.35	86.19	85.55	85.40
21	87.57	87.46	87.83	87.69	87.65	87.48	85.66	85.52	86.25	86.00	85.53	85.23
22	87.63	87.52	87.77	87.34	87.62	87.47	85.58	85.45	86.02	85.74	85.22	84.81
23	87.61	87.42	87.53	87.31	87.55	87.41	85.99	85.41	85.85	85.73	84.98	84.81
24	87.50	87.35	87.65	87.50	87.53	87.41	85.88	85.67	85.88	85.78	84.99	84.93
25	87.42	87.30	87.70	87.54	87.59	87.46	86.01	85.84	86.07	85.84	84.94	84.71
26	87.45	87.34	87.56	87.23	87.60	87.48	86.11	85.94	86.18	86.01	84.69	84.61
27	87.48	87.38	87.34	87.21	87.55	87.45	86.16	86.05	86.12	85.93	84.74	84.60
28	87.50	87.40	87.31	87.06	87.61	87.47	86.25	86.08	85.93	85.80	84.68	84.56
29	87.52	87.41	87.07	86.89	87.63	87.55	86.22	85.97	85.80	85.66	84.67	84.60
30	87.46	87.35	87.42	87.04	87.61	87.53	85.96	85.84	85.94	85.68	84.77	84.62
31	---	---	87.36	87.20	---	---	86.08	85.85	85.94	85.69	---	---
MONTH	87.88	87.02	88.19	86.89	87.73	87.20	87.55	85.41	87.39	85.66	85.88	84.56



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH Cb 11. SITE ID.--383313077125401.

LOCATION.--Lat 38°33'13", long 77°12'54", Hydrologic Unit 02070011, Naval Ordnance Station, Indian Head.

Owner: U.S. Navy.

AQUIFER.--Potomac Group of Lower Cretaceous age. Aquifer code: 217PTMC.

WELL CHARACTERISTICS.--Drilled, production, artesian well, depth 454 ft; casing and screen diameters and intervals unknown.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 1.5 ft above land surface.

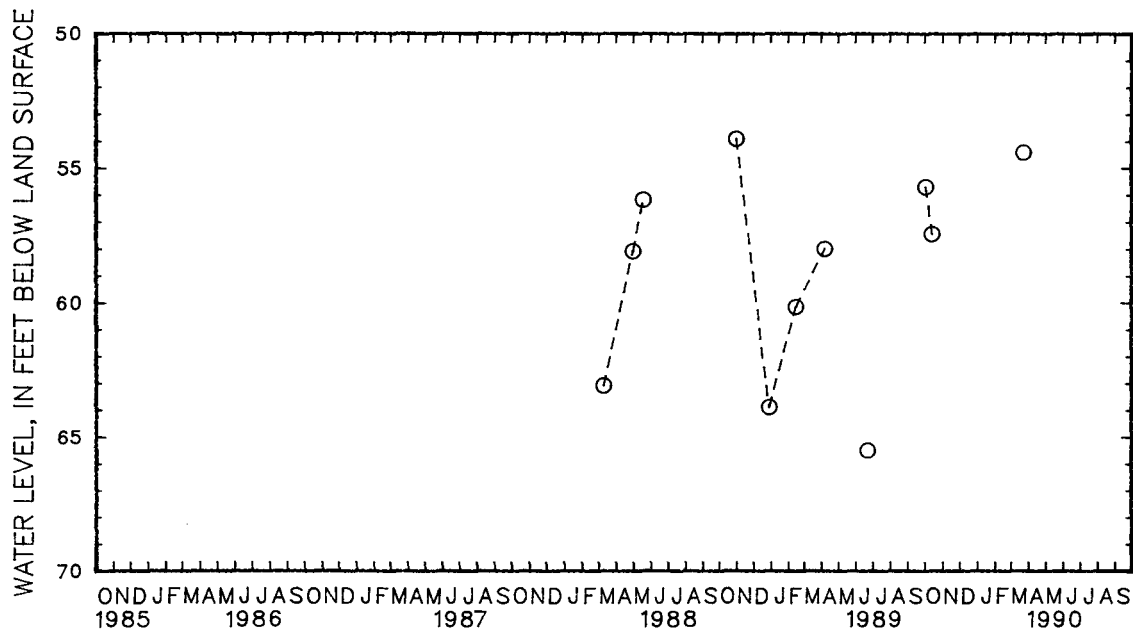
REMARKS.--Indian Head Project observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.30 ft below land surface, Oct. 5, 1990; lowest measured, 65.51 ft below land surface, June 22, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	55.69	OCT 13	57.45	MAR 23	54.41



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH Cb 28. SITE ID.--383315077131401. PERMIT NUMBER.--CH-04-1102

LOCATION.--Lat 38°33'15", long 77°13'14", Hydrologic Unit 02070011, Naval Ordnance Station, Indian Head.

Owner: U.S. Navy.

AQUIFER.--Patapsco Formation of Lower Cretaceous age. Aquifer code: 217PPSC.

WELL CHARACTERISTICS.--Drilled, production, artesian well, depth 331 ft; casing diameter 24 in., to 152 ft; casing diameter 10 in., to 190 ft, 200 to 230 ft, and 240 to 280 ft; screen diameter 10 in. from 190 to 200 ft, 230 to 240 ft and 280 to 290 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 2.0 ft above land surface.

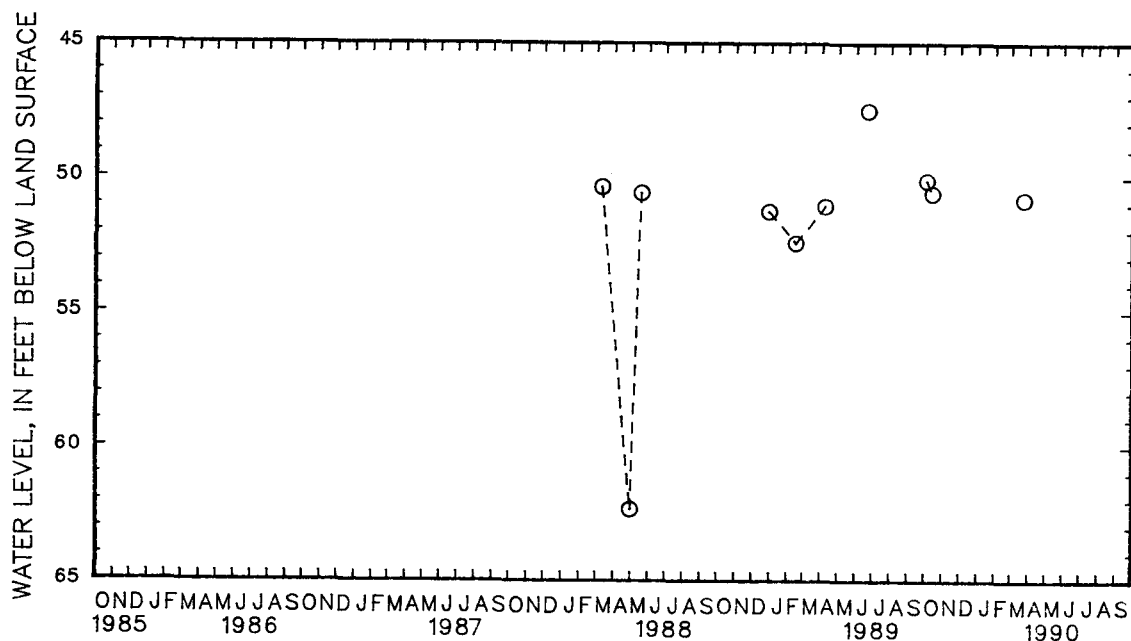
REMARKS.--Indian Head Project observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.49 ft below land surface, June 22, 1989; lowest measured, 62.35 ft below land surface, April 30, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	50.10	OCT 13	50.58	MAR 23	50.80



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH Cb 35. SITE ID.--383407077120501. PERMIT NUMBER.--CH-81-0572.

LOCATION.--Lat 38°34'07", long 77°12'05", Hydrologic Unit 02070011, Naval Ordnance Station, Indian Head.

Owner: U.S. Navy.

AQUIFER.--Patuxent Formation of Lower Cretaceous age. Aquifer code: 217PTXN.

WELL CHARACTERISTICS.--Drilled, production, artesian well, depth 503 ft; casing diameter 6 in., to 433 ft; casing diameter 4 in. from 461 to 467 ft and 486 to 488 ft; screen diameter 4 in. from 433 to 461 ft and 467 to 486 ft.

INSTRUMENTATION.--Periodic measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 25 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 3.5 ft above land surface.

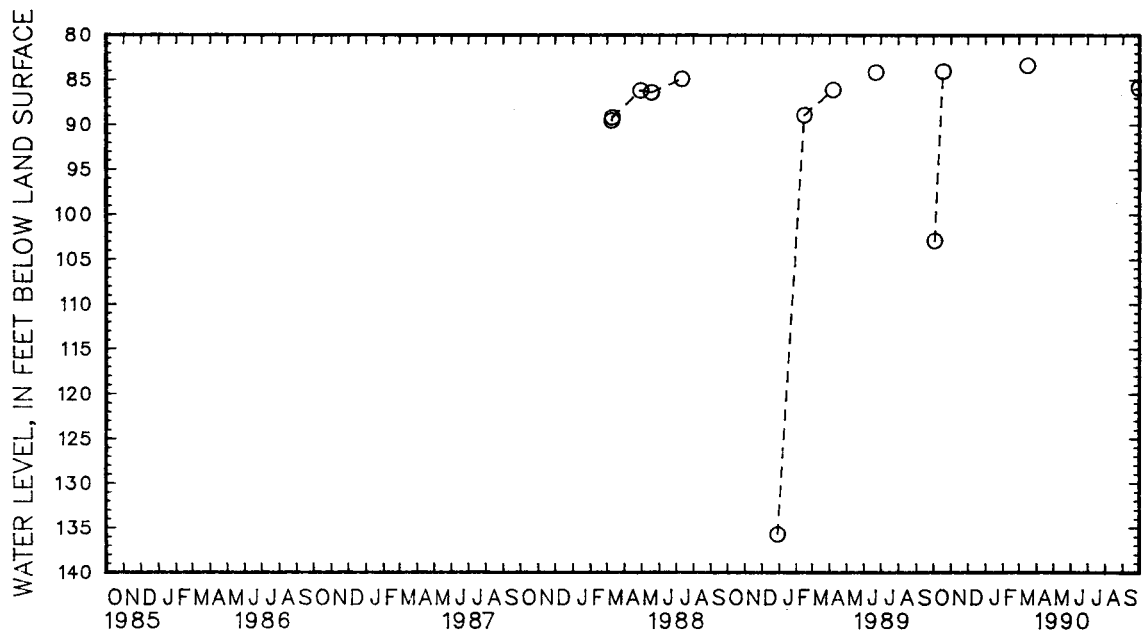
REMARKS.--Indian Head Project observation well. Water levels affected by nearby pumping.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 83.38 ft below land surface, March 16, 1990; lowest measured, 135.72 ft below land surface, Dec. 29, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	102.98	OCT 18	84.04	MAR 16	83.38	SEP 29	85.86



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS
MARYLAND--Continued
CHARLES COUNTY--Continued

WELL NUMBER.--CH Cb 38. SITE ID.--383328077114201.

LOCATION.--Lat 38°33'28", long 77°11'42", Hydrologic Unit 02070011, Naval Ordnance Station, Indian Head.

Owner: U.S. Navy.

AQUIFER.--Patapsco Formation of Lower Cretaceous age. Aquifer code: 217PPSC.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, depth 250 ft; casing diameter 4 in., to 210 ft; casing diameter 2 in. from 210 to 231 ft; screen diameter 4 in. from 231 to 246 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 1.0 ft above land surface.

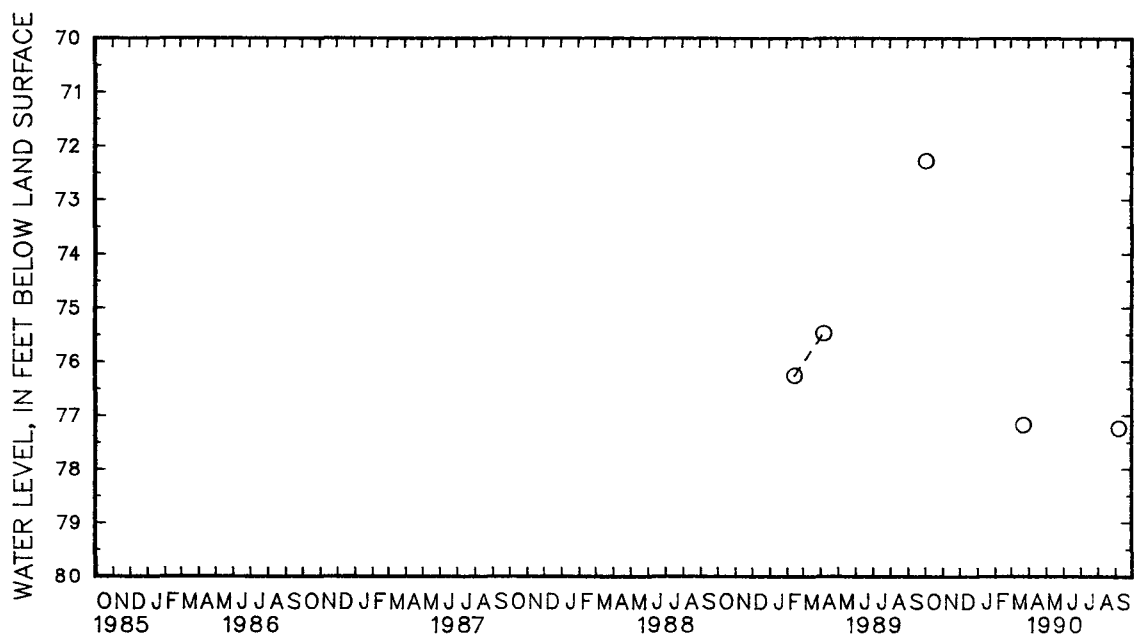
REMARKS.--Indian Head Project observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 72.27 ft below land surface, Oct. 3, 1989; lowest measured, 77.25 ft below land surface, Sept. 7, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	72.27	MAR 23	77.19	SEP 7	77.25



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH Cb 39. SITE ID.--383332077111501. PERMIT NUMBER.--CH-73-2804.

LOCATION.--Lat 38°33'32", long 77°11'15", Hydrologic Unit 02070011, Smallwood State Park.

Owner: Smallwood State Park, Sweden Point Marina.

AQUIFER.--Patapsco Formation of Lower Cretaceous age. Aquifer code: 217PPSC.

WELL CHARACTERISTICS.--Drilled, production, artesian well, depth 426 ft; casing diameter 6 in., to 300 ft; casing diameter 4 in. from 290 to 300 ft and 310 to 373 ft; screen diameter 4 in. from 300 to 310 ft and 373 to 383 ft.

INSTRUMENTATION.--Periodic measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing at land surface.

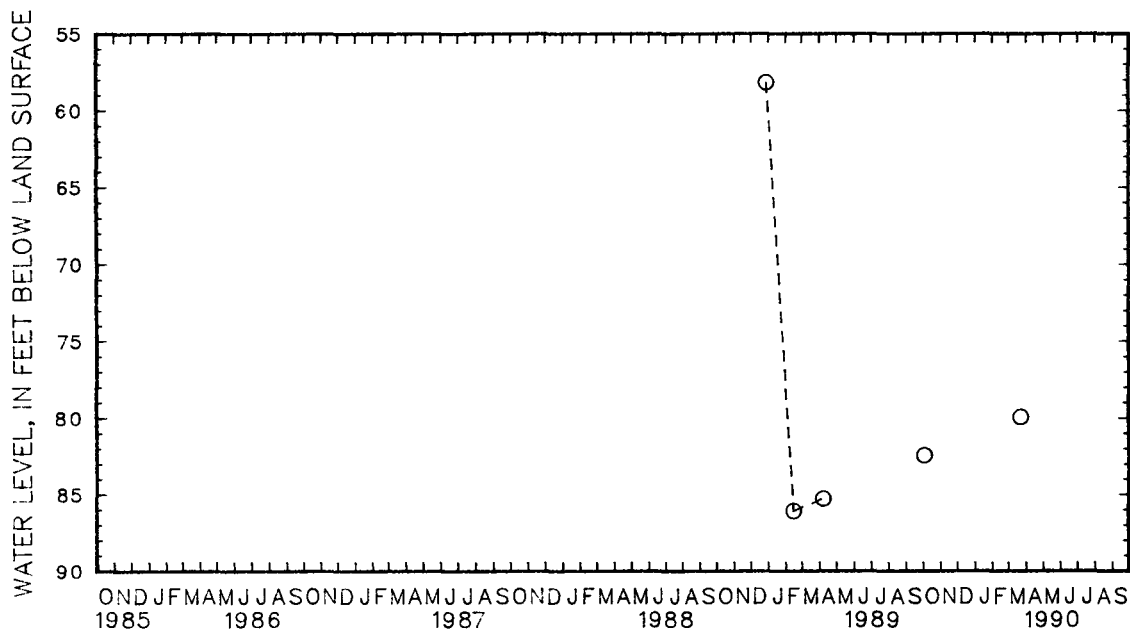
REMARKS.--Indian Head Project observation well. Water levels affected by nearby pumping.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 58.19 ft below land surface, Dec. 29, 1988; lowest measured, 86.08 ft below land surface, Feb. 15, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	82.44	MAR 23	79.94



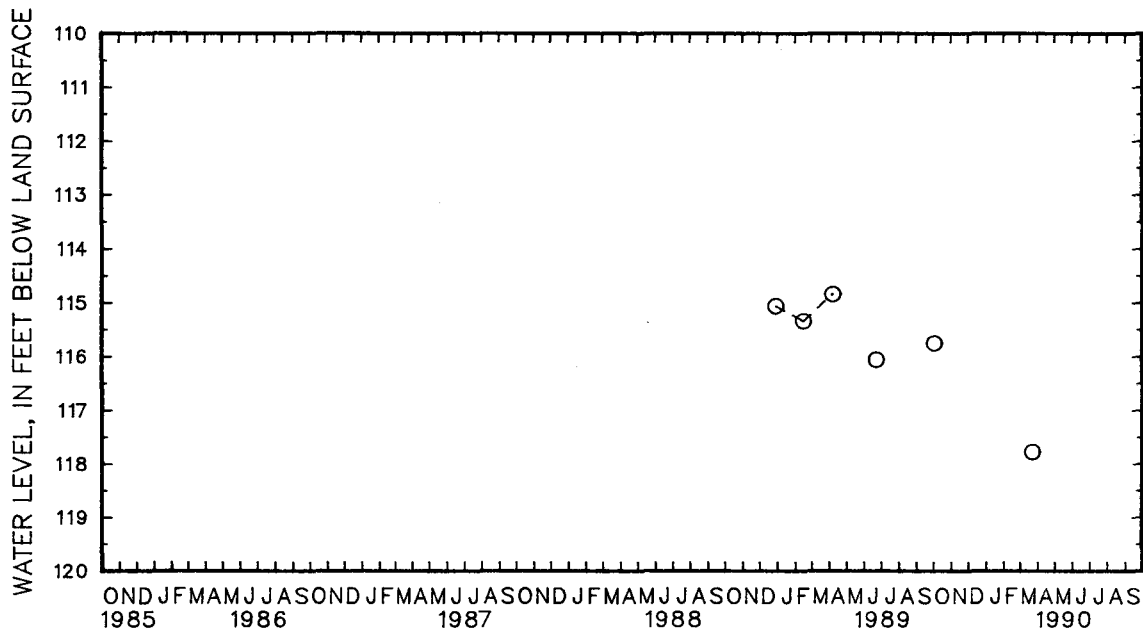
5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS
MARYLAND--Continued
CHARLES COUNTY--Continued

WELL NUMBER.--CH Cb 40. SITE ID.--383308077110301. PERMIT NUMBER.--CH-73-0357.
LOCATION.--Lat 38°33'08", long 77°11'03", Hydrologic Unit 02070011, Smallwood State Park.
Owner: Smallwood State Park.
AQUIFER.--Patapsco Formation of Lower Cretaceous age. Aquifer code: 217PPSC.
WELL CHARACTERISTICS.--Drilled, production, artesian well, depth 301 ft; casing diameter 6 in., to 227 ft; casing diameter 4 in. from 227 to 287 ft; screen diameter 4 in. from 287 to 301 ft.
INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.
DATUM.--Elevation of land surface is 80 ft above National Geodetic Vertical Datum of 1929, from topographic map.
Measuring Point: Top of casing at land surface.
REMARKS.--Indian Head Project observation well.
PERIOD OF RECORD.--December 1988 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 114.85 ft below land surface, April 7, 1989; lowest measured, 117.78 ft below land surface, March 23, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	115.76	MAR 23	117.78



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH Cc 37. SITE ID.--383236076563901. PERMIT NUMBER.--CH-73-0219.
 LOCATION.--Lat 38°32'36", long 76°56'39", Hydrologic Unit 02070011, at LaPlata Water Treatment Plant,
 2.0 mi. northeast of La Plata.
 Owner: Town of La Plata.
 AQUIFER.--Patapsco Formation of Lower Cretaceous age. Aquifer code: 217PPSC.
 WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 1340 ft; casing diameter 6 in. to 300 ft;
 casing diameter 4 in. from 300 to 1174 ft, 1184 to 1250 ft, and 1260 to 1330 ft; screen diameter 4 in. from 1174
 to 1184 ft, 1250 to 1260 ft, and 1330 to 1340 ft.
 INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with graphic
 water-level recorder from Nov. 23, 1973 to Dec. 10, 1975. Equipped with digital water-level recorder--15-minute
 recorder interval from July 12, 1976 to current year.
 DATUM.--Elevation of land surface is 185.37 ft above National Geodetic Vertical Datum of 1929.
 Measuring Point: Top of casing, 3.20 ft above land surface.
 REMARKS.--Southern Maryland Observation Well Network. Water levels affected by nearby pumping.
 PERIOD OF RECORD.--November 1973 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.44 ft below sea level, Sept. 8, 1976;
 lowest measured, 82.87 ft below sea level, Jan. 24, 1990.

WATER LEVEL, IN FEET BELOW SEA LEVEL, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	55.44	55.77	58.07	74.98	55.17	55.22	54.76	67.12	60.42	76.50	57.55	72.21
2	55.22	69.69	59.26	75.76	54.89	55.17	54.95	55.34	61.74	78.31	57.43	58.63
3	55.82	68.51	59.89	75.43	54.87	54.89	54.87	68.52	60.07	61.74	57.04	57.42
4	55.71	56.54	58.01	60.50	54.87	70.41	55.18	69.70	59.26	60.02	56.94	57.04
5	55.41	55.71	57.12	58.01	55.42	56.40	55.40	56.82	58.82	59.26	56.85	71.56
6	55.26	69.01	56.87	71.32	55.14	55.42	55.21	66.87	58.64	75.51	57.55	72.99
7	55.57	56.54	56.70	57.72	55.14	65.04	55.28	66.86	60.05	76.47	58.15	72.37
8	55.36	55.57	56.06	56.70	55.08	55.47	55.16	71.93	60.50	76.01	57.75	59.52
9	55.29	55.36	55.89	69.25	54.89	55.08	56.81	72.43	60.62	76.23	57.31	71.42
10	55.19	58.18	56.41	69.09	54.78	54.89	57.51	74.11	59.68	62.06	57.55	64.99
11	55.16	70.21	56.45	68.64	54.72	70.98	58.34	73.58	58.82	59.68	57.15	57.55
12	55.61	56.43	56.41	67.61	55.46	57.42	57.75	72.50	58.48	58.82	57.01	70.18
13	55.47	71.30	56.15	69.57	55.21	68.80	57.54	70.07	58.21	72.32	57.29	71.46
14	56.02	57.65	56.42	70.31	55.41	69.20	57.26	71.98	58.32	59.54	57.43	71.30
15	55.81	71.51	56.47	69.41	55.21	56.28	57.32	75.52	58.00	72.19	57.72	70.46
16	56.15	57.61	56.02	56.81	55.02	55.21	75.56	78.10	57.95	59.59	57.51	71.97
17	55.87	69.59	55.94	68.41	54.88	55.02	64.11	79.24	57.83	57.95	57.79	69.85
18	55.90	56.91	55.93	56.41	54.83	67.78	60.62	74.39	57.46	57.83	57.35	57.75
19	55.49	55.90	55.56	55.93	54.91	55.61	59.91	77.20	57.22	57.46	57.08	70.83
20	55.29	55.49	55.42	69.45	54.84	60.85	77.24	79.45	57.22	71.09	57.21	58.36
21	55.17	55.28	55.90	69.33	54.68	54.84	71.40	80.63	57.68	72.33	57.01	57.21
22	55.17	55.17	55.74	56.64	54.68	54.68	66.97	81.10	57.50	59.45	56.88	72.29
23	55.17	69.19	55.56	55.74	54.63	54.68	68.63	81.51	57.17	72.29	57.42	58.80
24	55.71	69.21	55.45	55.56	54.48	54.63	67.22	81.87	58.00	69.70	57.07	57.42
25	56.09	72.80	55.21	55.44	54.31	54.48	81.87	82.81	57.81	69.01	56.85	57.07
26	56.50	58.78	55.09	64.70	54.24	68.47	65.61	82.87	57.62	71.16	56.69	56.85
27	56.21	71.84	55.24	68.12	54.80	55.74	63.27	76.24	57.82	72.32	56.69	72.04
28	56.84	68.87	55.35	68.49	54.67	69.33	61.60	63.27	57.73	59.35	57.22	58.83
29	56.15	56.84	55.48	56.03	55.42	68.01	61.04	77.32	---	---	56.89	57.22
30	55.96	71.12	55.22	55.48	55.21	61.72	61.95	77.22	---	---	56.77	71.43
31	56.50	72.88	---	---	54.76	63.24	61.51	75.31	---	---	57.02	58.55
MONTH	55.16	72.88	55.09	75.76	54.24	70.98	54.76	82.87	57.17	78.31	56.69	72.99

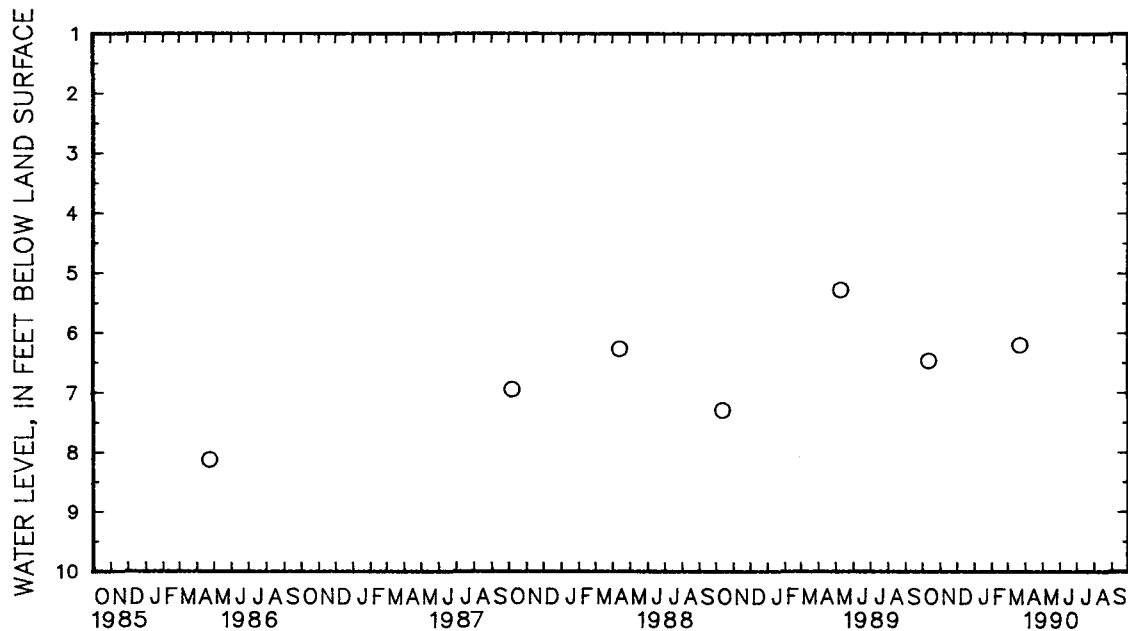
5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS
MARYLAND--Continued
CHARLES COUNTY--Continued

WELL NUMBER.--CH Cf 33. SITE ID.--383340076511601. PERMIT NUMBER.--CH-81-0602.
LOCATION.--Lat 38°33'40", long 76°51'16", Hydrologic Unit 02070011, north side of MD Rt. 5,
5.5 mi southeast of Waldorf at Zekiah Swamp.
Owner: U.S. Geological Survey.
AQUIFER.--Alluvium of Quaternary. Aquifer code: 110ALVM.
WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 22.2 ft; casing diameter 4 in., to 14.7 ft;
casing diameter 2 in. from 19.7 to 22.2 ft; screen diameter 2 in. from 14.7 to 19.7 ft.
INSTRUMENTATION.--Measured twice yearly with chalked steel tape by USGS personnel.
DATUM.--Elevation of land surface is 89.88 ft above National Geodetic Vertical Datum of 1929.
Measuring Point: Top of casing, 2.51 ft above land surface.
REMARKS.--Maryland Water-Level Network observation well.
PERIOD OF RECORD.--August 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.00 ft below land surface, Dec. 29, 1983;
lowest measured, 8.13 ft below land surface, April 23, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	6.47	MAR 23	6.20



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH Dd 33. SITE ID.--382607077002601. PERMIT NUMBER.--CH-02-6769.

LOCATION.--Lat 38°26'07", long 77°00'26", Hydrologic Unit 02070011, 1.8 mi southwest of Faulkner off Popes Creek Rd.

Owner: Jesuit Order (Loyola Retreat House).

AQUIFER.--Patapsco Formation of Lower Cretaceous age. Aquifer code: 217PPSC.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, depth 694 ft; casing diameter 6 in., to 564 ft; casing diameter 4 in. from 532 to 688 ft; screen diameter 4 in. from 687 to 694 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 99.8 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of casing, 1.0 ft above land surface.

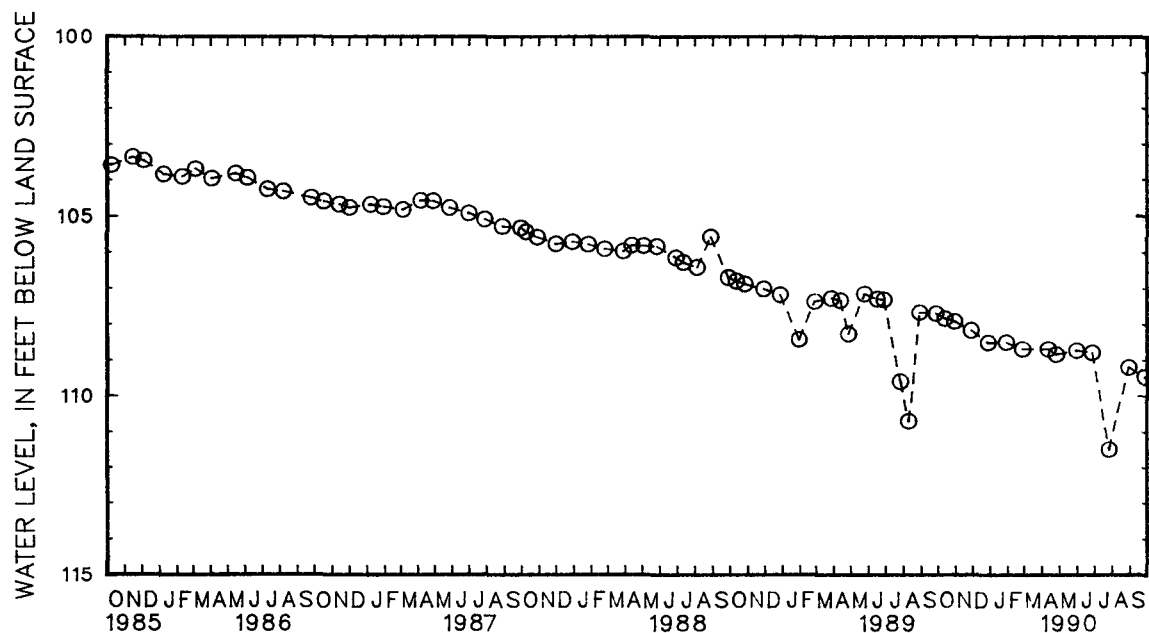
REMARKS.--Maryland Water-Level Network observation well. Water level reported 104 ft below land-surface datum, June 27, 1957. Water levels maybe affected by nearby pumping.

PERIOD OF RECORD.--March 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 88.28 ft below land surface, March 14, 1962; lowest measured, 111.50 ft below land surface, July 26, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 13	107.85	DEC 28	108.52	FEB 26	108.70	APR 25	108.85	JUN 26	108.80	AUG 29	109.21
30	107.93	JAN 29	108.51	APR 11	108.70	MAY 30	108.74	JUL 26	111.50	SEP 26	109.48
NOV 28	108.18										



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH De 45. SITE ID.--382927076552301. PERMIT NUMBER.--CH-81-0604.

LOCATION.--Lat 38°29'27", long 76°55'23", Hydrologic Unit 02070011, north side of MD Rt. 6, 4.1 mi southeast of La Plata.

Owner: U.S. Geological Survey.

AQUIFER.--Alluvium of Pleistocene age and Nanjemoy Formation of Eocene age. Aquifer codes: 112ALVM, 124NNJM.

WELL CHARACTERISTICS.--Drilled, observation, water-table well; depth 25.5 ft; casing diameter 4 in., to 15.5 ft, screen diameter 2 in. from 15.5 to 20.5 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 44.77 ft above National Geodetic Vertical Datum of 1929.

Measuring Point: Top of casing, 2.35 ft above land-surface datum.

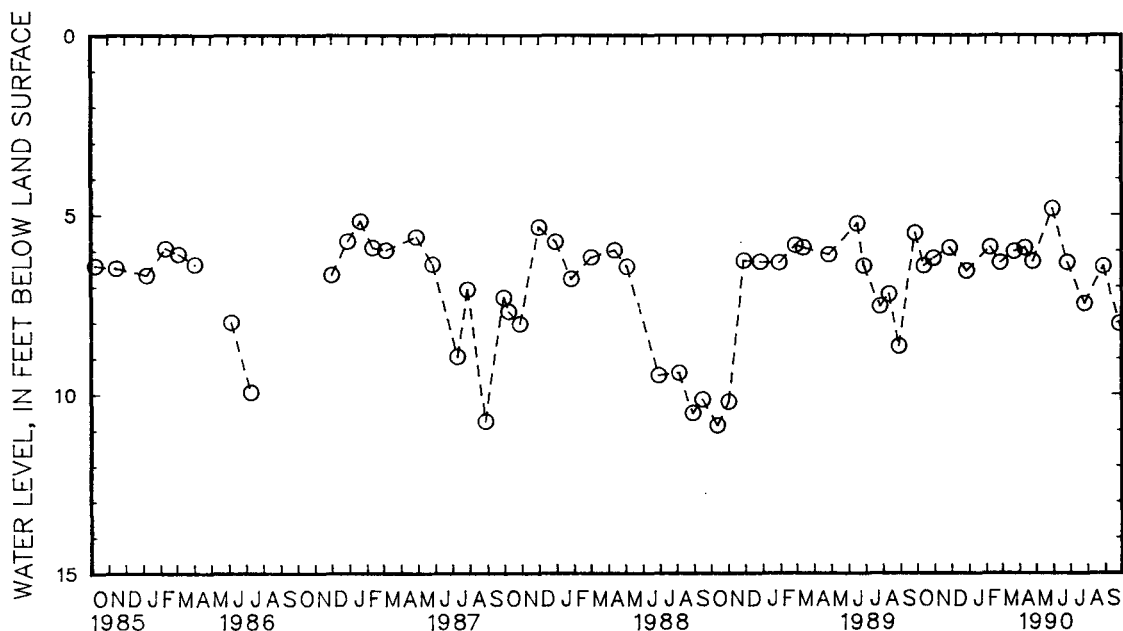
REMARKS.--Maryland Water-Level Network observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.83 ft below land-surface datum, May 30, 1990; lowest measured, 10.87 ft below land-surface datum, Oct. 12, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

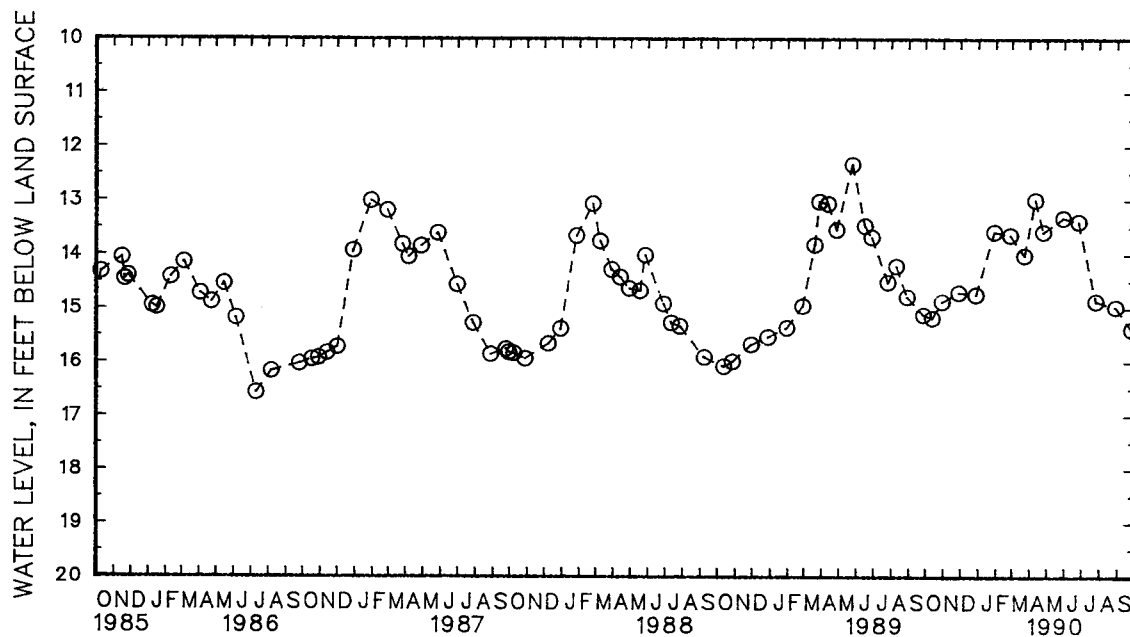
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 13	6.42	DEC 28	6.56	MAR 23	6.02	APR 25	6.30	JUN 26	6.33	AUG 29	6.44
30	6.21	FEB 08	5.90	APR 11	5.92	MAY 30	4.83	JUL 26	7.47	SEP 26	8.04
NOV 28	5.92	26	6.33								



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.60 ft below land surface, March 30, 1984;
lowest measured, 20.65 ft below land surface, Dec. 20, 1949.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	14.88	DEC 28	14.75	FEB 26	13.64	APR 11	12.99	JUN 26	13.39	AUG 29	14.98
NOV 28	14.71	JAN 29	13.58	MAR 23	14.02	MAY 30	13.32	JUL 26	14.87	SEP 26	15.40



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

CHARLES COUNTY--Continued

WELL NUMBER.--CH Ee 90. SITE ID.--382456076562201. PERMIT NUMBER.--CH-81-0606.

LOCATION.--Lat 38°24'56", long 76°56'22", Hydrologic Unit 02070011, at Allens Fresh.

Owner: U.S. Geological Survey.

AQUIFER.--Nanjemoy Formation of Eocene age. Aquifer code: 124NNJM.

WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 21 ft; casing diameter 4 in., to 11 ft; casing diameter 2 in from 16 to 21 ft;

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 6.81 ft above National Geodetic Vertical Datum of 1929.

Measuring Point: Top of casing, 2.44 ft above land surface.

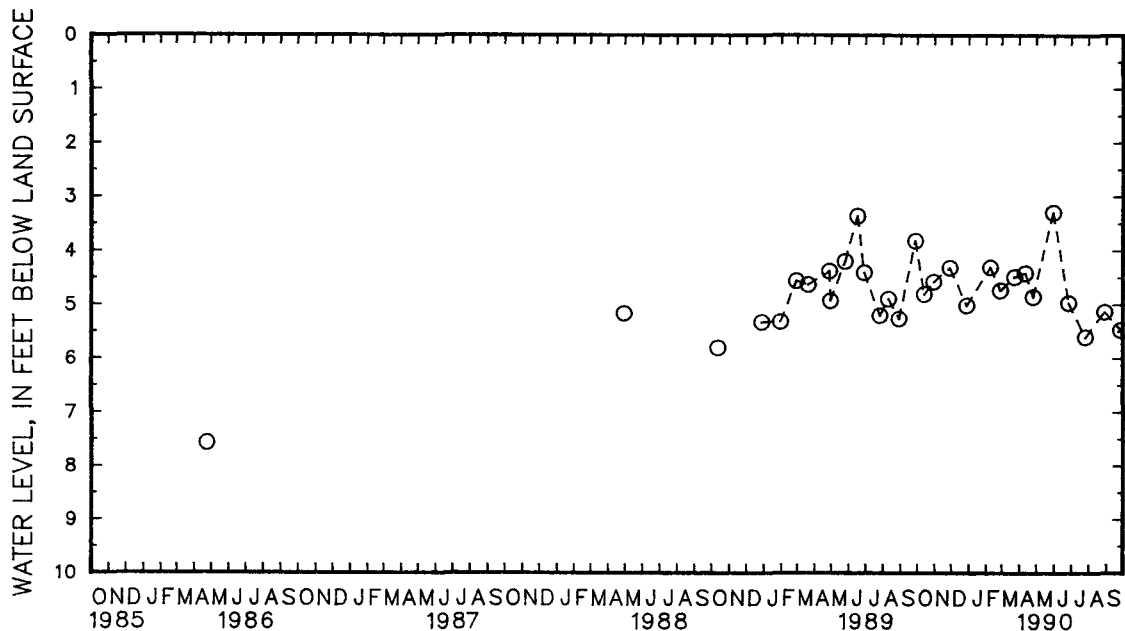
REMARKS.--Maryland Water-Level Network observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.29 ft below land surface, May 30, 1990;
lowest measured, 7.58 ft below land surface, April 23, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 13	4.81	DEC 28	5.02	MAR 23	4.49	APR 25	4.86	JUN 26	4.97	AUG 29	5.14
30	4.58	FEB 8	4.31	APR 11	4.42	MAY 30	3.29	JUL 26	5.61	SEP 26	5.48
NOV 28	4.32	26	4.74								



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

157

MARYLAND--Continued

FREDERICK COUNTY

WELL NUMBER.--FR Af 27. SITE ID.--394200077190701. PERMIT NUMBER.--FR-73-7155.

LOCATION.--Lat 39°42'00", long 77°19'07", Hydrologic Unit 02070009, 0.3 mi southwest of U.S. Rt. 15 and MD Rt. 140, Emmitsburg.

Owner: City of Emmitsburg.

AQUIFER.--Gettysburg Shale of Upper Triassic age. Aquifer code: 231GBRG.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 365 ft; casing diameter 6 in., to 39 ft; open hole.

DATUM.--Elevation of land surface is 390 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 0.81 ft above land surface.

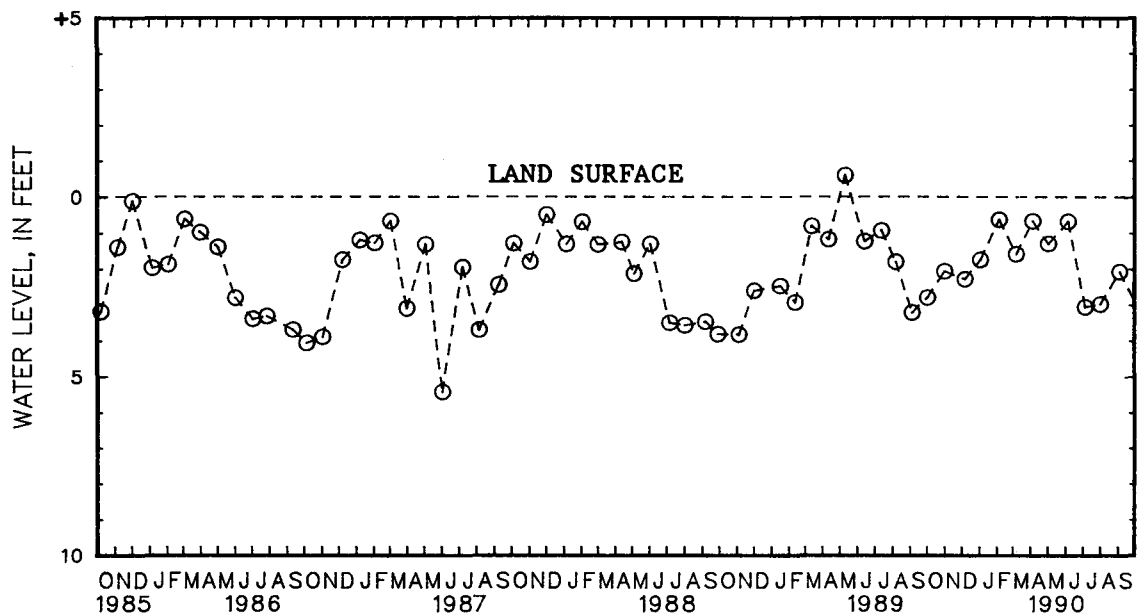
REMARKS.--Maryland Water-Level Network observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.62 ft above land surface, May 23, 1983; lowest measured, 5.43 ft below land surface, June 2, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	2.80	DEC 7	2.28	FEB 5	.62	APR 5	.66	JUN 5	.67	AUG 1	2.98
NOV 1	2.06	JAN 3	1.74	MAR 7	1.58	MAY 2	1.29	JUL 5	3.06	SEP 4	2.07



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

MARYLAND--Continued

FREDERICK COUNTY--Continued

WELL NUMBER.--FR Bd 96. SITE ID.--393733077274801.

LOCATION.--Lat 39°37'33", long 77°27'48", Hydrologic Unit 02070009, 0.4 mi west of Hunting Creek Lake, Cunningham Falls State Park.

Owner: Cunningham Falls State Park.

AQUIFER.--Catoctin Metabasalt of Precambrian age. Aquifer code: 400CTCN.

WELL CHARACTERISTICS.--Drilled, unused, water-table well, depth 189 ft; casing diameter 6 in., to unknown depth; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with water-level recorder Apr. 5, 1982 to Feb. 21, 1984.

DATUM--Elevation of land surface is 1150 ft above National Geodetic Vertical Datum of 1929, from topographic map.
Measuring point: Top of casing at land surface.

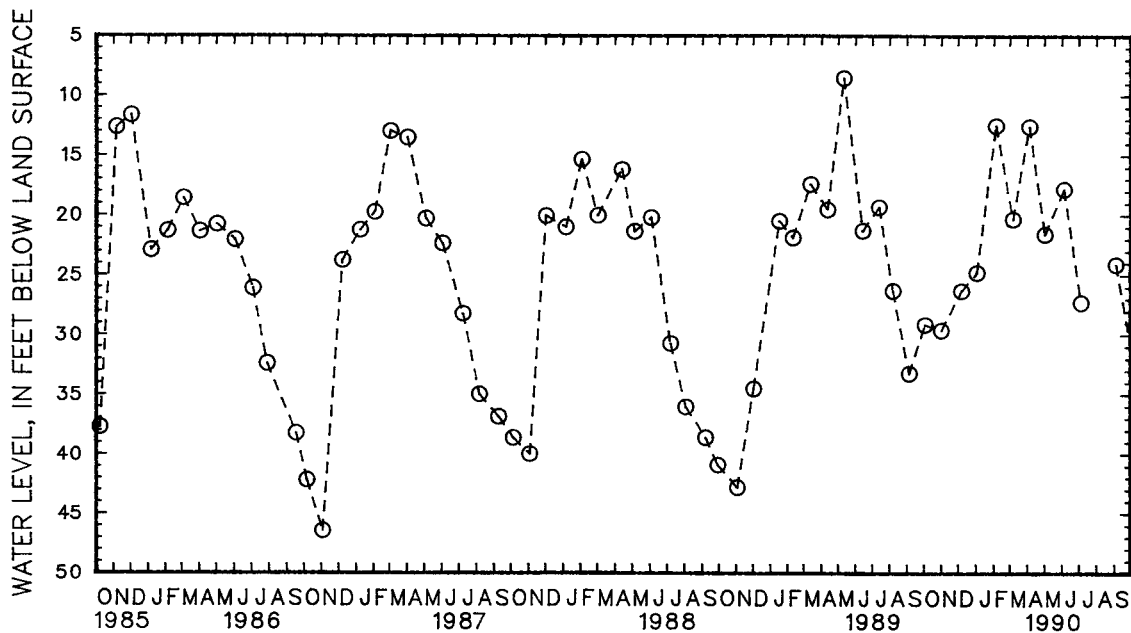
REMARKS.--Maryland Water-Level Network observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.54 ft below land surface, May 11, 1989; lowest measured, 46.46 ft below land surface, Nov. 3, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL						
OCT	3	29.17	DEC	7	26.32	FEB	5	12.49	APR	5	12.56	JUN	5	17.82	SEP	4	24.12
NOV	1	29.65	JAN	3	24.79	MAR	7	20.34	MAY	2	21.60	JUL	5	27.31			



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

FREDERICK COUNTY--Continued

WELL NUMBER.--FR Df 35. SITE ID.--392517077190401. PERMIT NUMBER.--FR-73-0852.

LOCATION.--Lat 39°25'17", long 77°19'04", Hydrologic Unit 02070009, north of Eaglehead Drive, nr Lake Linganore.

Owner: Lake Linganore Association.

AQUIFER.--Sams Creek Metabasalt of Paleozoic age. Aquifer code: 300SMCK.

WELL CHARACTERISTICS.--Drilled, unused, water-table well, depth 302 ft, casing diameter 6 in., to 26 ft, open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 570 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 1.0 ft above land-surface datum.

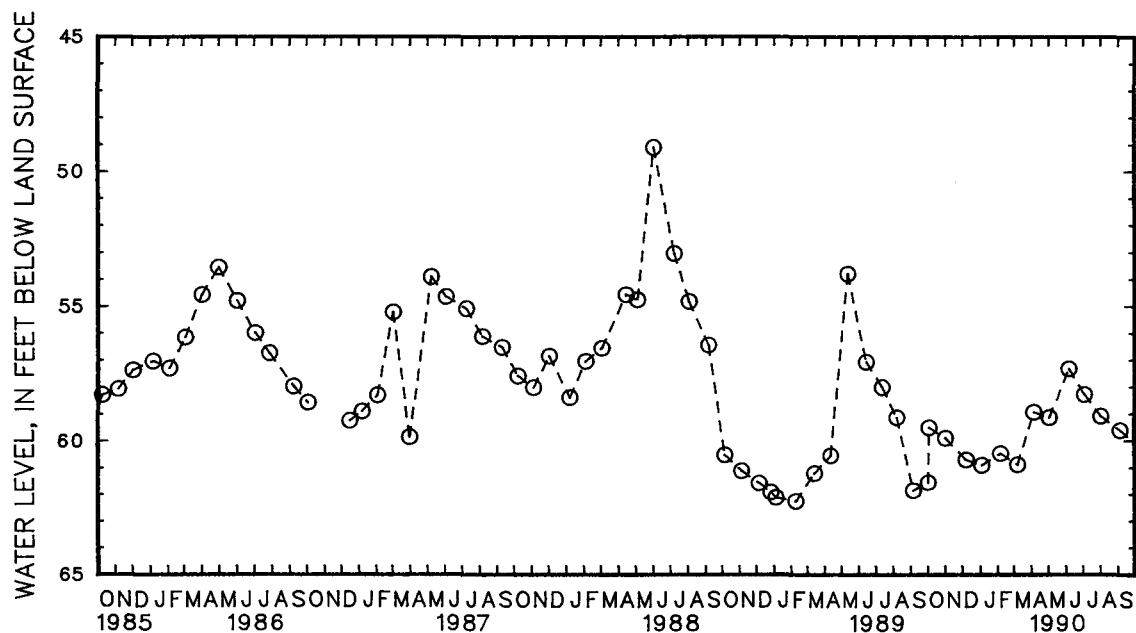
REMARKS.--Maryland Water-Level Network observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 44.20 ft below land surface, April 2, 1984;
lowest measured, 62.27 ft below land surface, Feb. 9, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	61.57	DEC 8	60.72	FEB 6	60.48	APR 6	58.94	JUN 6	57.33	AUG 2	59.09
4	59.52	JAN 4	60.92	MAR 8	60.90	MAY 3	59.14	JUL 3	58.28	SEP 5	59.61
NOV 2	59.91										



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

161

MARYLAND--Continued

FREDERICK COUNTY--Continued

WELL NUMBER.--FR Eh 11. SITE ID.--392257077095601. PERMIT NUMBER.--FR-81-0088.

LOCATION.--Lat 39°22'57", long 77°09'56", Hydrologic Unit 02070009. 0.5 mi west of Mount Airy.

Owner: Town of Mount Airy.

AQUIFER.--Marburg Formation of Paleozoic age. Aquifer code: 300MRBG.

WELL CHARACTERISTICS.--Drilled, unused, water table well, depth 103 ft; casing diameter 6 in., to 24 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.-- Elevation of land surface is 650 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 1.85 ft above land surface.

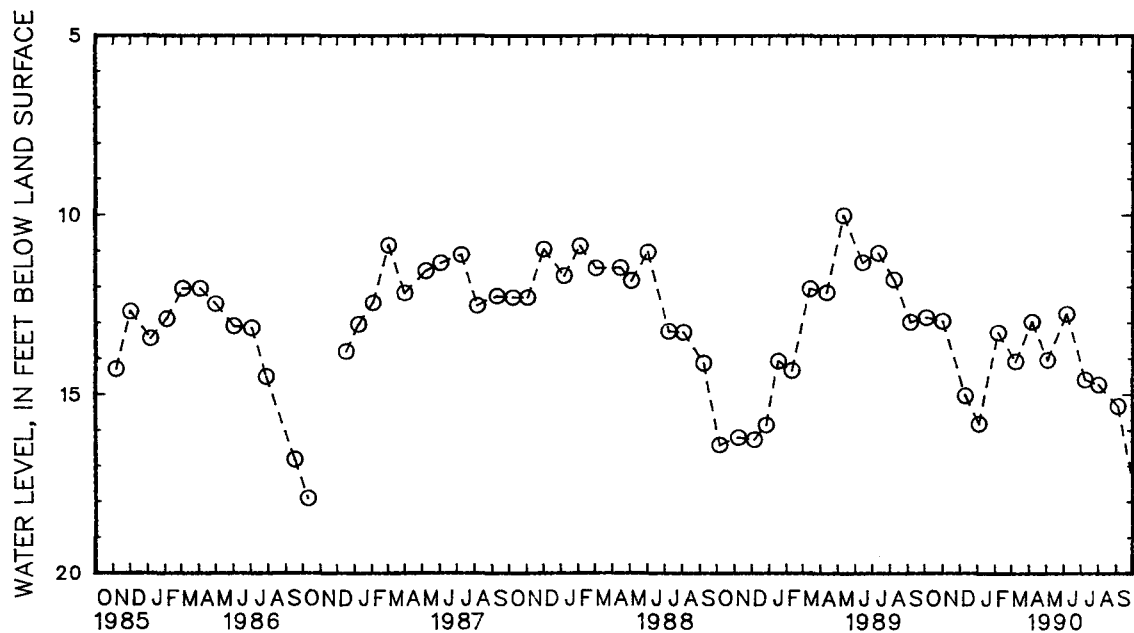
REMARKS.--Maryland Water-Level Network observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.35 ft below land surface, March 23, 1983; lowest measured, 17.91 ft below land surface, Oct. 10, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	12.86	DEC 11	15.04	FEB 6	13.27	APR 6	12.97	JUN 6	12.75	AUG 2	14.73
NOV 1	12.96	JAN 4	15.82	MAR 8	14.08	MAY 3	14.04	JUL 9	14.59	SEP 5	15.33



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY

WELL NUMBER.--GA Ag 1. SITE ID.--394017078581701.

LOCATION.--Lat 39°40'17", long 78°58'17", Hydrologic Unit 02070002, in the Savage River Valley, 2.5 mi northwest of Frostburg.

Owner: Town of Frostburg.

AQUIFER.--Pocono Formation of Lower Mississippian age. Aquifer code: 337POCN.

WELL CHARACTERISTICS.--Drilled, unused, water-table well, depth 30 ft; casing diameter 8 in., to unknown depth; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 2,530 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing at land surface.

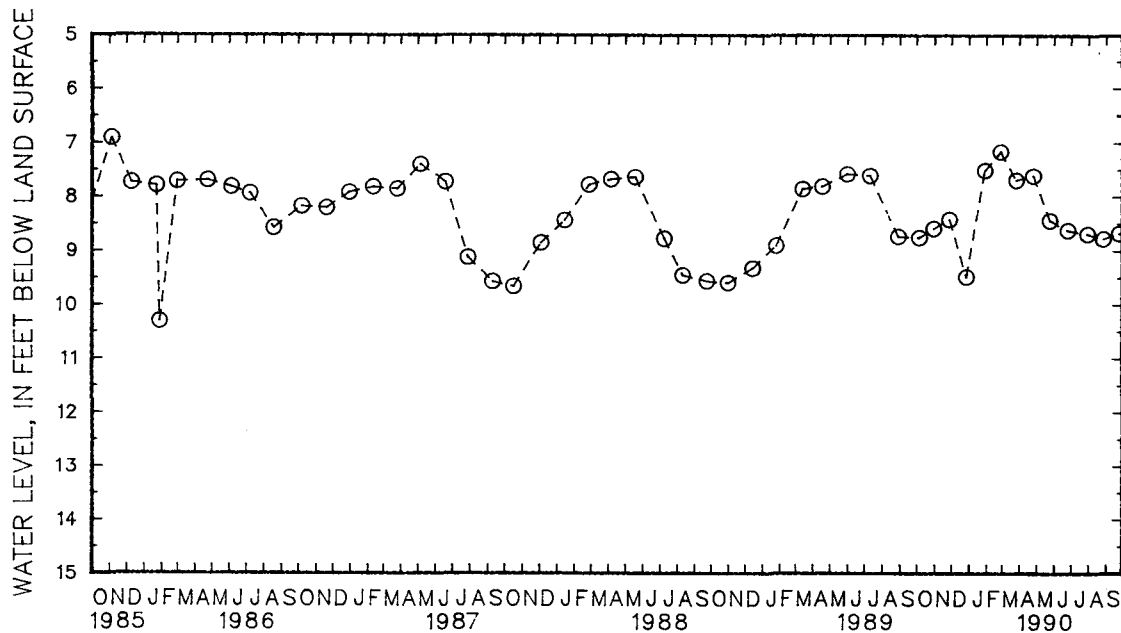
REMARKS.--Maryland Water-Level Network observation well. Water level measured, 11.75 ft below land surface, March 26, 1984; water levels affected by nearby pumping.

PERIOD OF RECORD.--October 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.71 ft below land surface, Jan. 14, 1950; lowest measured, 14.59 ft below land surface, Jan. 28, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	8.76	DEC 27	9.49	MAR 26	7.69	JUN 25	8.62	SEP 24	8.68
30	8.59	JAN 29	7.51	APR 25	7.61	JUL 30	8.69		
NOV 27	8.42	FEB 26	7.16	MAY 24	8.44	AUG 27	8.78		



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

163

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Bc 1. SITE ID.--393749079190301.

LOCATION.--Lat 39°37'49", long 79°19'03", Hydrologic Unit 05020006, at Accident.

Owner: E. H. Ault.

AQUIFER.--Hampshire Formation of Upper Devonian age. Aquifer code: 341HMPR.

WELL CHARACTERISTICS.--Dug, stone-lined, domestic, water-table well, depth 20 ft; diameter 36 in.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 2,415 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of 1 in. board cover, 2.3 ft above land surface.

REMARKS.--Maryland Water-Level Network observation well.

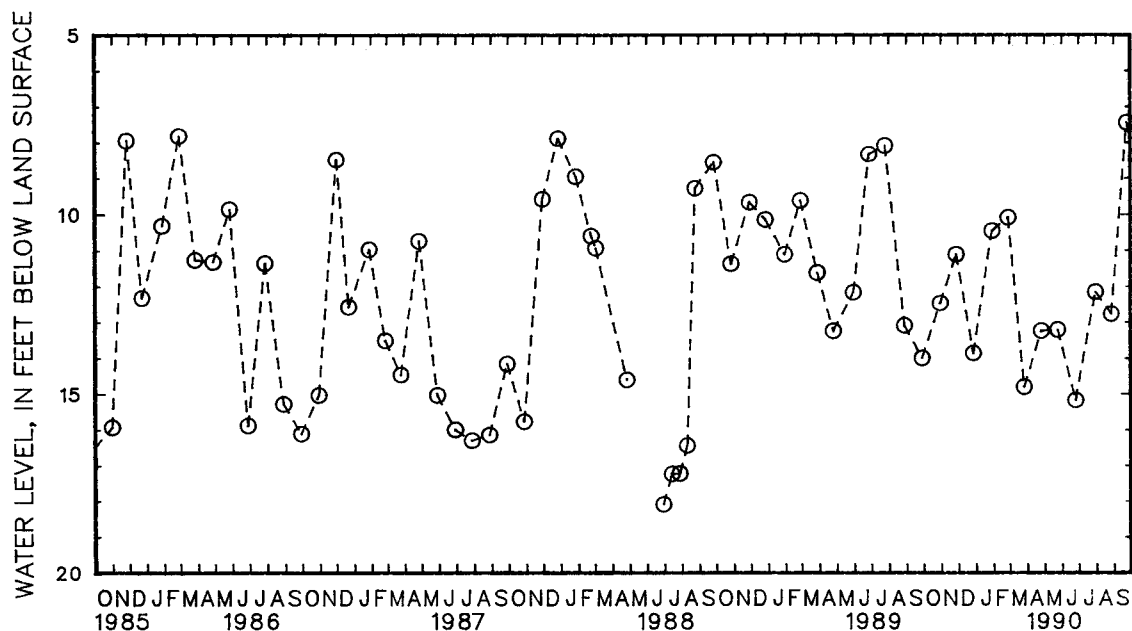
PERIOD OF RECORD.--August 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.25 ft below land surface, March 6, 1979;

lowest measured, 19.65 ft below land surface, Dec. 9, 1953.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	12.48	DEC 27	13.88	FEB 26	10.09	APR 25	13.25	JUN 25	15.19	AUG 27	12.78
NOV 27	11.12	JAN 29	10.46	MAR 26	14.82	MAY 24	13.22	JUL 30	12.16	SEP 24	7.44



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fa 25. SITE ID.--391559079260901. PERMIT NUMBER.--GA-73-1696.
 LOCATION.--Lat 39°15'59", long 79°26'09", Hydrologic Unit 02070002, on north side of conveyor belt,
 0.3 mi west of Table Rock Rd., 2.2 mi northwest of Wilson.

Owner: Mettiki Coal Co.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 315 ft; casing diameter 6 in., to 304 ft;
 open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 2,670 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 1.0 ft above land surface.

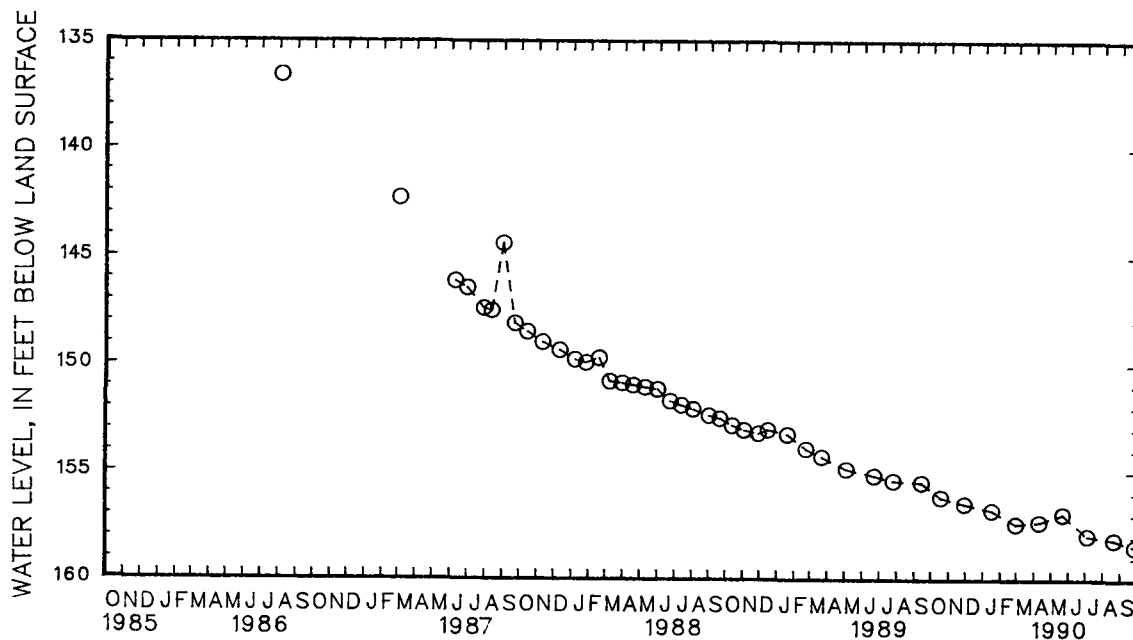
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining
 operations.

PERIOD OF RECORD.--June 1978 to August 1984, August 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 136.61 ft below land surface, Aug. 5, 1986;
 lowest measured, 301.00 ft below land surface, June 23, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	156.17	JAN 17	156.77	APR 10	157.31	JUL 5	157.94	SEP 27	158.44
NOV 29	156.47	FEB 28	157.40	MAY 22	156.94	AUG 21	158.11		



5 YEAR HYDROGRAPH
 OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fa 26. SITE ID.--391559079260902. PERMIT NUMBER.--GA-73-1695.

LOCATION.--Lat 39°15'59", long 79°26'09", Hydrologic Unit 02070002, on north side of conveyor belt, 0.3 mi west of Table Rock Road., 2.2 mi northwest of Wilson.

Owner: Mettiki Coal Co.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 170 ft; casing diameter 6 in., to 150 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 2,670 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 1.0 ft above land surface.

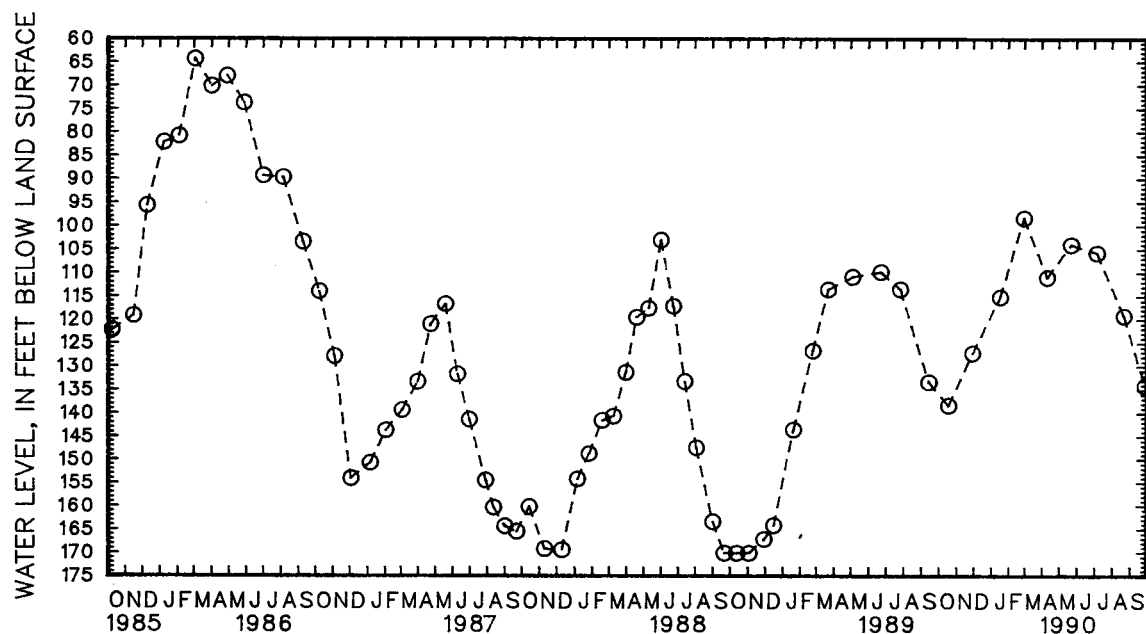
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations.

PERIOD OF RECORD.--June 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.00 ft below land surface, June 23, 1978; lowest measured, dry on Sept. 21, 1988, Oct. 13, 1988 and Nov. 3, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	138.43	JAN 17	115.17	APR 10	111.02	JUL 5	105.75	SEP 27	134.25
NOV 29	127.24	FEB 28	98.31	MAY 22	104.00	AUG 21	119.28		



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fa 27. SITE ID.--391511079265001. PERMIT NUMBER.--GA-73-1710.

LOCATION.--Lat 39°15'11", long 79°26'50", Hydrologic Unit 02070002, on south side of Red Oak Rd., 0.6 mi west from intersection with Kempton Rd., 2.3 mi west of Wilson.
Owner: Mettiki Coal Co.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 215 ft; casing diameter 6 in., to 190 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 2,860 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring Point: Top of casing, 1.0 ft above land surface.

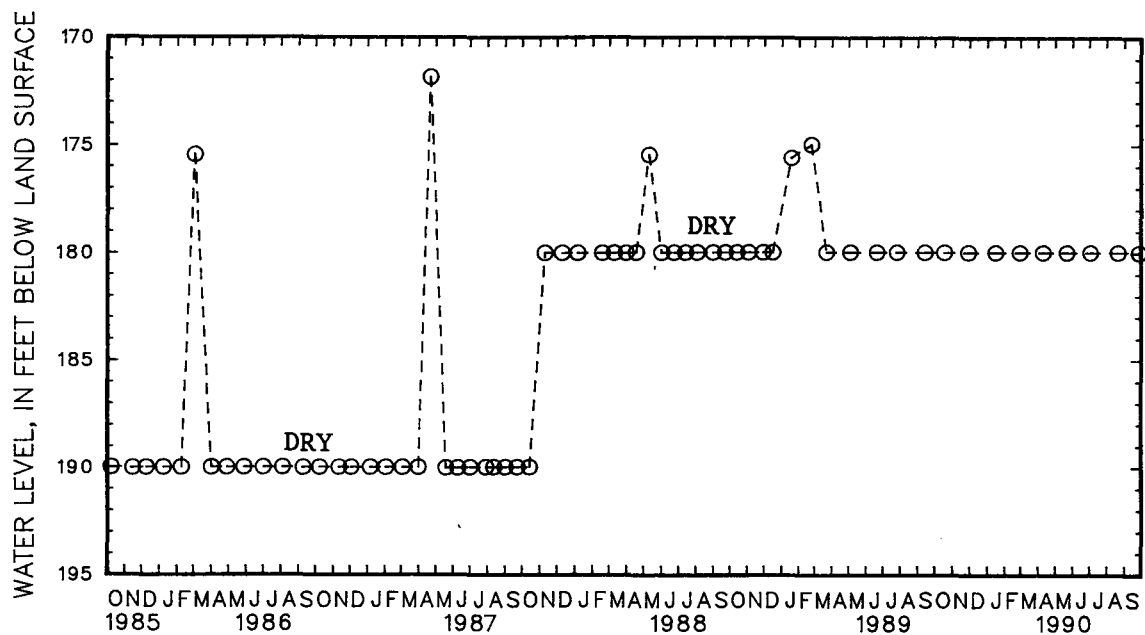
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by underground coal mining operations. Well depth changed by collapse of well. Prior to October 1987 well depth was approximately 190 ft; after October 1987 well depth was measured at 180 ft.

PERIOD OF RECORD.--June 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 141.93 ft below land surface, April 8, 1980; lowest measured, dry on numerous occasions--See Remarks.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	DRY	JAN 16	DRY	APR 10	DRY	JUL 3	DRY	SEP 27	DRY
NOV 29	DRY	FEB 28	DRY	MAY 22	DRY	AUG 21	DRY		



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fa 28. SITE ID.--391512079270901. PERMIT NUMBER.--GA-73-1697.

LOCATION.--Lat 39°15'12", long 79°27'09", Hydrologic Unit 02070002, on south side of Red Oak Rd., 0.6 mi west from intersection with Kempton Rd., 2.6 mi west of Wilson.

Owner: Mettiki Coal Co.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 341 ft; casing diameter 6 in., to 317 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 2,890 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 1.5 ft above land surface.

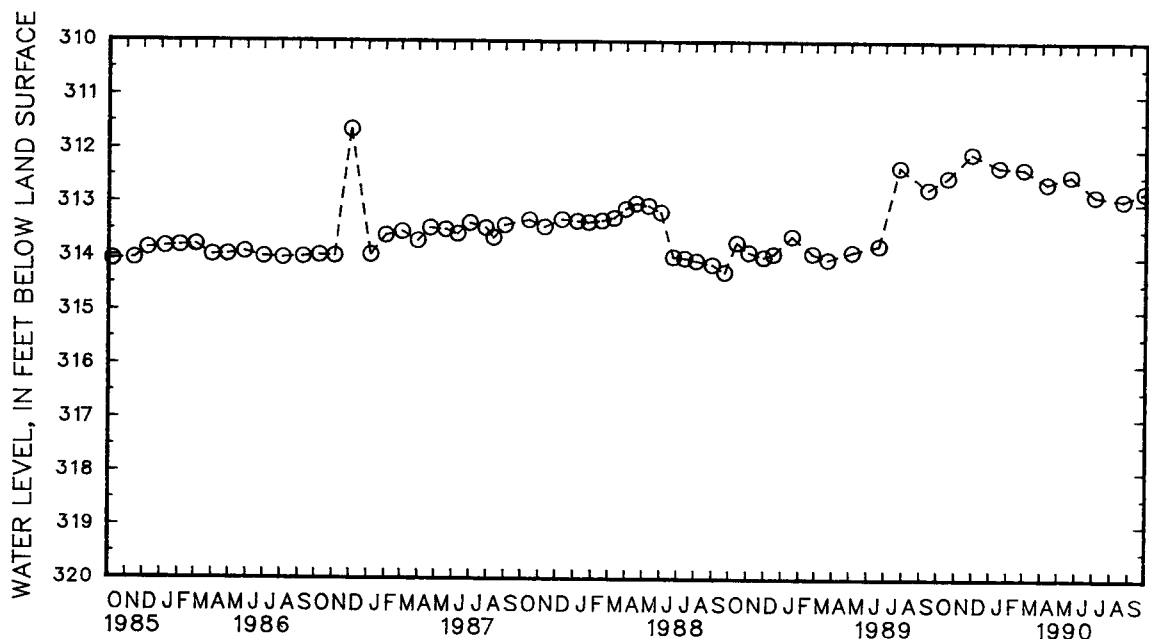
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations.

PERIOD OF RECORD.--June 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 100.60 ft below land surface, Dec. 14, 1978; lowest measured, 332.43 ft below land surface, May 16, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	312.52	JAN 16	312.32	APR 10	312.62	JUL 3	312.85	SEP 27	312.78
NOV 29	312.07	FEB 28	312.35	MAY 22	312.48	AUG 21	312.93		



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fa 29. SITE ID.--391512079270902. PERMIT NUMBER.--GA-73-1698.

LOCATION.--Lat 39°15'12", long 79°27'09", Hydrologic Unit 02070002, on south side of Red Oak Rd., 0.9 mi west from intersection with Kempton Rd., 2.6 mi west of Wilson.

Owner: Mettiki Coal Co.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 226 ft; casing diameter 6 in., to 203 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 2,890 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 2.0 ft above land surface.

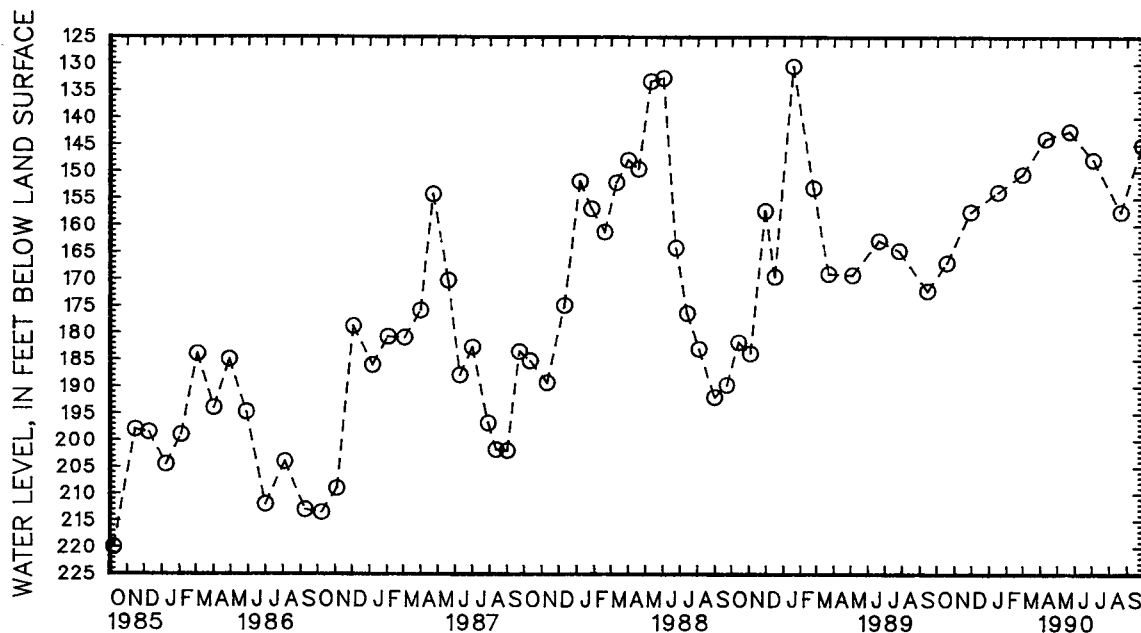
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations.

PERIOD OF RECORD.--June 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 123.40 ft below land surface, Dec. 14, 1978; lowest water level measured, dry on Nov. 17 and 18, 1982, Dec. 28, 1982 and Feb. 18, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	167.09	JAN 16	153.91	APR 10	143.88	JUL 3	147.80	SEP 27	145.08
NOV 29	157.58	FEB 28	150.56	MAY 22	142.48	AUG 21	157.52		



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

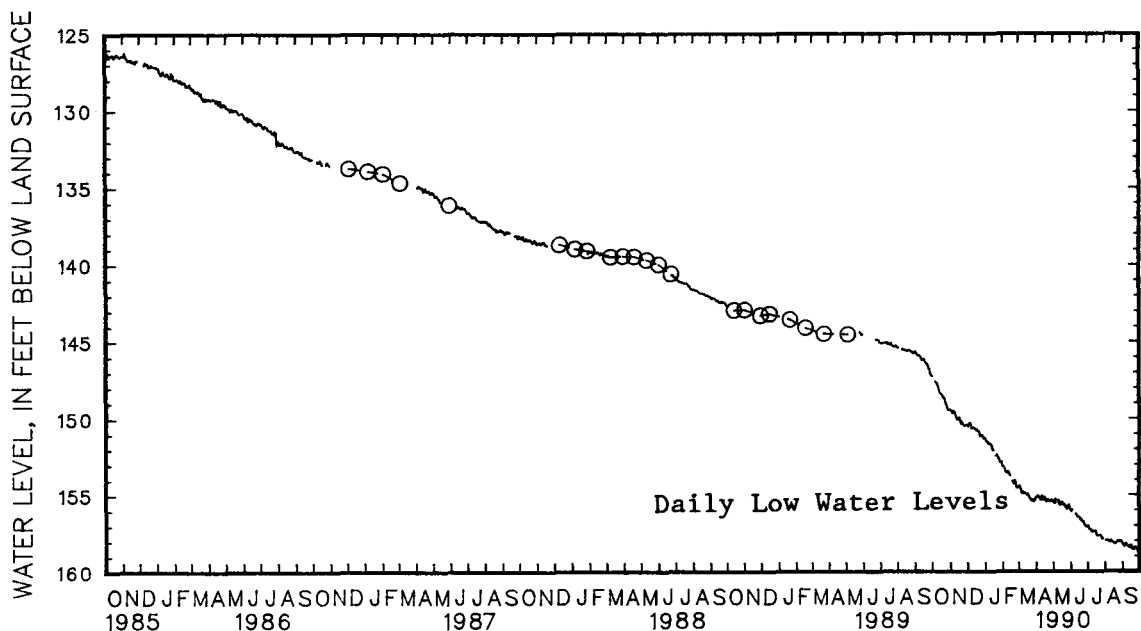
WELL NUMBER.--GA Fa 31. SITE ID.--391539079254601. PERMIT NUMBER.--GA-73-2142.
 LOCATION.--Lat 39°15'37", long 79°25'45", Hydrologic Unit 02070002, on north side of coal conveyor belt,
 450 ft west of Table Rock Rd., 1.7 mi west of Wilson.
 Owner: U.S. Geological Survey.
 AQUIFER.--Allegheny Formation of Middle Pennsylvanian age. Aquifer code: 324ALGN.
 WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 606 ft; casing diameter 8 in., to 25.5 ft;
 casing diameter 4 in., to 470 ft; open hole.
 INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level
 recorder--60-minute recorder interval.
 DATUM.--Elevation of land surface is 2,620 ft above National Geodetic Vertical Datum of 1929, from topographic map.
 Measuring Point: Top of casing, 2.6 ft above land surface.
 REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining
 operations.
 PERIOD OF RECORD.--August 1980 to to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.31 ft below land surface, April 8, 1980;
 lowest measured, 158.80 ft below land surface, Sept. 29, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	147.30	147.18	149.53	149.41	150.53	150.51	151.39	151.10	153.14	153.09	154.53	154.43
2	---	---	149.58	149.44	150.54	150.27	151.51	151.41	153.18	153.03	154.43	154.36
3	---	---	149.59	149.45	150.37	150.31	151.56	151.49	153.22	153.18	154.43	154.31
4	---	---	149.71	149.59	150.42	150.25	151.53	151.37	153.27	153.02	154.56	154.43
5	147.64	147.53	149.67	149.57	150.32	150.25	151.59	151.46	153.44	153.25	154.66	154.52
6	147.68	147.64	149.56	149.54	150.38	150.28	151.66	151.47	153.46	153.32	154.84	154.61
7	147.77	147.65	149.63	149.54	150.68	150.38	151.66	151.51	153.56	153.30	154.93	154.80
8	147.78	147.72	149.64	149.52	150.67	150.51	151.66	151.44	153.57	153.45	154.93	154.80
9	147.91	147.73	149.75	149.51	150.62	150.44	151.66	151.47	153.57	153.34	154.85	154.72
10	147.98	147.88	149.94	149.61	150.62	150.43	151.73	151.49	153.47	153.30	154.89	154.79
11	148.17	147.91	149.94	149.78	150.66	150.46	151.76	151.47	153.52	153.43	154.88	154.80
12	148.31	148.12	150.11	149.87	150.68	150.48	151.77	151.55	153.63	153.49	154.92	154.82
13	148.39	148.25	150.13	149.90	150.69	150.52	152.00	151.80	153.68	153.65	154.95	154.85
14	148.41	148.28	150.09	149.93	150.75	150.61	152.09	152.02	153.77	153.67	154.96	154.87
15	148.44	148.32	150.09	149.87	150.78	150.51	152.10	152.04	---	---	154.98	154.88
16	148.48	148.36	149.98	149.78	150.75	150.65	---	---	---	---	155.03	154.92
17	148.52	148.39	150.15	149.99	150.84	150.77	---	---	---	---	154.96	154.85
18	148.63	148.53	150.29	150.15	150.86	150.80	---	---	154.15	154.06	155.06	154.89
19	148.66	148.61	150.37	150.25	150.86	150.75	152.49	152.37	154.10	153.95	155.10	155.02
20	148.67	148.61	150.25	150.08	150.87	150.76	152.48	152.30	154.29	154.08	155.17	155.03
21	148.71	148.62	150.37	150.11	150.99	150.83	152.40	152.23	154.30	154.20	155.25	155.12
22	148.94	148.72	150.39	150.31	151.16	150.99	152.53	152.35	154.30	153.97	155.26	155.14
23	149.02	148.94	150.47	150.31	151.19	151.11	152.56	152.52	154.08	153.93	155.41	155.17
24	149.12	149.01	150.52	150.41	151.19	151.03	152.66	152.55	154.23	153.97	155.41	155.23
25	149.22	149.08	150.52	150.35	151.11	150.86	152.68	152.43	154.53	154.27	155.35	155.22
26	149.35	149.16	150.49	150.27	151.14	150.82	152.84	152.55	154.57	154.45	155.37	155.25
27	149.47	149.31	150.50	150.31	151.15	150.96	152.88	152.76	154.51	154.36	155.45	155.30
28	149.50	149.38	150.45	150.23	151.29	151.10	152.91	152.87	154.51	154.38	155.46	155.33
29	149.49	149.36	150.48	150.43	151.34	151.19	152.93	152.61	---	---	155.43	155.31
30	149.46	149.35	150.51	150.39	151.30	151.22	152.87	152.62	---	---	155.35	155.23
31	149.45	149.31	---	---	151.32	151.05	153.13	152.91	---	---	155.25	155.17
MONTH	149.50	147.53	150.52	149.41	151.34	150.25	153.13	151.10	154.57	153.02	155.46	154.31

GROUND-WATER LEVELS
MARYLAND--Continued
GARRETT COUNTY--Continued
GA Fa 31--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	155.20	155.17	155.43	155.35	156.04	155.96	157.02	156.97	---	---	158.28	158.15
2	155.18	155.12	155.55	155.41	156.09	156.01	157.10	156.97	158.00	157.89	158.26	158.14
3	155.13	155.05	155.58	155.52	156.01	155.90	157.23	157.10	158.00	157.89	158.30	158.14
4	155.07	154.92	155.58	155.35	155.98	155.88	157.27	157.14	157.99	157.87	158.38	158.24
5	155.13	154.97	155.32	155.21	---	---	157.27	157.12	157.97	157.84	158.31	158.18
6	155.16	155.07	---	---	---	---	157.26	157.11	157.97	157.83	158.25	158.15
7	155.21	155.05	---	---	---	---	157.40	157.22	158.02	157.88	158.19	158.09
8	155.32	155.19	---	---	156.27	156.18	157.42	157.27	158.09	157.97	158.28	158.18
9	155.37	155.19	---	---	156.29	156.12	157.38	157.23	158.06	157.97	158.32	158.19
10	155.22	154.92	155.37	155.25	156.28	156.13	157.42	157.27	158.01	157.92	158.33	158.19
11	155.09	154.93	155.59	155.34	156.36	156.20	157.37	157.27	157.99	157.92	158.42	158.29
12	155.25	155.06	155.66	155.50	156.46	156.31	157.37	157.28	158.08	157.97	158.46	158.37
13	155.36	155.22	155.53	155.43	156.44	156.39	157.35	157.31	158.05	157.97	158.45	158.35
14	155.24	155.16	155.66	155.52	156.42	156.38	157.38	157.29	158.09	157.97	158.39	158.20
15	155.16	155.10	155.63	155.59	156.45	156.36	157.36	157.29	158.14	158.02	158.29	158.15
16	155.17	155.13	155.60	155.54	156.54	156.45	157.55	157.36	158.17	158.05	158.32	158.19
17	155.25	155.07	155.52	155.45	156.62	156.53	157.64	157.53	158.18	158.05	158.54	158.32
18	155.43	155.25	155.61	155.51	156.60	156.47	157.67	157.53	158.18	158.04	158.56	158.48
19	155.46	155.41	155.67	155.60	156.59	156.43	157.67	157.50	158.16	158.00	158.52	158.34
20	155.46	155.33	155.65	155.55	156.71	156.52	---	---	158.18	158.02	158.51	158.44
21	155.34	155.17	155.68	155.52	156.77	156.55	---	---	158.15	158.04	158.57	158.43
22	155.32	155.19	155.75	155.60	156.81	156.61	---	---	158.10	157.98	158.45	158.34
23	155.35	155.21	155.82	155.62	156.74	156.58	157.63	157.44	158.01	157.91	158.43	158.37
24	155.41	155.23	155.87	155.67	156.85	156.65	157.72	157.59	158.00	157.97	158.51	158.44
25	155.46	155.27	155.94	155.75	156.99	156.77	157.78	157.65	158.05	157.98	158.57	158.48
26	155.45	155.28	155.76	155.59	157.02	156.91	157.86	157.78	158.08	158.02	158.55	158.48
27	155.45	155.30	155.75	155.59	157.04	156.95	157.86	157.82	158.06	158.02	158.67	158.55
28	155.36	155.27	155.74	155.66	157.09	157.01	157.85	157.82	158.05	157.97	158.77	158.67
29	155.38	155.27	155.66	155.61	157.10	157.00	---	---	158.01	157.97	158.80	158.72
30	155.39	155.32	155.87	155.66	157.05	157.00	---	---	158.09	157.97	158.77	158.70
31	---	---	155.96	155.87	---	---	---	---	158.21	158.06	---	---
MONTH	155.46	154.92	155.96	155.21	157.10	155.88	157.86	156.97	158.21	157.83	158.80	158.09



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fa 32. SITE ID.--391539079254602. PERMIT NUMBER.--GA-73-2143.

LOCATION.--Lat 39°15'39", long 79°25'46", Hydrologic Unit 02070002, on north side of coal conveyor belt, 450 ft west of Table Rock Rd., 1.7 mi west of Wilson.

Owner: U.S. Geological Survey.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 473 ft; casing diameter 4 in., to 430 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval from July 21, 1980 to April 8, 1981.

DATUM.--Elevation of land surface is 2,890 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 3.15 ft above land surface.

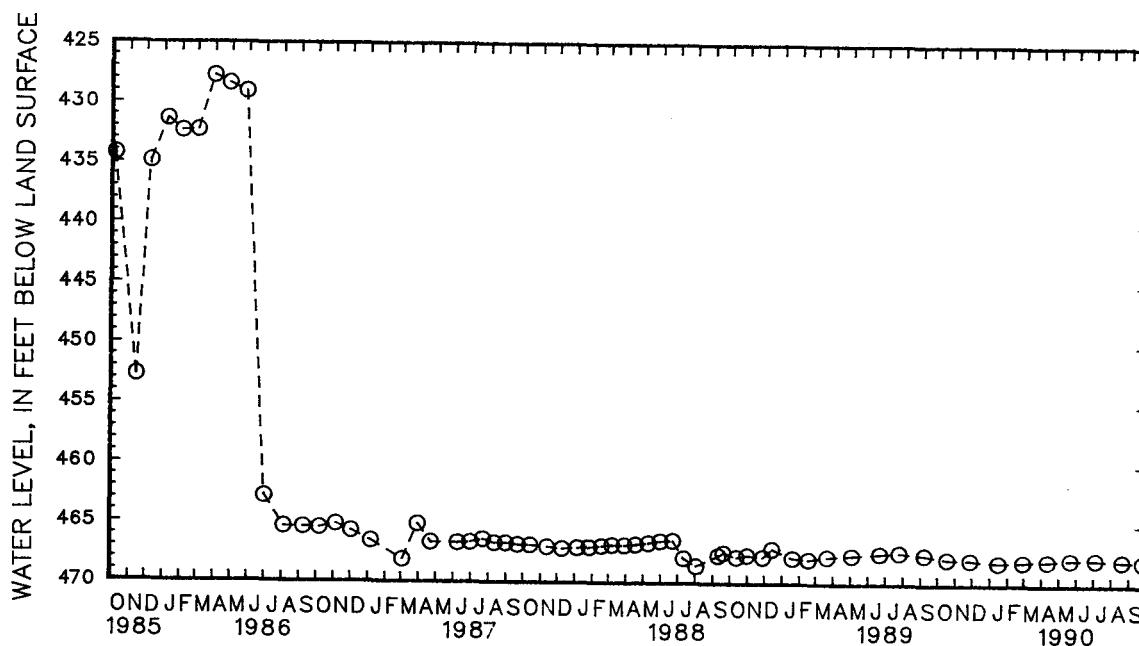
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations.

PERIOD OF RECORD.--February 1980 to to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.55 ft below land surface, Feb. 27, 1980; lowest measured, 468.56 ft below land surface, Aug. 3, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	467.84	JAN 16	468.13	APR 12	467.96	JUL 5	467.82	SEP 26	468.01
NOV 28	467.91	FEB 28	468.06	MAY 22	467.83	AUG 21	467.95		



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fa 33. SITE ID.--391539079254603. PERMIT NUMBER.--GA-73-2144.

LOCATION.--Lat 39°15'39", long 79°25'46", Hydrologic Unit 02070002, on north side of coal conveyor belt, 450 ft west of Table Rock Rd., 1.7 mi west of Wilson.

Owner: U.S. Geological Survey.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 391 ft; casing diameter 8 in., to 23 ft; casing diameter 4 in., to 318 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital recorder--60-minute recorder interval from July 21, 1980 to Oct. 14, 1982.

DATUM.--Elevation of land surface is 2,620 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of recorder shelf, 3.9 ft above land surface.

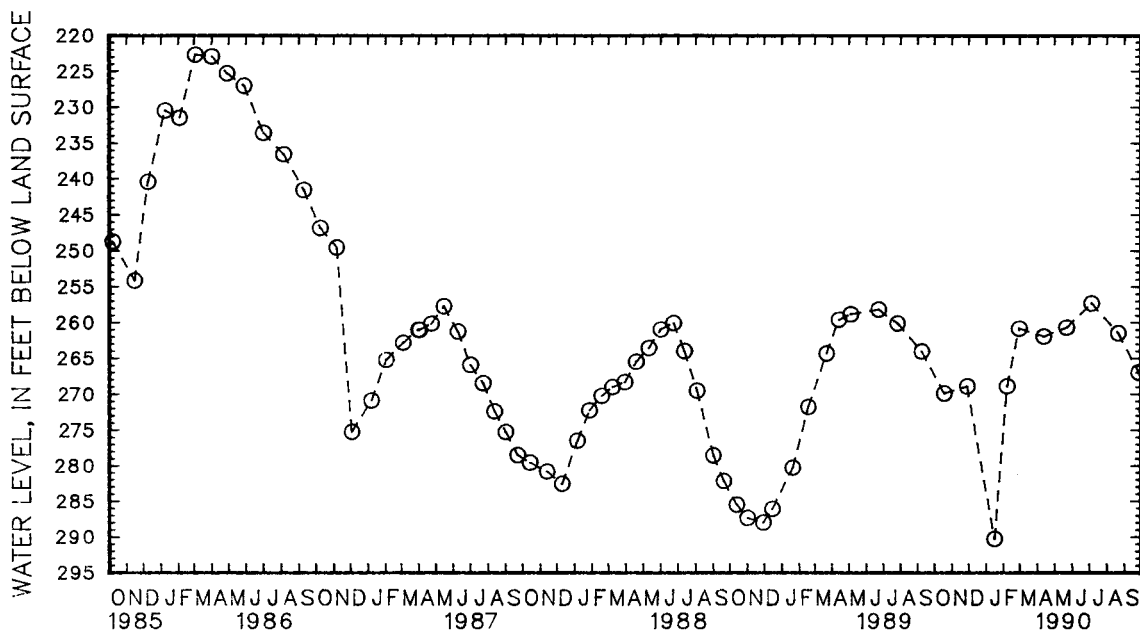
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations.

PERIOD OF RECORD.--February 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.31 ft below land surface, Feb. 27, 1978; lowest measured, 290.24 ft below land surface, Jan. 16, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	269.89	JAN 16	290.24	FEB 28	260.80	MAY 22	260.65	AUG 21	261.45
NOV 28	268.90	FEB 7	268.85	APR 12	261.92	JUL 5	257.26	SEP 26	266.95



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fa 34. SITE ID.--391539079254604. PERMIT NUMBER.--GA-73-2145.

LOCATION.--Lat 39°15'39", long 79°25'46", Hydrologic Unit 02070002, on north side of coal conveyor belt, 450 ft west of Table Rock Rd., 1.7 mi west of Wilson.

Owner: U.S. Geological Survey.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 115 ft; casing diameter 8 in., to 23.5 ft; casing diameter 4 in., to 96 ft; open hole.

INSTRUMENTATION.--Equipped with digital water-level recorder--60-minute recorder interval.

DATUM.--Elevation of land surface is 2,620 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of recorder shelf, 3.3 ft above land surface.

REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well.

PERIOD OF RECORD.--July 1980 to current year.

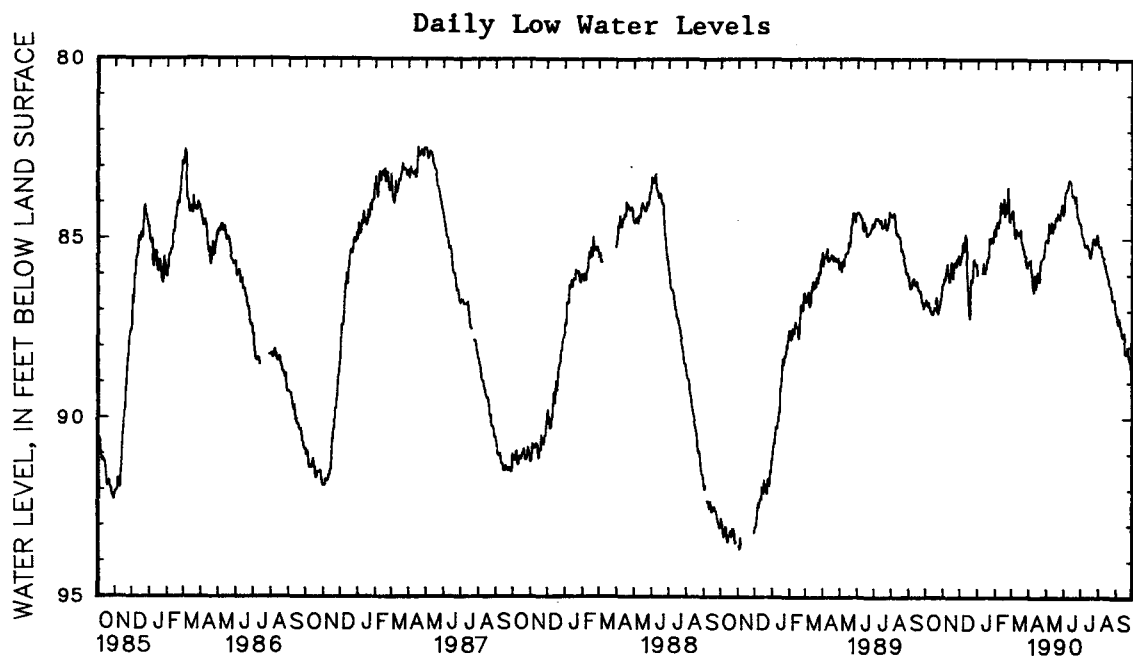
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.19 ft below land surface, Aug. 3, 1980; lowest measured, 93.67 ft below land surface, Nov. 2, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	86.82	86.70	86.27	86.08	85.69	85.56	85.99	85.43	84.89	84.64	84.39	84.24
2	86.70	86.61	86.26	86.02	85.66	85.24	---	---	84.63	84.42	84.24	84.06
3	86.78	86.68	86.12	85.97	85.47	85.29	---	---	84.68	84.49	84.21	84.02
4	86.84	86.78	86.15	86.05	85.44	85.20	---	---	84.53	84.19	84.45	84.21
5	86.88	86.78	86.11	85.97	85.21	85.13	---	---	84.68	84.53	84.61	84.45
6	86.77	86.76	85.96	85.91	85.11	84.88	---	---	84.68	84.51	84.89	84.61
7	86.88	86.77	85.94	85.74	85.34	85.07	---	---	84.52	84.39	84.98	84.89
8	86.89	86.83	85.79	85.61	85.34	85.07	---	---	84.53	84.34	84.98	84.74
9	87.01	86.90	85.70	85.55	85.06	84.89	---	---	84.32	83.92	84.73	84.63
10	87.01	86.89	85.95	85.62	84.89	84.86	85.94	85.80	83.98	83.84	84.79	84.66
11	87.07	86.92	85.95	85.86	84.94	84.85	85.91	85.43	84.09	83.92	84.80	84.75
12	87.07	87.04	86.18	85.88	84.99	84.86	85.68	85.43	84.26	83.98	84.86	84.80
13	87.10	87.06	86.18	86.06	85.69	85.08	85.95	85.68	84.25	84.02	84.90	84.81
14	87.09	86.98	86.06	85.92	86.15	85.76	85.95	85.82	84.15	84.02	84.84	84.76
15	87.00	86.98	85.92	85.47	86.34	85.97	85.82	85.80	84.15	83.89	84.87	84.78
16	86.98	86.91	85.65	85.27	86.81	86.35	85.84	85.80	83.89	83.79	84.86	84.76
17	86.91	86.80	85.85	85.66	86.97	86.83	85.80	85.46	84.37	83.93	84.75	84.61
18	---	---	86.07	85.83	87.21	86.99	85.53	85.38	84.37	84.07	85.08	84.70
19	86.78	86.69	86.09	85.77	87.08	86.40	85.62	85.44	84.05	83.91	85.12	85.03
20	86.64	86.60	85.77	85.25	86.39	86.16	85.41	85.00	84.26	84.06	85.19	85.11
21	86.69	86.54	85.68	85.31	86.13	86.01	84.99	84.86	84.26	84.13	85.29	85.19
22	87.04	86.69	85.71	85.49	86.19	86.13	85.04	84.92	84.12	83.58	85.29	85.14
23	87.07	87.00	85.65	85.46	86.19	86.09	85.12	84.90	83.58	83.49	85.46	85.17
24	87.00	86.93	85.76	85.65	86.03	85.70	84.98	84.85	83.94	83.53	85.46	85.41
25	86.93	86.85	85.73	85.43	85.69	85.30	84.97	84.61	84.51	83.97	85.50	85.42
26	86.85	86.80	85.54	85.34	85.57	85.19	84.99	84.74	84.53	84.44	85.59	85.48
27	86.80	86.69	85.55	85.25	85.59	85.40	85.10	84.98	84.42	84.26	85.70	85.59
28	86.69	86.57	85.46	85.14	85.73	85.43	85.08	84.93	84.33	84.26	85.77	85.70
29	86.58	86.46	85.59	85.46	85.73	85.70	84.91	84.30	---	---	85.79	85.75
30	86.46	86.27	85.56	85.50	85.71	85.63	84.73	84.48	---	---	85.77	85.64
31	86.27	86.01	---	---	85.70	85.34	84.91	84.74	---	---	85.64	85.61
MONTH	87.10	86.01	86.27	85.14	87.21	84.85	85.99	84.30	84.89	83.49	85.79	84.02

GROUND-WATER LEVELS
MARYLAND--Continued
GARRETT COUNTY--Continued
GA Fa 34--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	85.67	85.62	85.01	84.93	84.28	84.20	84.61	84.52	85.17	84.99	87.14	87.05
2	85.66	85.57	85.06	84.96	84.20	83.91	84.83	84.62	85.21	85.18	87.12	87.11
3	85.60	85.57	85.09	85.05	83.91	83.61	84.91	84.83	85.22	85.21	87.33	87.12
4	85.58	85.52	85.02	84.56	83.68	83.54	84.94	84.90	85.22	85.20	87.38	87.32
5	85.90	85.57	84.56	84.46	83.70	83.64	84.97	84.89	85.21	85.19	87.32	87.22
6	86.00	85.91	84.64	84.50	83.64	83.52	85.08	84.90	85.33	85.22	87.22	87.19
7	86.19	85.96	84.73	84.65	83.60	83.51	85.20	85.09	85.47	85.34	87.29	87.13
8	86.41	86.19	84.81	84.73	83.61	83.47	85.21	85.18	85.49	85.47	87.46	87.31
9	86.48	86.32	84.78	84.56	83.51	83.38	85.18	85.13	85.52	85.50	87.46	87.42
10	86.32	85.75	84.53	84.28	83.38	83.33	85.19	85.16	85.52	85.50	87.63	87.45
11	86.01	85.78	84.77	84.40	83.36	83.32	85.19	85.16	85.65	85.50	87.70	87.63
12	86.28	86.01	84.81	84.65	83.38	83.32	85.16	85.12	85.73	85.66	87.74	87.70
13	86.37	86.28	84.58	84.50	83.40	83.36	85.26	85.17	85.73	85.70	87.75	87.73
14	86.30	86.03	84.69	84.61	83.43	83.38	85.26	85.16	85.85	85.73	87.74	87.46
15	86.02	85.92	84.68	84.64	83.61	83.39	85.29	85.12	85.92	85.85	87.62	87.46
16	85.93	85.85	84.64	84.44	83.80	83.61	85.48	85.30	85.98	85.92	87.79	87.62
17	85.98	85.74	84.41	84.26	83.81	83.80	85.52	85.47	86.04	85.99	88.20	87.81
18	86.18	85.98	84.43	84.32	83.80	83.62	85.48	85.40	86.09	86.04	88.22	88.14
19	86.18	86.12	84.46	84.42	83.78	83.63	85.40	85.29	86.12	86.08	88.13	87.91
20	86.11	85.79	84.41	84.26	83.82	83.77	85.28	85.12	86.29	86.12	88.20	87.99
21	85.74	85.61	84.29	84.23	83.98	83.78	85.12	85.02	86.31	86.28	88.22	88.06
22	85.61	85.58	84.34	84.29	83.98	83.78	85.02	84.90	86.31	86.29	88.04	87.96
23	85.58	85.54	84.38	84.33	83.82	83.76	84.98	84.85	86.40	86.31	88.22	88.02
24	85.55	85.52	84.43	84.37	84.15	83.88	85.04	84.99	86.53	86.40	88.37	88.23
25	85.53	85.49	84.45	84.30	84.39	84.16	85.11	85.04	86.66	86.54	88.34	88.26
26	85.49	85.38	84.26	84.11	84.40	84.38	85.15	85.12	86.71	86.66	88.39	88.24
27	85.38	85.22	84.18	84.11	84.46	84.38	85.14	85.07	86.72	86.68	88.57	88.40
28	85.22	85.07	84.18	84.04	84.54	84.46	85.07	84.97	86.69	86.61	88.64	88.57
29	85.07	85.04	84.04	83.92	84.54	84.48	84.95	84.88	86.69	86.62	88.63	88.60
30	85.06	85.01	84.24	84.04	84.57	84.51	84.88	84.82	86.93	86.69	88.60	88.51
31	---	---	84.32	84.25	---	---	84.99	84.82	87.05	86.93	---	---
MONTH	86.48	85.01	85.09	83.92	84.57	83.32	85.52	84.52	87.05	84.99	88.64	87.05



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fa 38. SITE ID.--391501079260001. PERMIT NUMBER.--GA-73-2125.

LOCATION.--Lat 39°15'01", long 79°26'00", Hydrologic Unit 02070002, at intersection of Kempton Rd. and Dobin Rd., 3.6 mi south of Table Rock.

Owner: Curtis Glatfelty.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, domestic, water-table well, depth 118 ft, casing diameter 6 in., to 39 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 2,680 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 1.0 ft above land surface.

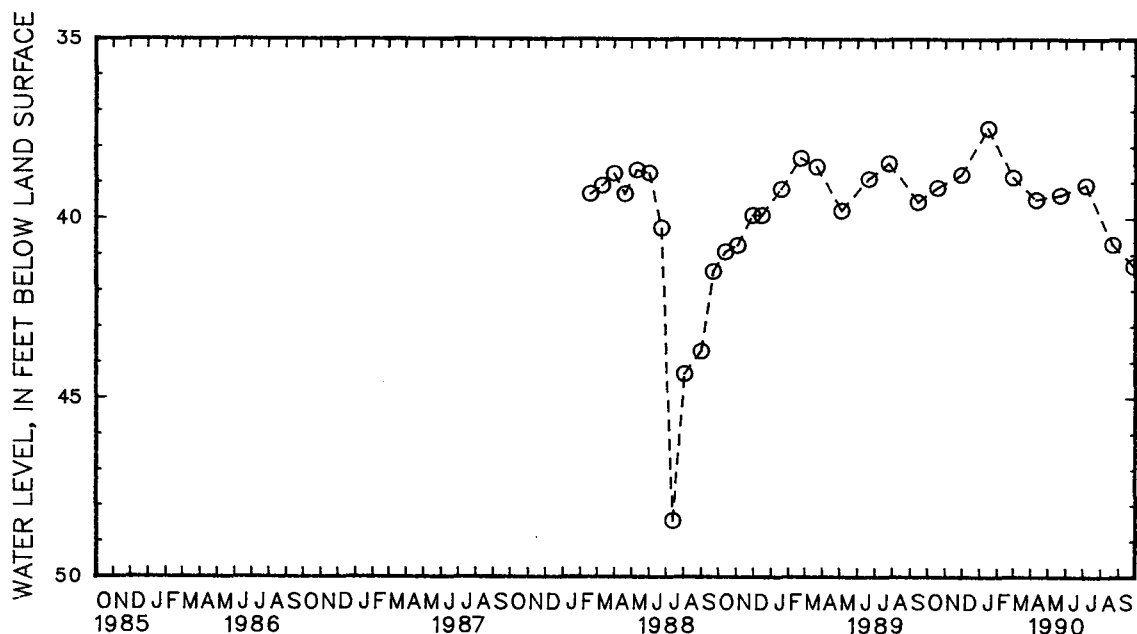
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by nearby mining operations.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.48 ft below land surface, Jan. 16, 1990; lowest measured, 48.44 ft below land surface, July 13, 1988.

WATER-LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	39.15	JAN 16	37.48	APR 10	39.48	JUL 5	39.08	SEP 27	41.33
NOV 29	38.78	FEB 28	38.85	MAY 22	39.35	AUG 21	40.72		



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fb 22. SITE ID.--391530079244401. PERMIT NUMBER.--GA-73-2146.

LOCATION.--Lat 39°15'30", long 79°24'44", Hydrologic Unit 02070002, south side of Wilson Rd., 500 ft west of intersection with Wilson-Coronna Rd., 0.4 mi northwest of Wilson.

Owner: U.S. Geological Survey.

AQUIFER.--Allegheny Formation of Middle Pennsylvanian age. Aquifer code: 324ALGN.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 640 ft; casing diameter 4 in., to 517 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval.

DATUM.--Elevation of land surface is 2,530 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 3.0 ft above land surface.

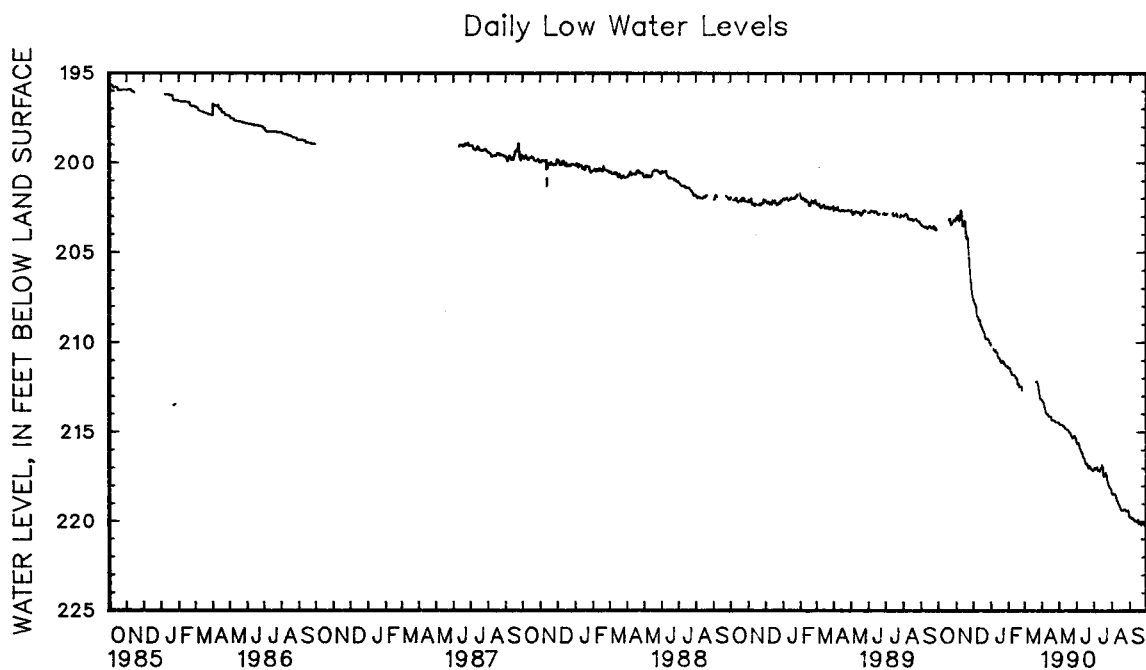
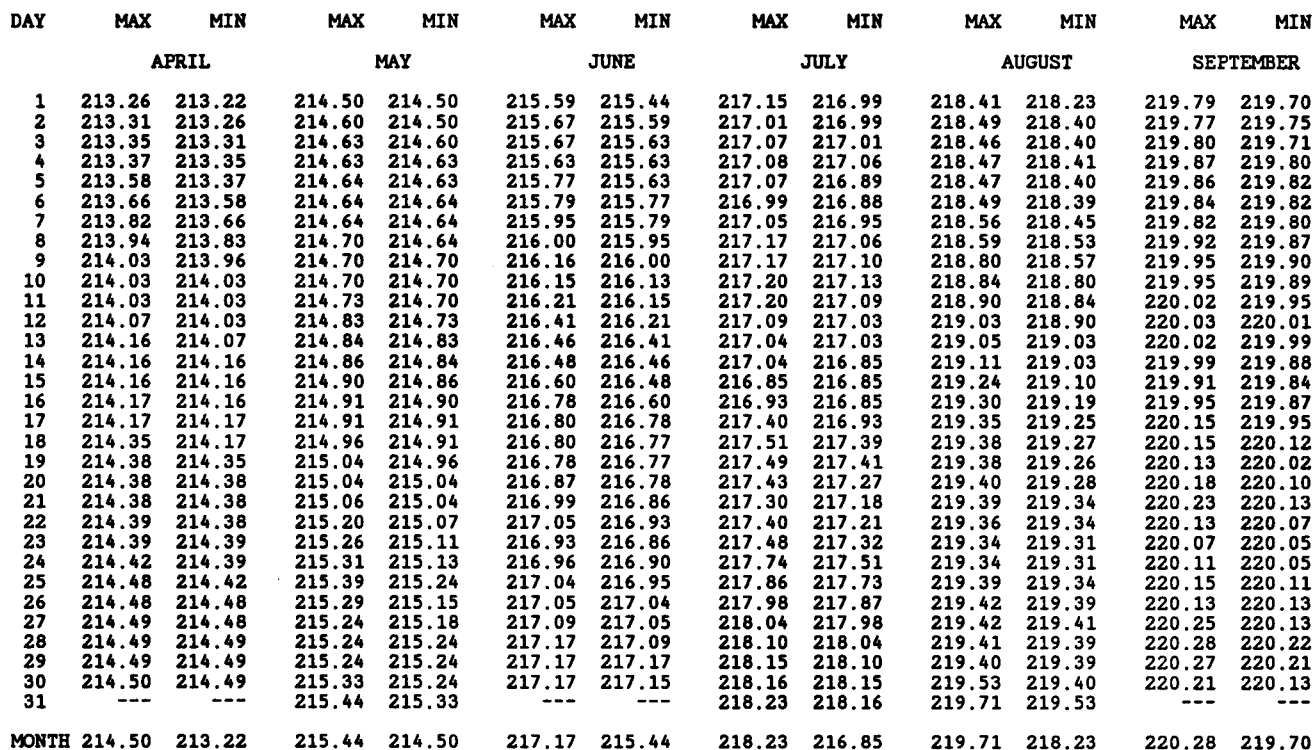
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations.

PERIOD OF RECORD.--May 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 68.48 ft below land surface, May 15, 1980; lowest measured, 220.28 ft below land surface, Sept. 28, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	203.07	203.03	207.67	207.54	210.17	209.87	211.42	211.42	---	---
2	---	---	203.11	202.97	207.73	207.58	---	---	211.45	211.42	---	---
3	---	---	202.97	202.96	207.83	207.66	---	---	211.47	211.45	---	---
4	---	---	203.06	202.96	207.92	207.84	---	---	211.53	211.47	---	---
5	---	---	203.21	203.07	207.97	207.88	210.38	210.21	211.68	211.53	---	---
6	---	---	203.25	203.21	208.08	207.97	210.49	210.36	211.68	211.67	---	---
7	---	---	203.22	202.92	208.55	208.08	210.49	210.41	211.84	211.68	---	---
8	---	---	202.93	202.70	208.56	208.48	210.47	210.34	211.84	211.84	---	---
9	---	---	202.68	202.47	208.60	208.50	210.46	210.36	211.84	211.84	---	---
10	---	---	202.69	202.44	208.74	208.54	210.58	210.39	211.84	211.84	---	---
11	---	---	202.99	202.64	208.80	208.66	210.58	210.40	211.84	211.84	---	---
12	---	---	203.54	202.99	208.80	208.73	210.60	210.44	211.92	211.83	---	---
13	---	---	203.56	203.48	209.02	208.78	210.79	210.64	211.96	211.93	---	---
14	---	---	203.56	203.39	209.09	209.01	210.86	210.83	212.01	211.96	---	---
15	---	---	203.40	203.21	209.15	208.94	210.85	210.85	212.02	212.01	---	---
16	---	---	203.26	203.21	209.20	209.08	210.93	210.88	212.07	212.02	---	---
17	---	---	203.42	203.27	209.29	209.23	211.00	210.93	212.37	212.07	---	---
18	---	---	204.13	203.43	209.36	209.29	211.10	210.98	212.36	212.36	---	---
19	203.21	203.06	204.27	204.08	209.39	209.36	211.17	211.10	212.36	212.36	---	---
20	203.13	203.05	204.08	203.97	209.48	209.39	211.12	210.94	212.52	212.36	---	---
21	203.14	203.05	204.21	203.97	209.64	209.48	211.02	210.88	212.52	212.52	212.26	212.25
22	203.38	203.14	204.60	204.21	209.82	209.64	211.09	210.97	212.52	212.52	212.25	212.21
23	203.50	203.38	205.31	204.60	209.83	209.82	211.09	211.09	212.52	212.51	212.21	212.21
24	203.45	203.37	205.78	205.31	209.83	209.81	211.21	211.07	212.51	212.51	212.26	212.21
25	203.42	203.30	206.11	205.78	209.82	209.69	211.21	211.19	212.71	212.51	212.44	212.26
26	203.35	203.23	206.59	206.11	209.84	209.69	211.32	211.18	---	---	212.65	212.45
27	203.26	203.12	206.72	206.59	209.84	209.79	211.33	211.33	---	---	212.85	212.67
28	203.20	203.09	207.09	206.72	209.89	209.84	211.36	211.35	---	---	213.01	212.85
29	203.26	203.14	207.34	207.11	210.03	209.88	211.36	211.36	---	---	213.18	213.01
30	203.28	203.16	207.52	207.32	210.06	210.05	211.36	211.36	---	---	213.20	213.18
31	203.22	202.95	---	---	210.07	209.86	211.43	211.36	---	---	213.22	213.20
MONTH	203.50	202.95	207.52	202.44	210.07	207.54	211.43	209.87	212.71	211.42	213.22	212.21



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

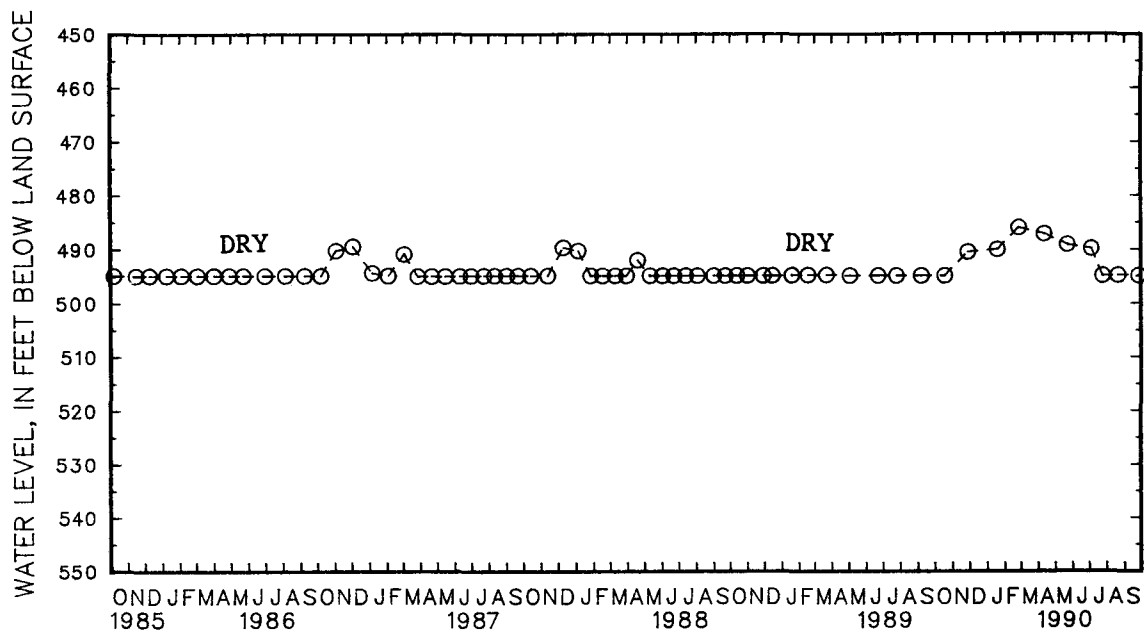
MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fb 23. SITE ID.--391530079244402 PERMIT NUMBER.--GA-73-2176
 LOCATION.--Lat 39°15'30", long 79°24'44", Hydrologic Unit 02070002, south side of Wilson Rd.,
 500 ft west of intersection with Wilson-Coronna Rd., 0.4 mi northwest of Wilson.
 Owner: U.S. Geological Survey.
 AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.
 WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 495 ft; casing diameter 4 in., to 460 ft;
 open hole.
 INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital
 water-level recorder--60-minute recorder interval, May 1980 to Dec. 9, 1985.
 DATUM.--Elevation of land surface is 2,530 ft above National Geodetic Vertical Datum of 1929, from topographic map.
 Measuring Point: Top of casing, 3.0 ft above land surface.
 REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining
 operations.
 PERIOD OF RECORD.--April 1980 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.32 ft below land surface, March 2, 1982, lowest
 measured, dry on numerous occasions--See Remarks.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	DRY	JAN 19	490.13	APR 12	487.25	JUL 5	489.97	AUG 21	DRY
NOV 28	490.57	FEB 26	486.07	MAY 23	489.22	25	DRY	SEP 26	DRY



5 YEAR HYDROGRAPH
 OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

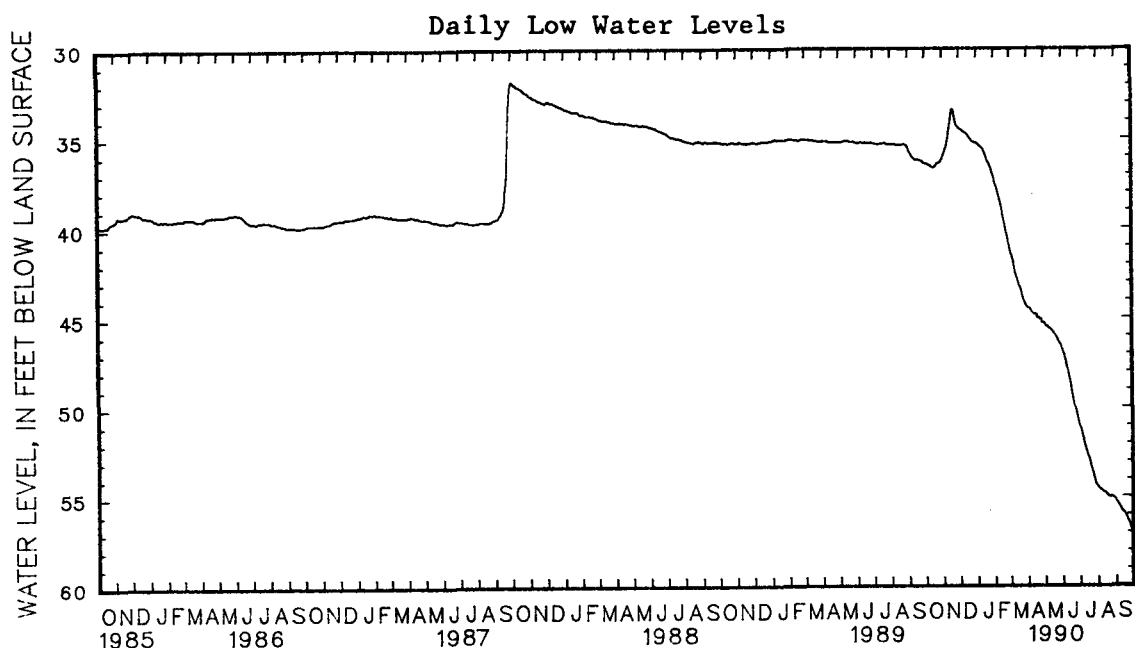
WELL NUMBER.--GA Fb 24. SITE ID.--391530079244403. PERMIT NUMBER.--GA-73-2177.
 LOCATION.--Lat 39°15'30", long 79°24'44", Hydrologic Unit 02070002, south side of Wilson Rd.,
 500 ft west of intersection with Wilson-Coronna Rd., 0.4 mi northwest of Wilson.
 Owner: U.S. Geological Survey.
 AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.
 WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 400 ft; casing diameter 4 in., to 340 ft;
 open hole.
 INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital
 water-level recorder--60-minute recorder interval.
 DATUM.--Elevation of land surface is 2,530 ft above National Geodetic Vertical Datum of 1929, from topographic map.
 Measuring Point: Top of casing, 3.0 ft above land surface.
 REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining
 operations.
 PERIOD OF RECORD.--May 1980 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.09 ft below land surface, Jan. 12, 1981;
 lowest measured, 57.07 ft below land surface, Sept. 30, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	36.44	36.44	36.05	35.97	34.50	34.46	35.30	35.30	37.37	37.26	41.36	41.22
2	36.44	36.44	35.96	35.88	34.53	34.50	35.34	35.30	37.50	37.39	41.48	41.37
3	36.44	36.44	35.88	35.78	34.54	34.53	35.37	35.34	37.63	37.51	41.58	41.49
4	36.46	36.44	35.78	35.68	34.56	34.54	35.40	35.37	37.71	37.63	41.68	41.58
5	36.48	36.46	35.68	35.61	34.57	34.56	35.42	35.40	37.83	37.71	41.77	41.68
6	36.50	36.48	35.60	35.53	34.58	34.57	35.45	35.42	37.94	37.84	41.90	41.77
7	36.51	36.50	35.53	35.42	34.62	34.58	35.49	35.46	38.08	37.95	42.09	41.91
8	36.51	36.51	35.42	35.26	34.66	34.62	35.50	35.49	38.23	38.09	42.27	42.10
9	36.54	36.51	35.26	35.05	34.68	34.66	35.52	35.50	38.38	38.24	42.45	42.28
10	36.56	36.54	35.05	34.80	34.69	34.68	35.54	35.52	38.49	38.38	42.59	42.45
11	36.59	36.56	34.80	34.58	34.72	34.70	35.57	35.54	38.61	38.50	42.67	42.59
12	36.62	36.59	34.58	34.41	34.73	34.72	35.61	35.57	38.74	38.62	42.77	42.68
13	36.64	36.62	34.41	34.24	34.75	34.73	35.71	35.61	38.88	38.74	42.86	42.77
14	36.65	36.64	34.24	34.01	34.79	34.75	35.78	35.71	39.04	38.89	42.98	42.87
15	36.65	36.65	34.01	33.74	34.83	34.80	35.85	35.78	39.19	39.05	43.08	42.98
16	36.65	36.65	33.74	33.50	34.87	34.83	35.93	35.85	39.35	39.19	43.18	43.08
17	36.65	36.61	33.50	33.40	34.91	34.87	36.02	35.94	39.54	39.36	43.27	43.19
18	36.61	36.59	33.40	33.38	34.95	34.91	36.12	36.02	39.70	39.55	43.33	43.27
19	36.59	36.53	33.42	33.38	35.00	34.95	36.23	36.13	39.83	39.71	43.40	43.33
20	36.53	36.48	33.47	33.41	35.03	35.00	36.31	36.23	40.01	39.83	43.49	43.40
21	36.48	36.43	33.61	33.47	35.07	35.03	36.36	36.31	40.19	40.02	43.61	43.49
22	36.43	36.41	33.81	33.61	35.12	35.07	36.42	36.36	40.34	40.19	43.75	43.62
23	36.41	36.41	34.00	33.81	35.17	35.12	36.49	36.42	40.49	40.34	43.87	43.76
24	36.41	36.40	34.16	34.00	35.21	35.17	36.55	36.49	40.64	40.50	43.99	43.87
25	36.40	36.39	34.25	34.16	35.21	35.21	36.64	36.56	40.80	40.65	44.07	43.99
26	36.39	36.37	34.31	34.25	35.22	35.21	36.72	36.64	40.93	40.80	44.14	44.08
27	36.37	36.31	34.35	34.31	35.24	35.22	36.85	36.74	41.08	40.96	44.22	44.14
28	36.31	36.25	34.38	34.35	35.26	35.24	36.97	36.86	41.22	41.09	44.28	44.22
29	36.25	36.20	34.42	34.38	35.28	35.26	37.05	36.97	---	---	44.35	44.28
30	36.19	36.14	34.46	34.42	35.30	35.29	37.13	37.05	---	---	44.41	44.35
31	36.14	36.06	---	---	35.31	35.30	37.25	37.14	---	---	44.44	44.41
MONTH	36.65	36.06	36.05	33.38	35.31	34.46	37.25	35.30	41.22	37.26	44.44	41.22

GROUND-WATER LEVELS
MARYLAND--Continued
GARRETT COUNTY--Continued
GA Fb 24--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	44.47	44.44	45.34	45.33	46.82	46.71	51.13	51.05	54.49	54.44	55.30	55.24
2	44.49	44.48	45.44	45.39	46.94	46.82	51.20	51.13	54.54	54.49	55.35	55.31
3	44.51	44.49	45.50	45.45	47.02	46.95	51.32	51.21	54.57	54.54	55.40	55.36
4	44.52	44.51	45.53	45.50	47.10	47.02	51.46	51.33	54.61	54.57	55.44	55.40
5	44.54	44.52	45.53	45.52	47.23	47.10	51.56	51.46	54.64	54.61	55.49	55.45
6	44.59	44.54	45.53	45.52	47.36	47.24	51.70	51.56	54.66	54.64	55.54	55.50
7	44.63	44.59	45.56	45.53	47.52	47.36	51.85	51.71	54.69	54.66	55.58	55.54
8	44.70	44.63	45.60	45.56	47.67	47.52	51.97	51.85	54.71	54.69	55.65	55.58
9	44.76	44.70	45.62	45.60	47.81	47.67	52.07	51.97	54.74	54.71	55.70	55.65
10	44.79	44.76	45.62	45.62	47.92	47.81	52.20	52.09	54.76	54.74	55.75	55.70
11	44.81	44.79	45.65	45.62	48.03	47.93	52.32	52.20	54.79	54.76	55.82	55.76
12	44.84	44.81	45.70	45.65	48.18	48.03	52.45	52.33	54.81	54.79	55.87	55.82
13	44.84	44.84	45.72	45.70	48.35	48.19	52.59	52.45	54.83	54.81	55.91	55.87
14	44.85	44.84	45.77	45.72	48.50	48.36	52.69	52.60	54.84	54.83	55.94	55.91
15	44.85	44.85	45.81	45.77	48.67	48.51	52.76	52.69	54.88	54.84	55.96	55.94
16	44.85	44.85	45.85	45.82	48.86	48.68	52.83	52.76	54.92	54.88	56.00	55.96
17	44.86	44.85	45.88	45.85	49.04	48.87	52.94	52.83	54.95	54.92	56.06	56.00
18	45.04	44.86	45.94	45.88	49.20	49.05	53.07	52.95	54.98	54.95	56.13	56.07
19	45.04	45.04	45.99	45.94	49.37	49.21	53.21	53.08	55.00	54.98	56.19	56.14
20	45.04	45.04	46.03	45.99	49.54	49.38	53.35	53.22	55.03	55.00	56.26	56.20
21	45.05	45.04	46.09	46.04	49.72	49.54	53.46	53.35	55.05	55.03	56.35	56.27
22	45.05	45.05	46.14	46.09	49.90	49.72	53.58	53.47	55.05	55.05	56.42	56.35
23	45.12	45.05	46.20	46.14	50.05	49.90	53.68	53.59	55.05	55.04	56.48	56.42
24	45.13	45.12	46.29	46.20	50.17	50.05	53.82	53.69	55.04	55.04	56.55	56.48
25	45.13	45.13	46.38	46.29	50.32	50.18	53.95	53.82	55.06	55.04	56.63	56.56
26	45.30	45.13	46.42	46.39	50.47	50.33	54.09	53.96	55.08	55.06	56.71	56.63
27	45.31	45.30	46.47	46.42	50.62	50.47	54.19	54.10	55.10	55.08	56.81	56.71
28	45.31	45.31	46.51	46.47	50.78	50.62	54.29	54.20	55.11	55.10	56.91	56.81
29	45.33	45.31	46.55	46.52	50.94	50.79	54.35	54.29	55.14	55.11	57.00	56.91
30	45.33	45.33	46.62	46.55	51.05	50.94	54.40	54.35	55.18	55.14	57.07	57.00
31	---	---	46.70	46.62	---	---	54.44	54.40	55.24	55.18	---	---
MONTH	45.33	44.44	46.70	45.33	51.05	46.71	54.44	51.05	55.24	54.44	57.07	55.24



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fb 25. SITE ID.--391530079244404. PERMIT NUMBER.--GA-73-2182.

LOCATION.--Lat 39°15'30", long 79°24'44", Hydrologic Unit 02070002, south side of Wilson Rd.,

500 ft west of intersection with Wilson-Coronna Rd., 0.4 mi northwest of Wilson.

Owner: U.S. Geological Survey.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 180 ft; casing diameter 4 in., to 120 ft; open hole

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval from June 4, 1980 to current year.

DATUM.--Elevation of land surface is 2,530 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 3.0 ft above land surface.

REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations.

PERIOD OF RECORD.--June 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.97 ft below land surface, Nov. 4, 1985;

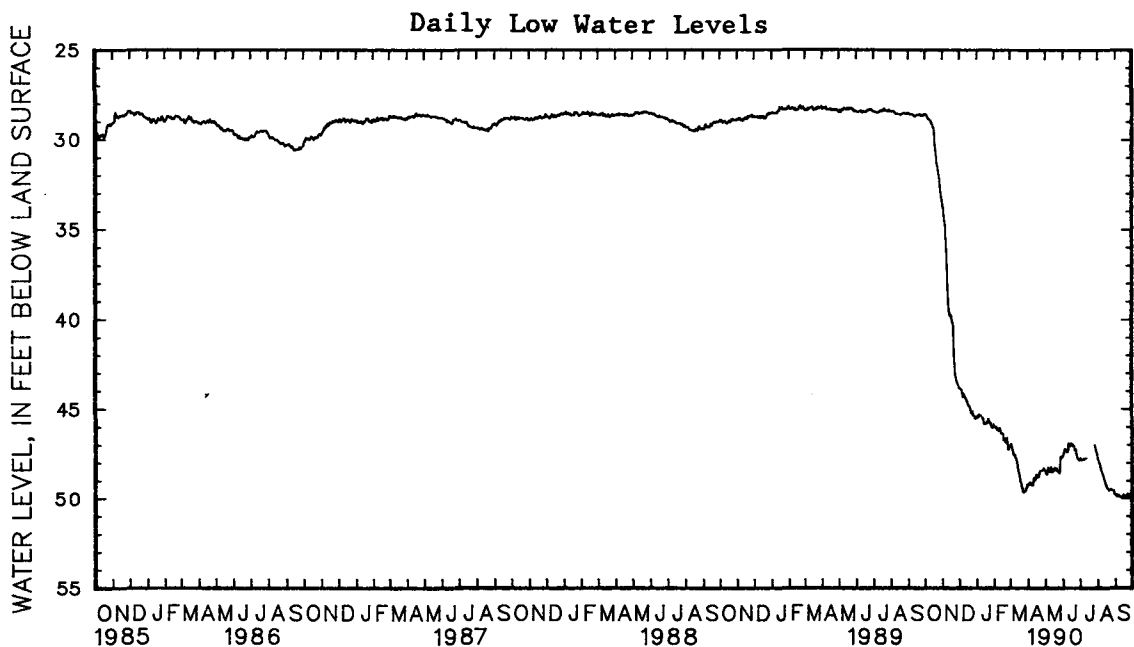
lowest measured, 50.01 ft below land surface, Sept. 17 and 18, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	28.61	28.55	33.74	33.45	43.85	43.74	45.43	45.17	45.99	45.90	47.07	46.96
2	28.58	28.51	33.79	33.73	43.85	43.65	45.46	45.44	46.01	45.85	46.96	46.91
3	28.63	28.58	34.20	33.81	43.89	43.73	45.44	45.40	46.06	45.95	47.06	46.89
4	28.64	28.61	34.50	34.22	43.90	43.83	45.39	45.24	46.01	45.81	47.22	47.06
5	28.72	28.64	34.71	34.51	43.99	43.87	45.32	45.25	46.15	46.02	47.33	47.22
6	28.79	28.72	35.01	34.71	44.09	43.99	45.37	45.21	46.14	46.10	47.53	47.32
7	28.85	28.79	35.61	35.01	44.31	44.10	45.37	45.32	46.20	46.04	47.58	47.51
8	28.86	28.84	36.25	35.63	44.30	44.16	45.37	45.25	46.24	46.16	47.56	47.45
9	28.92	28.87	37.10	36.26	44.17	44.12	45.38	45.29	46.18	46.01	47.59	47.43
10	28.94	28.87	38.27	37.13	44.24	44.13	45.51	45.30	46.06	45.91	47.71	47.59
11	28.96	28.90	38.89	38.28	44.37	44.22	45.50	45.26	46.11	46.06	47.77	47.68
12	29.06	28.94	39.38	38.89	44.38	44.30	45.58	45.31	46.34	46.11	47.88	47.77
13	29.14	29.04	39.60	39.38	44.48	44.31	45.82	45.59	46.34	46.22	48.00	47.88
14	29.18	29.11	39.79	39.60	44.56	44.45	45.82	45.78	46.39	46.27	48.20	48.00
15	29.31	29.17	39.82	39.78	44.56	44.35	45.84	45.76	46.39	46.31	48.44	48.21
16	29.37	29.30	39.78	39.59	44.74	44.56	45.85	45.80	46.42	46.31	48.56	48.45
17	29.50	29.31	39.94	39.74	44.76	44.74	45.81	45.63	46.74	46.44	48.70	48.53
18	29.76	29.52	40.13	39.94	44.84	44.77	45.73	45.57	46.74	46.59	48.98	48.70
19	30.34	29.76	40.17	40.08	44.84	44.74	45.78	45.71	46.65	46.53	49.08	48.97
20	30.63	30.36	40.38	40.09	44.92	44.79	45.69	45.48	46.85	46.66	49.21	49.06
21	30.96	30.64	41.64	40.39	45.05	44.89	45.57	45.41	46.83	46.78	49.39	49.22
22	31.33	30.98	42.35	41.65	45.21	45.07	45.68	45.55	46.78	46.50	49.42	49.35
23	31.50	31.34	42.87	42.35	45.25	45.20	45.76	45.67	46.63	46.50	49.64	49.37
24	31.69	31.50	43.16	42.87	45.23	45.15	45.82	45.65	46.93	46.64	49.64	49.57
25	31.92	31.69	43.25	43.16	45.15	45.06	45.81	45.62	47.25	46.95	49.64	49.57
26	32.12	31.92	43.46	43.22	45.37	45.06	45.98	45.72	47.25	47.13	49.61	49.52
27	32.49	32.13	43.48	43.41	45.37	45.25	46.03	45.95	47.15	46.98	49.57	49.47
28	32.88	32.50	43.57	43.33	45.54	45.31	46.06	45.98	47.05	47.00	49.52	49.39
29	33.09	32.89	43.68	43.58	45.55	45.49	46.02	45.58	---	---	49.42	49.32
30	33.26	33.10	43.75	43.61	45.53	45.47	45.86	45.68	---	---	49.34	49.21
31	33.44	33.26	---	---	45.53	45.17	45.99	45.87	---	---	49.21	49.19
MONTH	33.44	28.51	43.75	33.45	45.55	43.65	46.06	45.17	47.25	45.81	49.64	46.89

GROUND-WATER LEVELS
MARYLAND--Continued
GARRETT COUNTY--Continued
GA Fb 25--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	49.23	49.19	48.52	48.43	47.56	47.46	47.75	47.71	47.81	47.66	49.81	49.76
2	49.19	49.12	48.62	48.52	47.45	47.27	47.81	47.74	47.89	47.81	49.79	49.75
3	49.13	49.10	48.65	48.59	47.26	47.11	47.86	47.81	47.97	47.88	49.87	49.78
4	49.09	49.03	48.62	48.29	47.22	47.08	47.84	47.81	48.04	47.97	49.88	49.80
5	49.19	49.07	48.28	48.20	47.30	47.22	47.82	47.70	48.19	48.04	49.82	49.77
6	49.21	49.13	48.40	48.29	47.28	47.21	47.79	47.68	48.32	48.21	49.81	49.78
7	49.21	49.10	48.48	48.41	47.39	47.25	47.83	47.78	48.45	48.33	49.85	49.75
8	49.27	49.20	48.50	48.42	47.40	47.34	47.80	47.74	48.53	48.46	49.90	49.86
9	49.25	49.06	48.44	48.29	47.38	45.63	47.78	47.74	48.60	48.54	49.90	49.84
10	49.05	48.72	48.27	48.12	46.93	46.40	47.76	47.74	48.71	48.63	49.93	49.88
11	48.85	48.72	48.49	48.25	47.05	46.94	47.75	47.73	48.87	48.71	49.95	49.92
12	48.96	48.86	48.52	48.36	47.09	47.03	---	---	48.97	48.88	49.92	49.88
13	48.97	48.85	48.37	48.29	47.03	46.93	---	---	49.03	48.98	49.89	49.84
14	48.85	48.69	48.48	48.39	46.94	46.85	---	---	49.16	49.03	49.85	49.69
15	48.68	48.63	48.43	48.40	46.92	46.84	---	---	49.24	49.16	49.80	49.68
16	48.67	48.60	48.40	48.27	47.01	46.92	---	---	49.31	49.24	49.90	49.77
17	48.69	48.55	48.29	48.17	47.03	46.99	---	---	49.39	49.33	50.01	49.90
18	48.80	48.70	48.36	48.28	47.00	46.82	---	---	49.43	49.39	50.01	49.87
19	48.79	48.69	48.40	48.34	47.06	46.94	---	---	49.44	49.43	49.87	49.72
20	48.67	48.53	48.33	48.26	47.11	47.05	---	---	49.51	49.44	49.87	49.81
21	48.51	48.39	48.40	48.26	47.27	47.11	---	---	49.55	49.51	49.89	49.75
22	48.45	48.38	48.45	48.38	47.28	47.17	---	---	49.54	49.53	49.75	49.65
23	48.45	48.37	48.49	48.43	47.27	47.18	---	---	49.53	49.48	49.81	49.71
24	48.45	48.37	48.54	48.45	47.49	47.28	---	---	49.49	49.47	49.84	49.81
25	48.45	48.36	48.57	48.49	47.70	47.51	---	---	49.53	49.50	49.82	49.72
26	48.41	48.33	48.48	45.62	47.70	47.68	47.00	46.90	49.55	49.54	49.78	49.70
27	48.38	48.28	47.67	47.25	47.78	47.69	47.14	47.02	49.56	49.54	49.83	49.78
28	48.31	48.29	47.74	47.67	47.83	47.78	47.25	47.15	49.56	49.52	49.84	49.81
29	48.37	48.29	47.67	47.59	47.86	47.77	47.38	47.26	49.56	49.52	49.82	49.78
30	48.43	48.38	47.68	47.61	47.79	47.75	47.47	47.39	49.73	49.56	49.81	49.75
31	---	---	47.67	47.56	---	---	47.65	47.47	49.79	49.75	---	---
MONTH	49.27	48.28	48.65	45.62	47.86	45.63	47.86	46.90	49.79	47.66	50.01	49.65



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fb 26. SITE ID.--391513079243601. PERMIT NUMBER.--GA-73-2179.
 LOCATION.--Lat 39°15'13", long 79°24'36", Hydrologic Unit 02070002, 0.6 mi west of Wilson.
 Owner: U.S. Geological Survey.

AQUIFER.--Allegheny Formation of Middle Pennsylvanian age. Aquifer code: 324ALGN.
 WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 832 ft; steel casing diameter 4 in., to 218 ft; plastic casing diameter 4 in. from 218 to 687 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute interval; July 1980 to October 1984.

DATUM.--Elevation of land surface is 2,760 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 2.1 ft above land surface.

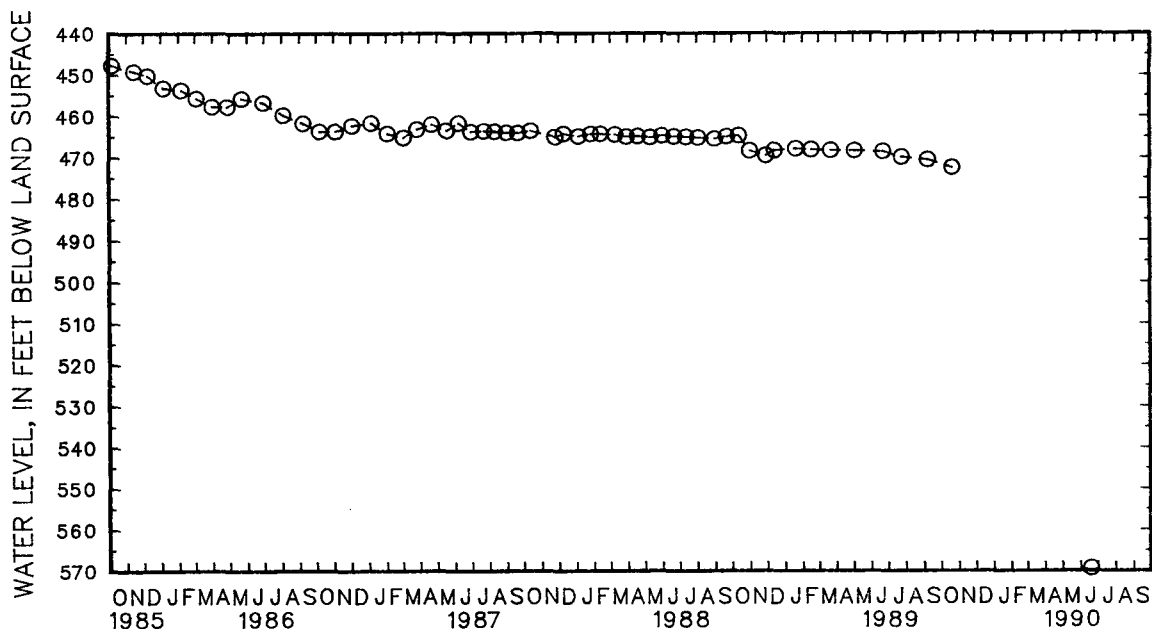
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations. Well collapsed due to underground mining, no water level measurements after June 26, 1990.

PERIOD OF RECORD.--October 1983 to June 1990.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 257.06 ft below land surface, June 11, 1980; lowest measured, 569.40 ft below land surface, June 19, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 20	472.70	JUN 19	569.40



5 YEAR HYDROGRAPH
 OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fb 27. SITE ID.--391530079244404. PERMIT NUMBER.--GA-73-2182.

LOCATION.--Lat 39°15'13" long 79°24'44", Hydrologic Unit 02070002, 0.6 mi west of Wilson.

Owner: U.S. Geological Survey.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 656 ft; casing diameter 4 in., to 117 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval from June 11, 1980 to July 26, 1990.

DATUM.--Elevation of land surface is 2,760 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 3.0 ft above land surface datum.

REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well.

PERIOD OF RECORD.--June 1980 to current year.

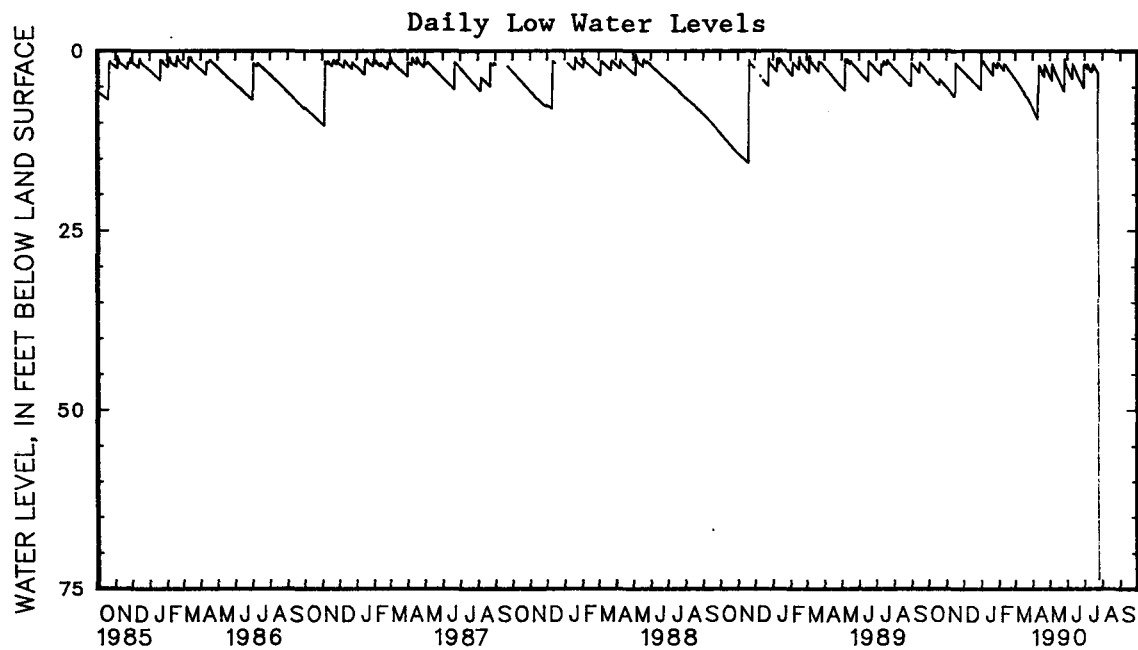
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, .32 ft below land surface, March 6, 1989; lowest measured, 263.93 ft below land surface, Sept. 4, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	3.29	3.19	5.16	5.07	2.98	2.90	.95	.49	1.85	1.73	4.00	3.89
2	3.38	3.29	5.25	5.16	3.07	2.98	1.64	.97	1.96	1.85	4.11	4.00
3	3.47	3.39	5.35	5.26	3.16	3.08	1.74	1.65	2.07	1.97	4.23	4.11
4	3.55	3.47	5.45	5.36	3.25	3.16	1.79	1.56	2.19	2.08	4.34	4.23
5	3.63	3.55	5.54	5.46	3.33	3.25	1.52	1.21	2.31	2.20	4.45	4.34
6	3.71	3.63	5.64	5.55	3.41	3.33	1.74	1.53	2.43	2.32	4.57	4.45
7	3.81	3.72	5.73	5.65	3.50	3.42	1.86	1.75	2.56	2.44	4.68	4.57
8	3.90	3.81	5.81	5.73	3.58	3.50	1.98	1.87	2.67	2.56	4.80	4.68
9	3.99	3.91	5.90	5.81	3.66	3.59	2.08	1.99	2.77	1.97	4.93	4.80
10	4.09	4.00	5.99	5.90	3.74	3.67	2.20	2.09	1.97	1.51	5.06	4.93
11	4.18	4.09	6.08	5.99	3.83	3.75	2.32	2.20	1.92	1.81	5.18	5.06
12	4.27	4.18	6.17	6.08	3.91	3.83	2.43	2.32	2.03	1.92	5.32	5.18
13	4.37	4.27	6.27	6.17	3.98	3.91	2.56	2.44	2.14	2.03	5.48	5.32
14	4.46	4.37	6.37	6.27	4.06	3.98	2.68	2.57	2.26	2.15	5.59	5.48
15	4.55	4.47	6.47	6.37	4.14	4.06	2.79	2.68	2.38	2.27	5.70	5.59
16	4.64	4.56	6.47	1.34	4.19	4.14	2.90	2.79	2.49	2.38	5.81	5.70
17	4.74	4.65	1.78	1.69	4.32	4.19	3.00	2.90	2.62	2.50	5.94	5.81
18	4.84	4.75	1.87	1.78	4.39	4.32	3.11	3.01	2.74	2.63	6.08	5.94
19	4.84	3.90	1.96	1.87	4.48	4.39	3.24	3.12	2.85	2.75	6.22	6.08
20	4.07	3.98	2.04	1.96	4.57	4.48	3.35	3.24	2.97	2.86	6.36	6.22
21	4.17	4.08	2.14	2.04	4.66	4.57	3.43	1.46	3.08	2.98	6.46	6.36
22	4.26	4.17	2.23	2.14	4.73	4.67	1.71	1.46	3.19	3.09	6.50	6.46
23	4.35	4.26	2.33	2.23	4.82	4.73	1.82	1.71	3.32	3.20	6.58	6.51
24	4.44	4.35	2.43	2.33	4.91	4.83	1.93	1.83	3.44	3.32	6.72	6.59
25	4.53	4.44	2.51	2.43	4.95	4.91	2.05	1.94	3.55	3.44	6.85	6.73
26	4.62	4.53	2.59	2.51	5.09	4.95	2.17	2.06	3.68	3.56	6.99	6.85
27	4.71	4.62	2.67	2.59	5.17	5.09	2.27	2.17	3.79	3.68	7.14	7.00
28	4.80	4.71	2.74	2.67	5.26	5.18	2.40	2.28	3.89	3.79	7.29	7.15
29	4.88	4.80	2.82	2.74	5.36	5.26	2.46	.96	---	---	7.45	7.29
30	4.97	4.89	2.90	2.82	5.45	5.36	1.69	1.24	---	---	7.61	7.46
31	5.07	4.98	---	---	5.48	.50	1.73	1.31	---	---	7.77	7.61
MONTH	5.07	3.19	6.47	1.34	5.48	.50	3.43	.49	3.89	1.51	7.77	3.89

GROUND-WATER LEVELS
MARYLAND--Continued
GARRETT COUNTY--Continued
GA Fb 27--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
APRIL			MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.93	7.78	3.68	3.50	2.51	2.33	1.95	1.28	---	---	---	---
2	8.11	7.93	3.85	3.68	2.71	2.52	2.07	1.90	---	---	---	---
3	8.31	8.12	4.02	3.86	2.90	2.71	2.24	2.08	---	---	---	---
4	8.50	8.31	4.17	1.44	3.08	2.90	2.43	2.25	---	---	---	---
5	8.69	8.51	1.90	1.70	3.27	3.09	2.55	1.49	---	---	---	---
6	8.87	8.70	2.11	1.91	3.46	3.27	1.98	1.81	---	---	---	---
7	9.05	8.88	2.31	2.12	3.65	3.47	2.14	1.98	---	---	---	---
8	9.23	9.06	2.51	2.32	3.82	3.65	2.32	2.15	---	---	---	---
9	9.42	9.24	2.71	2.52	3.95	.53	2.50	2.33	---	---	---	---
10	9.61	9.38	2.92	2.72	1.88	1.72	2.67	2.51	---	---	---	---
11	5.31	1.61	3.10	2.92	2.06	1.88	2.83	2.68	---	---	---	---
12	2.07	1.89	3.28	3.11	2.25	2.07	2.98	2.83	---	---	---	---
13	2.26	2.07	3.48	3.29	2.44	2.25	3.02	2.34	---	---	---	---
14	2.45	2.27	3.66	3.48	2.62	2.45	2.60	2.45	---	---	---	---
15	2.65	2.46	3.83	3.66	2.81	2.63	2.70	1.68	---	---	---	---
16	2.84	2.66	4.01	3.83	2.98	2.81	1.97	1.82	---	---	---	---
17	3.02	2.85	4.19	4.01	3.17	2.99	2.12	1.98	---	---	---	---
18	3.20	3.03	4.37	4.19	3.36	3.18	2.28	2.13	---	---	---	---
19	3.39	3.21	4.56	4.37	3.54	3.36	2.44	2.29	---	---	---	---
20	3.57	3.40	4.74	4.56	3.72	3.55	2.60	2.45	---	---	---	---
21	3.64	1.54	4.92	4.74	3.89	3.73	2.75	2.60	---	---	---	---
22	1.98	1.77	5.10	4.92	4.06	3.89	2.89	2.76	---	---	---	---
23	2.15	1.98	5.28	5.10	4.23	4.07	3.03	2.90	---	---	---	---
24	2.34	2.15	5.46	5.28	4.42	4.24	3.17	3.04	---	---	---	---
25	2.53	2.34	5.65	5.47	4.60	4.43	24.06	3.18	---	---	---	---
26	2.71	2.53	5.69	.57	4.77	4.61	73.65	26.79	---	---	---	---
27	2.91	2.71	1.19	.63	4.94	4.78	---	---	---	---	---	---
28	3.13	2.91	1.74	1.21	5.10	4.94	---	---	---	---	---	---
29	3.32	3.13	1.93	1.75	5.26	1.62	---	---	---	---	---	---
30	3.50	3.32	2.12	1.94	1.93	1.76	---	---	---	---	---	---
31	---	---	2.32	2.13	---	---	---	---	---	---	---	---
MONTH	9.61	1.54	5.69	.57	5.26	.53	73.65	1.28	---	---	---	---



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fb 28. SITE ID.--391513079243603. PERMIT NUMBER.--GA-73-2183.
 LOCATION.--Lat 39°15'13", long 79°24'36", Hydrologic Unit 02070002, 0.6 mi west of Wilson.

Owner: U.S. Geological Survey.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 556 ft; steel casing diameter 4 in., to 57.5 ft; plastic casing diameter 4 in. from 57.5 to 516.5 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval from July 21, 1980 to February 1984.

DATUM.--Elevation of land surface is 2,760 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 2.95 ft above land surface.

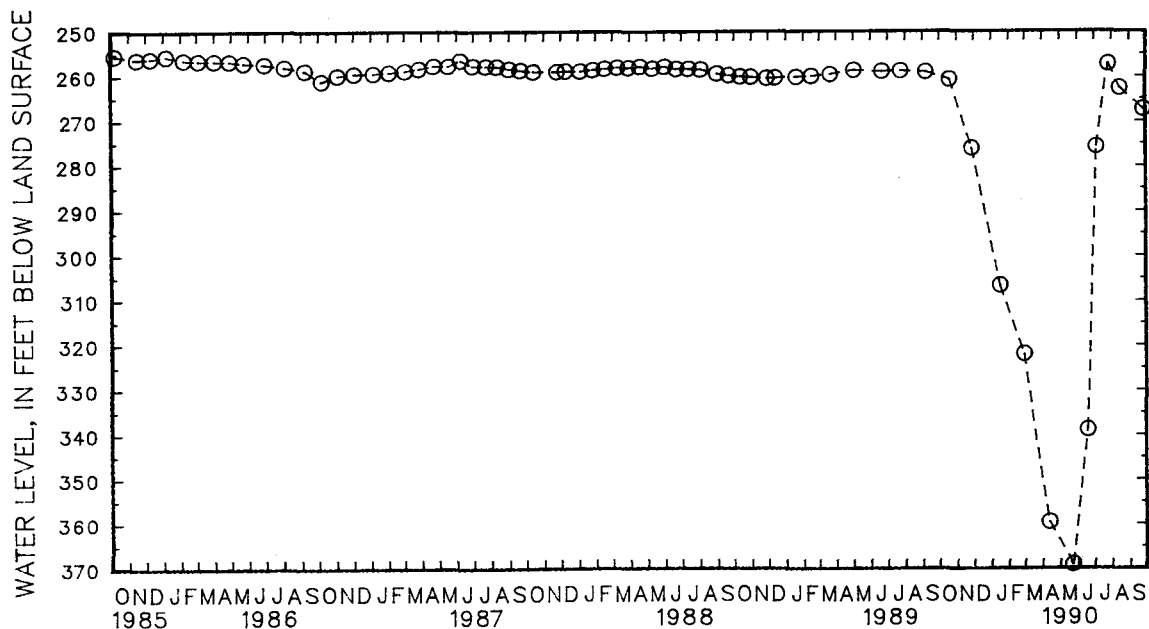
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations.

PERIOD OF RECORD.--April 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 214.20 ft below land surface, July 21, 1980; lowest measured, 369.08 ft below land surface, May 23, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 20	260.82	JAN 17	306.77	APR 12	359.61	JUN 19	338.84	JUL 26	257.34	SEP 26	267.42
NOV 28	276.18	FEB 28	322.11	MAY 23	369.08	JUL 5	275.80	AUG 16	262.67		



5 YEAR HYDROGRAPH
 OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

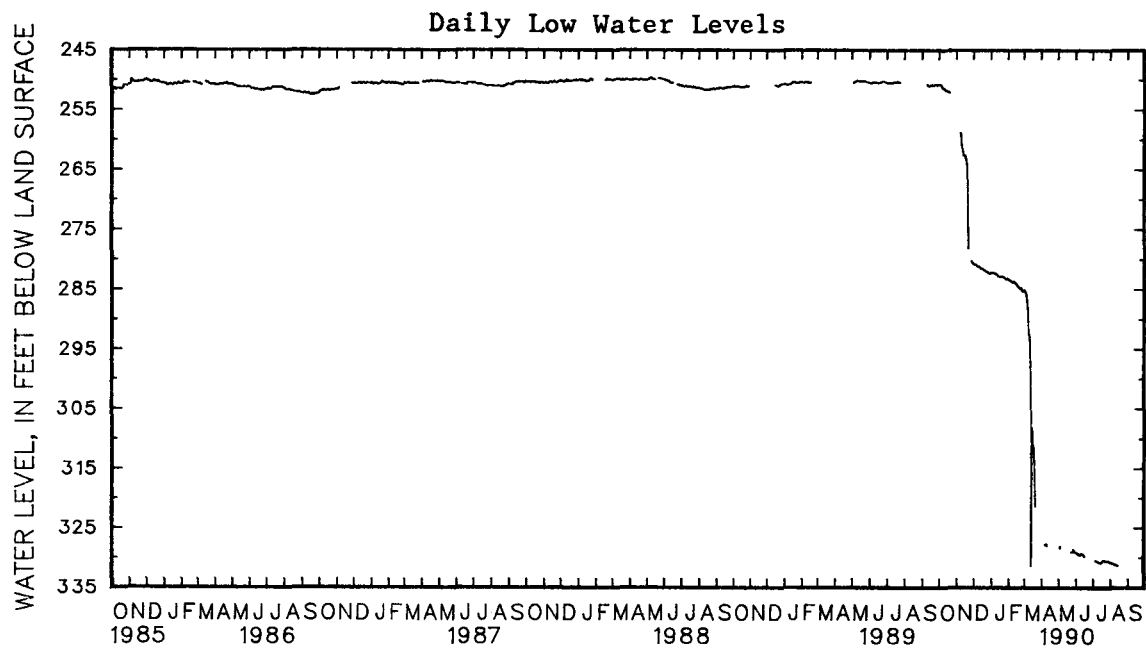
WELL NUMBER.--GA Fb 29 SITE ID.--391513079243604. PERMIT NUMBER.--GA-73-2184.
 LOCATION.--Lat 39°15'13", long 79°24'36", Hydrologic Unit 02070002, 0.6 mi west of Wilson.
 Owner: U.S. Geological Survey.
 AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.
 WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 360 ft; casing diameter 4 in., to 316 ft;
 open hole.
 INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital
 water-level recorder--60-minute recorder interval.
 DATUM.--Elevation of land surface is 2,760 ft above National Geodetic Vertical Datum of 1929, from topographic map.
 Measuring Point: Top of shelter floor, 2.0 ft above land surface.
 REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well.
 PERIOD OF RECORD.--July 1980 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 249.73 ft below land surface, March 27, 1988;
 lowest measured, 331.39 ft below land surface, March 14, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	250.84	250.82	---	---	280.91	280.82	282.24	282.09	283.46	283.44	285.21	285.16
2	250.82	250.80	---	---	280.92	280.83	282.31	282.24	283.52	283.46	285.43	285.17
3	250.81	250.80	---	---	280.94	280.83	282.34	282.32	283.59	283.52	285.52	285.43
4	250.85	250.84	---	---	280.97	280.94	282.34	282.30	283.59	283.51	285.76	285.52
5	251.10	250.85	---	---	281.05	280.97	282.31	282.30	283.76	283.59	286.42	285.76
6	251.26	251.10	---	---	281.14	281.05	282.38	282.30	283.78	283.73	287.17	286.39
7	251.36	251.28	---	---	281.27	281.14	282.42	282.38	283.90	283.69	288.13	287.18
8	251.40	251.36	258.90	257.26	281.27	281.25	282.46	282.40	283.92	283.87	289.09	288.13
9	251.52	251.40	260.07	258.93	281.24	281.22	282.46	282.45	283.92	283.83	292.22	289.00
10	251.52	251.51	261.11	260.06	281.33	281.23	282.58	282.44	283.82	283.68	292.65	292.23
11	251.57	251.52	261.64	261.11	281.43	281.29	282.58	282.48	283.90	283.80	292.95	292.65
12	251.72	251.57	262.10	261.65	281.45	281.37	282.68	282.48	284.07	283.91	295.71	292.95
13	251.78	251.72	262.67	262.06	281.61	281.42	282.88	282.68	284.10	284.06	299.70	295.94
14	251.81	251.78	262.69	262.58	281.64	281.57	282.89	282.88	284.17	284.11	331.39	299.98
15	251.85	251.81	262.73	262.55	281.65	281.55	282.93	282.89	284.22	284.19	308.16	305.84
16	251.87	251.86	262.70	262.19	281.73	281.64	282.97	282.93	284.34	284.24	310.72	308.24
17	251.89	251.86	263.10	262.70	281.75	281.74	282.97	282.94	284.57	284.34	311.03	310.74
18	251.98	251.93	263.54	263.10	281.82	281.75	282.94	282.91	284.56	284.53	311.52	311.03
19	252.03	251.98	264.17	263.51	281.82	281.82	282.95	282.91	284.66	284.53	313.51	311.52
20	---	---	266.92	264.21	281.92	281.82	282.95	282.87	284.88	284.66	316.98	313.61
21	---	---	274.43	267.02	282.02	281.92	282.91	282.83	284.95	284.88	321.25	317.13
22	---	---	278.22	274.79	282.13	282.02	283.03	282.91	284.89	284.72	---	---
23	---	---	---	---	282.19	282.13	283.06	283.03	284.89	284.73	---	---
24	---	---	---	---	282.19	282.17	283.17	283.01	285.10	284.85	---	---
25	---	---	---	---	282.18	282.16	283.18	283.09	285.38	285.10	---	---
26	---	---	280.32	280.09	282.35	282.14	283.35	283.12	285.42	285.30	---	---
27	---	---	280.40	280.32	282.35	282.22	283.41	283.34	285.36	285.21	---	---
28	---	---	280.63	280.40	282.46	282.24	283.44	283.40	285.32	285.15	---	---
29	---	---	280.75	280.64	282.46	282.45	283.44	283.16	---	---	---	---
30	---	---	280.82	280.73	282.45	282.45	283.30	283.22	---	---	---	---
31	---	---	---	---	282.45	282.23	283.44	283.30	---	---	---	---
MONTH	251.98	250.80	280.82	257.26	282.46	280.82	283.44	282.09	285.42	283.44	331.39	285.16

GROUND-WATER LEVELS
MARYLAND--Continued
GARRETT COUNTY--Continued
GA Fb 29--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	329.14	329.05	---	---	330.72	330.66	---	---
2	---	---	---	---	329.14	329.14	---	---	330.73	330.72	---	---
3	---	---	---	---	329.14	329.14	---	---	330.75	330.73	---	---
4	---	---	328.34	328.03	329.22	329.14	---	---	330.75	330.75	---	---
5	---	---	328.12	327.99	329.35	329.22	---	---	330.84	330.75	---	---
6	---	---	---	---	329.35	329.35	330.47	330.33	330.90	330.84	---	---
7	---	---	---	---	329.53	329.35	330.48	330.48	330.94	330.90	---	---
8	327.77	327.69	---	---	329.53	329.42	330.48	330.45	330.95	330.94	---	---
9	327.78	327.67	---	---	329.43	329.30	330.57	330.45	330.96	330.95	---	---
10	327.66	327.45	---	---	329.29	329.22	330.66	330.57	331.01	330.96	---	---
11	327.94	327.46	---	---	329.27	329.21	330.67	330.66	331.09	331.01	---	---
12	---	---	---	---	329.36	329.27	330.71	330.67	331.11	331.09	---	---
13	---	---	---	---	329.36	329.36	330.79	330.73	331.11	331.11	---	---
14	---	---	---	---	329.43	329.36	330.77	330.68	331.15	331.12	---	---
15	---	---	---	---	329.62	329.43	330.74	330.67	331.18	331.15	---	---
16	---	---	---	---	329.72	329.63	330.85	330.75	---	---	---	---
17	---	---	---	---	---	---	330.81	330.69	---	---	---	---
18	---	---	---	---	---	---	330.69	330.59	---	---	---	---
19	---	---	---	---	---	---	330.59	330.34	---	---	---	---
20	---	---	---	---	---	---	330.37	330.33	---	---	---	---
21	---	---	---	---	---	---	330.44	330.37	---	---	---	---
22	---	---	---	---	---	---	330.44	330.42	---	---	---	---
23	---	---	---	---	---	---	330.44	330.42	---	---	---	---
24	---	---	329.01	328.95	---	---	330.51	330.45	---	---	---	---
25	---	---	329.03	329.00	---	---	330.53	330.51	---	---	---	---
26	---	---	328.98	328.60	---	---	330.52	330.52	---	---	---	---
27	---	---	328.61	328.60	---	---	330.52	330.52	---	---	---	---
28	---	---	328.61	328.61	---	---	330.52	330.52	---	---	---	---
29	---	---	328.79	328.61	---	---	330.53	330.53	---	---	---	---
30	---	---	328.99	328.83	---	---	330.53	330.53	---	---	---	---
31	---	---	329.05	328.99	---	---	330.66	330.53	---	---	---	---
MONTH	327.94	327.45	329.05	327.99	329.72	329.05	330.85	330.33	331.18	330.66	---	---



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

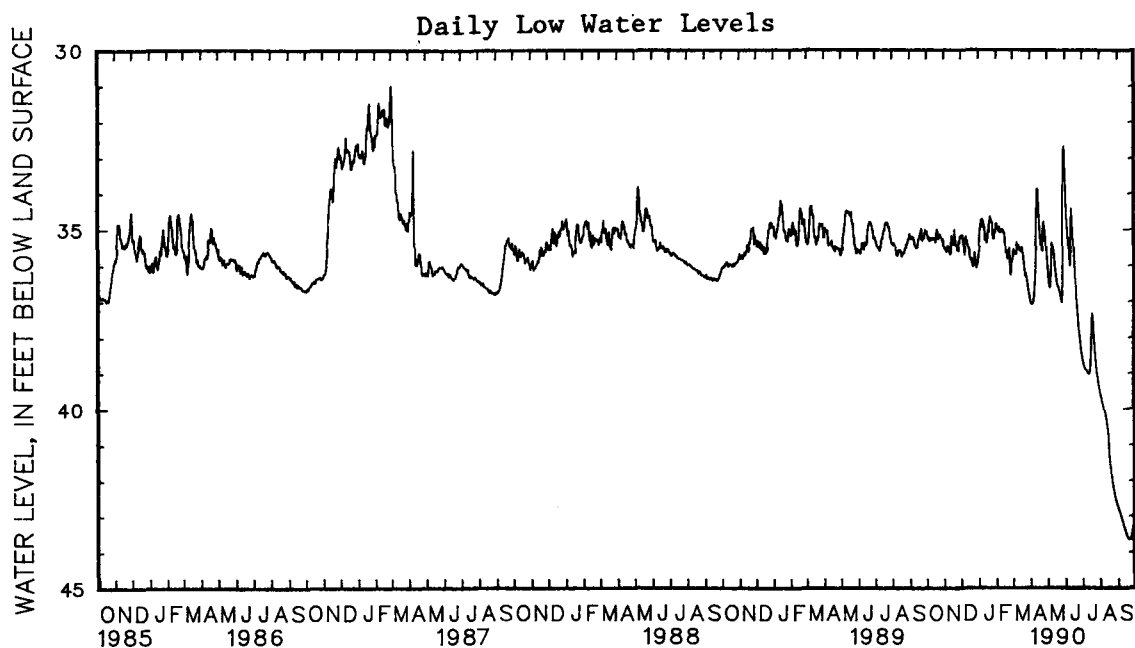
WELL NUMBER.--GA Fb 30. SITE ID.--391513079243605. PERMIT NUMBER.--GA-73-2185.
 LOCATION.--Lat 39°15'13", long 79°24'36", Hydrologic Unit 02070002, 0.6 mi west of Wilson.
 Owner: U.S. Geological Survey.
 AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.
 WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 85 ft; casing diameter 4 in., to 82 ft; open hole.
 INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval.
 DATUM.--Elevation of land surface is 2,760 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring Point: Top of shelter floor, 2.0 ft above land surface.
 REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations.
 PERIOD OF RECORD.--June 1980 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.58 ft below land surface, April 16, 1981; lowest measured, 43.67 ft below land surface, Sept. 22 and 23, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	35.07	34.98	35.53	35.31	35.25	35.17	35.66	35.57	34.86	34.67	35.79	35.57
2	35.07	34.93	35.50	35.36	35.18	34.83	35.57	35.19	34.86	34.60	35.57	35.45
3	35.19	35.07	35.55	35.33	35.20	34.96	35.17	35.00	34.97	34.79	35.63	35.43
4	35.25	35.19	35.59	35.49	35.18	35.02	34.98	34.82	34.97	34.62	35.70	35.63
5	35.30	35.19	35.64	35.51	35.30	35.06	34.95	34.68	35.06	34.96	35.68	35.54
6	35.24	35.16	35.57	35.47	35.51	35.27	34.75	34.64	34.95	34.83	35.67	35.53
7	35.34	35.25	35.58	35.37	35.72	35.53	34.73	34.58	35.05	34.78	35.70	35.56
8	35.27	35.15	35.49	35.35	35.59	35.25	34.72	34.55	35.10	35.00	35.56	35.33
9	35.31	35.25	35.49	35.31	35.25	35.11	34.77	34.61	35.02	34.87	35.38	35.27
10	35.27	35.09	35.66	35.38	35.21	35.12	34.96	34.64	35.01	34.81	35.50	35.38
11	35.28	35.16	35.64	35.46	35.34	35.18	34.89	34.58	35.01	34.83	35.45	35.39
12	35.25	35.17	35.71	35.50	35.33	35.25	35.05	34.70	35.08	34.87	35.45	35.36
13	35.29	35.22	35.67	35.41	35.44	35.25	35.33	35.06	35.04	34.87	35.58	35.43
14	35.25	35.19	35.41	35.21	35.54	35.42	35.30	35.16	35.11	34.94	35.57	35.49
15	35.30	35.23	35.20	34.96	35.55	35.18	35.32	35.16	35.10	34.98	35.62	35.54
16	35.32	35.25	35.22	34.82	35.78	35.54	35.39	35.27	35.24	35.01	35.55	35.43
17	35.29	35.21	35.34	35.22	35.80	35.74	35.25	34.96	35.67	35.25	35.51	35.35
18	35.38	35.21	35.44	35.21	35.86	35.77	35.05	34.91	35.64	35.41	35.65	35.49
19	35.19	35.03	35.45	35.03	35.82	35.61	35.09	34.87	35.61	35.37	35.71	35.55
20	35.02	34.94	35.03	34.77	35.84	35.72	34.84	34.56	35.83	35.63	35.89	35.70
21	35.07	34.87	35.31	34.96	35.99	35.76	34.65	34.49	35.82	35.70	35.99	35.88
22	35.29	35.06	35.33	35.19	36.05	35.99	34.70	34.56	35.69	35.33	36.20	35.96
23	35.28	35.16	35.47	35.18	36.00	35.87	34.78	34.58	35.54	35.36	36.31	36.21
24	35.19	35.11	35.59	35.47	35.84	35.68	34.81	34.58	36.01	35.56	36.24	36.19
25	35.16	35.10	35.53	35.39	35.66	35.54	34.82	34.60	36.28	36.05	36.32	36.24
26	35.18	35.11	35.61	35.35	36.00	35.56	35.17	34.81	36.28	35.95	36.43	36.32
27	35.23	35.17	35.61	35.22	36.00	35.80	35.26	35.11	35.93	35.79	36.53	36.43
28	35.26	35.19	35.36	35.13	36.08	35.87	35.28	35.14	35.85	35.76	36.65	36.54
29	35.30	35.25	35.40	35.23	36.02	35.87	35.14	34.74	---	---	36.75	36.65
30	35.35	35.29	35.21	35.12	35.95	35.86	35.11	34.96	---	---	36.83	36.75
31	35.30	35.14	---	---	35.83	35.56	35.03	34.89	---	---	36.93	36.83
MONTH	35.38	34.87	35.71	34.77	36.08	34.83	35.66	34.49	36.28	34.60	36.93	35.27

GROUND-WATER LEVELS
MARYLAND--Continued
GARRETT COUNTY--Continued
GA Fb 30--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	37.01	36.93	36.03	35.81	33.37	32.83	38.56	38.44	39.47	39.40	42.73	42.70
2	37.06	37.00	36.25	36.04	33.93	33.40	38.65	38.56	39.57	39.51	42.78	42.73
3	37.09	37.05	36.46	36.26	34.38	33.94	38.72	38.65	39.64	39.58	42.84	42.79
4	37.09	37.07	36.60	36.44	34.74	34.38	38.80	38.72	39.71	39.64	42.89	42.84
5	37.09	37.04	36.63	36.54	34.97	34.74	38.84	38.80	39.80	39.72	42.93	42.89
6	37.04	36.93	36.58	36.10	35.22	34.98	38.89	38.84	39.86	39.80	42.98	42.93
7	36.93	36.78	36.09	35.65	35.53	35.24	38.91	38.89	39.94	39.87	43.03	42.98
8	36.76	36.52	35.63	35.37	35.82	35.54	38.94	38.91	40.01	39.94	43.07	43.04
9	36.50	36.07	35.37	35.29	36.01	35.79	38.95	38.94	40.09	40.02	43.13	43.07
10	36.05	35.47	35.42	35.28	35.95	35.09	38.97	38.95	40.17	40.10	43.18	43.13
11	35.47	34.68	35.58	35.40	35.04	34.34	39.00	38.96	40.27	40.18	43.24	43.18
12	34.63	33.91	35.69	35.58	34.41	34.30	39.03	38.99	40.36	40.27	43.30	43.24
13	33.88	33.64	35.89	35.69	34.65	34.41	39.04	39.04	40.47	40.37	43.34	43.30
14	33.87	33.68	36.03	35.90	34.94	34.66	39.04	38.97	40.58	40.48	43.40	43.34
15	34.24	33.87	36.17	36.03	35.26	34.95	38.97	38.79	40.72	40.59	43.45	43.40
16	34.52	34.25	36.33	36.17	35.55	35.26	38.78	38.36	40.98	40.73	43.50	43.45
17	34.83	34.53	36.43	36.30	35.87	35.56	38.31	37.59	41.29	40.99	43.56	43.50
18	35.02	34.84	36.54	36.43	36.16	35.88	37.57	37.31	41.46	41.30	43.58	43.56
19	35.21	35.02	36.59	36.54	36.47	36.17	37.35	37.29	41.61	41.47	43.61	43.58
20	35.39	35.22	36.63	36.59	36.73	36.48	37.56	37.36	41.74	41.61	43.64	43.61
21	35.57	35.40	36.69	36.63	36.98	36.74	37.82	37.57	41.85	41.74	43.65	43.65
22	35.60	35.37	36.75	36.68	37.18	36.98	38.03	37.83	41.96	41.85	43.67	43.65
23	35.35	34.95	36.82	36.75	37.39	37.19	38.26	38.03	42.09	41.96	43.67	43.65
24	34.92	34.74	36.92	36.82	37.58	37.40	38.46	38.27	42.19	42.09	43.65	43.59
25	34.80	34.75	37.00	36.93	37.75	37.59	38.68	38.47	42.28	42.20	43.59	43.52
26	34.95	34.81	37.04	36.55	37.89	37.76	38.86	38.68	42.35	42.28	43.51	43.43
27	35.11	34.96	36.52	34.44	38.05	37.90	39.02	38.86	42.43	42.36	43.42	43.32
28	35.32	35.13	34.34	33.03	38.18	38.06	39.11	39.02	42.51	42.43	43.32	43.26
29	35.56	35.32	32.99	32.69	38.32	38.19	39.20	39.11	42.57	42.51	43.25	43.21
30	35.80	35.57	32.67	32.49	38.45	38.33	39.29	39.21	42.63	42.57	43.21	43.17
31	---	---	32.82	32.52	---	---	39.38	39.30	42.70	42.63	---	---
MONTH	37.09	33.64	37.04	32.49	38.45	32.83	39.38	37.29	42.70	39.40	43.67	42.70



GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fb 36. SITE ID.--391715079223102. PERMIT NUMBER.--GA-81-1343.

LOCATION.--Lat 39°17'15", long 79°22'31", Hydrologic Unit 02070002, east side of Wilson-Coronna Rd., 0.6 mi. southwest of intersection with U.S. Route 50, 0.6 mi. southwest of Ft. Pendleton.

Owner: Mettiki Coal Corp.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 631 ft; casing diameter 6 in., to 631 ft; perforated casing from 620 to 631 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval.

DATUM.--Elevation of land surface is 2,565 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring Point: Top of casing, 2.6 ft above land surface.

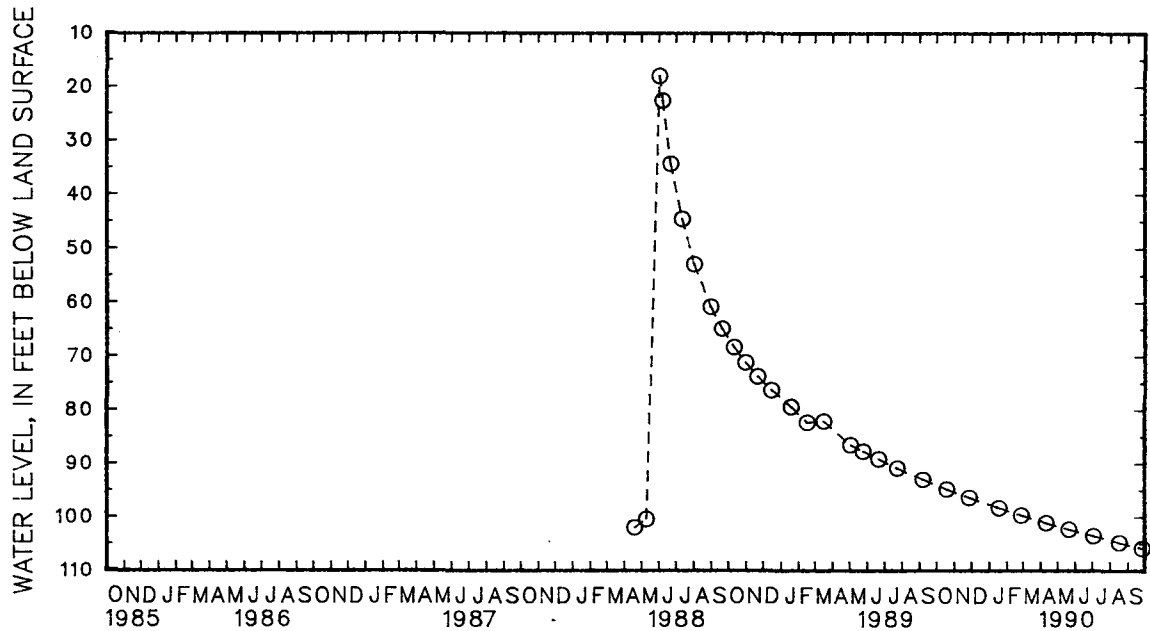
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations. Water level measured at 17.95 ft on June 3, 1988 after injection test.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.95 ft below land surface, June 3, 1988; lowest measured, 105.82 ft below land surface, Sept. 26, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 19	94.85	JAN 18	98.36	APR 11	101.11	JUL 3	103.53	SEP 26	105.82
NOV 27	96.43	FEB 26	99.70	MAY 21	102.32	AUG 17	104.75		



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fb 37. SITE ID.--391715079223103. PERMIT NUMBER.--GA-81-1341.

LOCATION.--Lat 39°17'15", long 79°22'31", Hydrologic Unit 02070002, east side of Wilson-Coronna Rd., 0.6 mi. southwest of intersection with U.S. Route 50, 0.6 mi. southwest of Ft. Pendleton.

Owner: Mettiki Coal Corp.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 470 ft; casing diameter 6 in., to 470 ft; perforated casing from 430 to 470 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval.

DATUM.--Elevation of land surface is 2,565 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring Point: Top of casing, 3.2 ft above land surface.

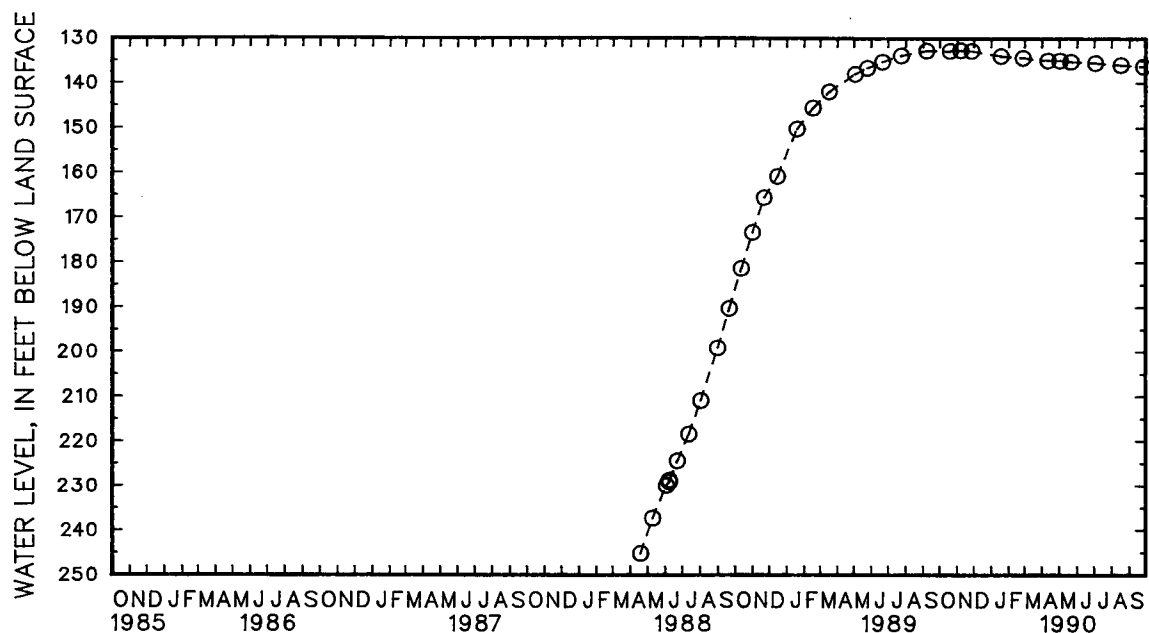
REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.70 ft below land surface, Nov. 6 and 7, 1989; lowest measured, 245.19 ft below land surface, April 19, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 19	132.83	NOV 27	132.83	FEB 26	134.37	MAY 2	134.96	AUG 17	135.94
NOV 7	132.70	JAN 18	133.97	APR 11	134.96	JUL 3	135.50	SEP 26	136.29



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

GARRETT COUNTY--Continued

WELL NUMBER.--GA Fb 38. SITE ID.--391715079223104. PERMIT NUMBER.--GA-81-1340.

LOCATION.--Lat 39°17'15", long 79°22'31", Hydrologic Unit 02070002, east side of Wilson-Coronna Rd., 0.6 mi. southwest of intersection with U.S. Route 50, 0.6 mi. southwest of Ft. Pendleton.

Owner: Mettiki Coal Corp.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age. Aquifer code: 321CNMG.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 230 ft; casing diameter 5.56 in., to 230 ft; perforated casing from 215 to 230 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval.

DATUM.--Elevation of land surface is 2,565 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring Point: Top of casing, 3.2 ft above land surface.

REMARKS.--Hydrologic Effects of Mining, Phase III Project observation well. Water levels affected by coal mining operations.

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

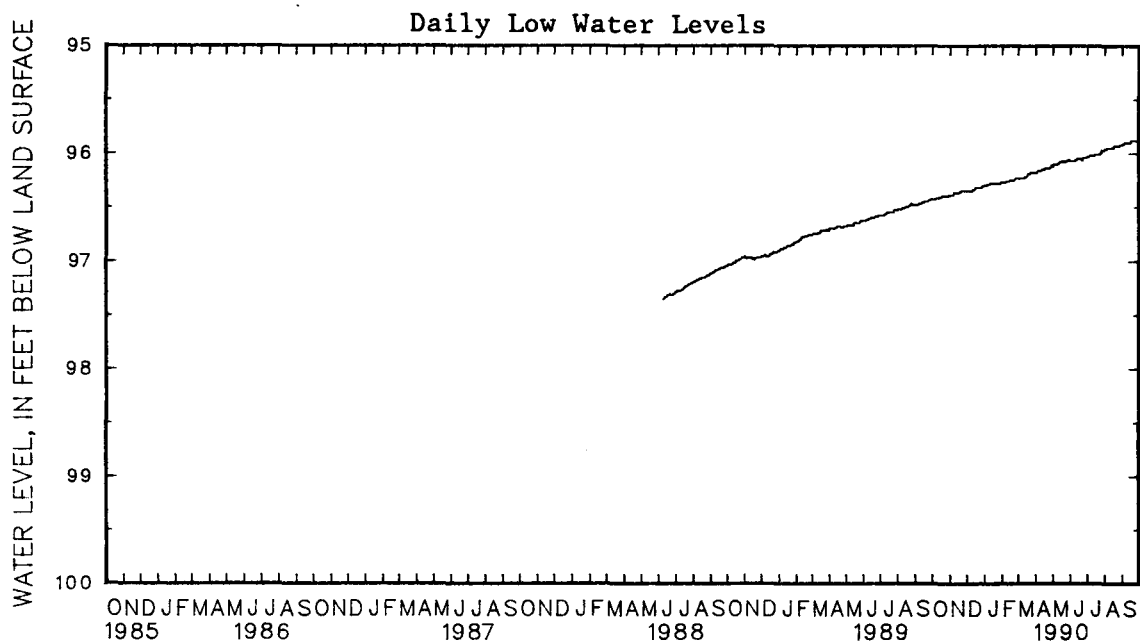
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 95.87 ft below land surface, Sept. 26 1990; lowest measured, 98.09 ft below land surface, April 19, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	96.43	96.43	96.39	96.39	96.35	96.35	96.30	96.30	96.27	96.27	96.23	96.23
2	96.43	96.43	96.39	96.39	96.35	96.35	96.30	96.30	96.27	96.27	96.23	96.23
3	96.43	96.43	96.39	96.39	96.35	96.35	96.30	96.30	96.27	96.27	96.23	96.23
4	96.43	96.43	96.39	96.39	96.35	96.35	96.30	96.30	96.27	96.27	96.23	96.23
5	96.43	96.43	96.39	96.39	96.35	96.35	96.30	96.29	96.27	96.27	96.23	96.23
6	96.43	96.43	96.39	96.39	96.35	96.35	96.29	96.29	96.27	96.27	96.23	96.23
7	96.43	96.42	96.39	96.37	96.35	96.35	96.29	96.29	96.27	96.26	96.23	96.23
8	96.42	96.42	96.37	96.37	96.35	96.35	96.29	96.29	96.26	96.26	96.23	96.23
9	96.42	96.42	96.37	96.37	96.35	96.35	96.29	96.29	96.26	96.26	96.23	96.23
10	96.42	96.42	96.37	96.37	96.35	96.34	96.29	96.28	96.26	96.26	96.23	96.23
11	96.42	96.42	96.37	96.37	96.34	96.34	96.28	96.28	96.26	96.26	96.23	96.23
12	96.42	96.41	96.37	96.37	96.34	96.34	96.28	96.28	96.26	96.26	96.23	96.22
13	96.41	96.41	96.37	96.37	96.34	96.34	96.28	96.28	96.26	96.26	96.22	96.22
14	96.41	96.41	96.37	96.37	96.34	96.33	96.28	96.28	96.25	96.25	96.22	96.22
15	96.41	96.41	96.37	96.37	96.33	96.32	96.28	96.28	96.25	96.25	96.22	96.22
16	96.41	96.41	96.37	96.37	96.32	96.32	96.28	96.28	96.25	96.25	96.22	96.21
17	96.41	96.40	96.37	96.36	96.32	96.32	96.28	96.28	96.25	96.25	96.21	96.20
18	96.40	96.40	96.36	96.36	96.32	96.32	96.28	96.28	96.25	96.25	96.20	96.19
19	96.40	96.40	96.36	96.36	96.32	96.32	96.28	96.28	96.25	96.25	96.19	96.19
20	96.40	96.40	96.36	96.35	96.32	96.32	96.28	96.28	96.25	96.25	96.19	96.19
21	96.40	96.40	96.35	96.35	96.32	96.32	96.28	96.28	96.25	96.25	96.19	96.19
22	96.40	96.40	96.35	96.35	96.32	96.32	96.28	96.28	96.25	96.24	96.19	96.18
23	96.40	96.40	96.35	96.35	96.32	96.32	96.28	96.28	96.24	96.24	96.18	96.18
24	96.40	96.40	96.35	96.35	96.32	96.32	96.28	96.28	96.24	96.23	96.18	96.18
25	96.40	96.40	96.35	96.35	96.32	96.32	96.28	96.28	96.23	96.23	96.18	96.18
26	96.40	96.40	96.35	96.35	96.32	96.31	96.28	96.28	96.23	96.23	96.18	96.18
27	96.40	96.40	96.35	96.32	96.31	96.31	96.28	96.28	96.23	96.23	96.18	96.18
28	96.40	96.40	96.35	96.35	96.31	96.31	96.28	96.28	96.23	96.23	96.18	96.18
29	96.40	96.39	96.35	96.35	96.31	96.30	96.28	96.27	---	---	96.18	96.18
30	96.39	96.39	96.35	96.35	96.30	96.30	96.27	96.27	---	---	96.18	96.18
31	96.39	96.39	---	---	96.30	96.30	96.27	96.27	---	---	96.18	96.18
MONTH	96.43	96.39	96.39	96.32	96.35	96.30	96.30	96.27	96.27	96.23	96.23	96.18

GROUND-WATER LEVELS
MARYLAND--Continued
GARRETT COUNTY--Continued
GA Fb 38--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	96.18	96.18	96.12	96.11	96.07	96.06	96.03	96.03	95.96	95.96	95.92	95.92
2	96.18	96.18	96.12	96.10	96.07	96.07	96.03	96.03	95.96	95.96	95.92	95.91
3	96.18	96.17	96.10	96.10	96.07	96.07	96.03	96.02	95.96	95.96	95.91	95.91
4	96.17	96.16	96.10	96.10	96.07	96.07	96.03	96.02	95.96	95.95	95.91	95.90
5	96.16	96.16	96.10	96.10	96.07	96.07	96.02	96.02	95.95	95.94	95.90	95.90
6	96.16	96.16	96.10	96.10	96.07	96.07	96.02	96.02	95.95	95.94	95.90	95.90
7	96.16	96.16	96.10	96.10	96.07	96.07	96.02	96.02	95.95	95.95	95.90	95.90
8	96.16	96.16	96.10	96.10	96.07	96.07	96.02	96.02	95.95	95.95	95.90	95.90
9	96.16	96.16	96.10	96.10	96.07	96.06	96.02	96.02	95.95	95.95	95.90	95.90
10	96.16	96.16	96.10	96.09	96.06	96.06	96.02	96.02	95.95	95.95	95.90	95.90
11	96.16	96.15	96.09	96.09	96.06	96.06	96.02	96.02	95.95	95.95	95.90	95.90
12	96.15	96.15	96.09	96.08	96.06	96.05	96.02	96.02	95.95	95.95	95.90	95.90
13	96.15	96.15	96.08	96.08	96.05	96.05	96.02	96.02	95.95	95.95	95.90	95.90
14	96.15	96.15	96.08	96.08	96.05	96.05	96.02	96.00	95.95	95.95	95.90	95.90
15	96.15	96.15	96.08	96.08	96.05	96.05	96.01	96.01	95.95	95.95	95.90	95.90
16	96.15	96.14	96.08	96.08	96.05	96.05	96.01	96.01	95.95	95.94	95.90	95.88
17	96.14	96.14	96.08	96.07	96.05	96.05	96.01	96.01	95.94	95.93	95.88	95.88
18	96.14	96.14	96.07	96.07	96.05	96.05	96.01	96.01	95.93	95.93	95.88	95.88
19	96.14	96.14	96.07	96.07	96.05	96.05	96.01	96.01	95.93	95.93	95.88	95.88
20	96.14	96.14	96.07	96.07	96.05	96.05	96.01	96.01	95.93	95.93	95.88	95.88
21	96.14	96.14	96.08	96.07	96.05	96.05	96.01	96.01	95.93	95.93	95.88	95.88
22	96.14	96.14	96.08	96.08	96.06	96.05	96.01	96.01	95.93	95.93	95.88	95.88
23	96.14	96.14	96.08	96.07	96.06	96.04	96.01	96.01	95.93	95.93	95.88	95.88
24	96.14	96.14	96.07	96.07	96.04	96.04	96.01	95.99	95.93	95.93	95.88	95.88
25	96.14	96.13	96.07	96.07	96.04	96.04	95.99	95.99	95.93	95.93	95.88	95.88
26	96.13	96.13	96.07	96.07	96.04	96.04	95.99	95.97	95.93	95.93	95.88	95.87
27	96.13	96.13	96.07	96.06	96.04	96.04	95.97	95.97	95.93	95.92	95.88	95.88
28	96.13	96.11	96.06	96.06	96.04	96.04	95.97	95.97	95.92	95.92	95.88	95.88
29	96.11	96.11	96.06	96.06	96.04	96.04	95.97	95.97	95.92	95.92	95.88	95.88
30	96.11	96.11	96.06	96.06	96.04	96.03	95.97	95.97	95.92	95.92	95.88	95.88
31	---	---	96.06	96.06	---	---	95.97	95.96	95.92	95.92	---	---
MONTH	96.18	96.11	96.12	96.06	96.07	96.03	96.03	95.96	95.96	95.92	95.92	95.87



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

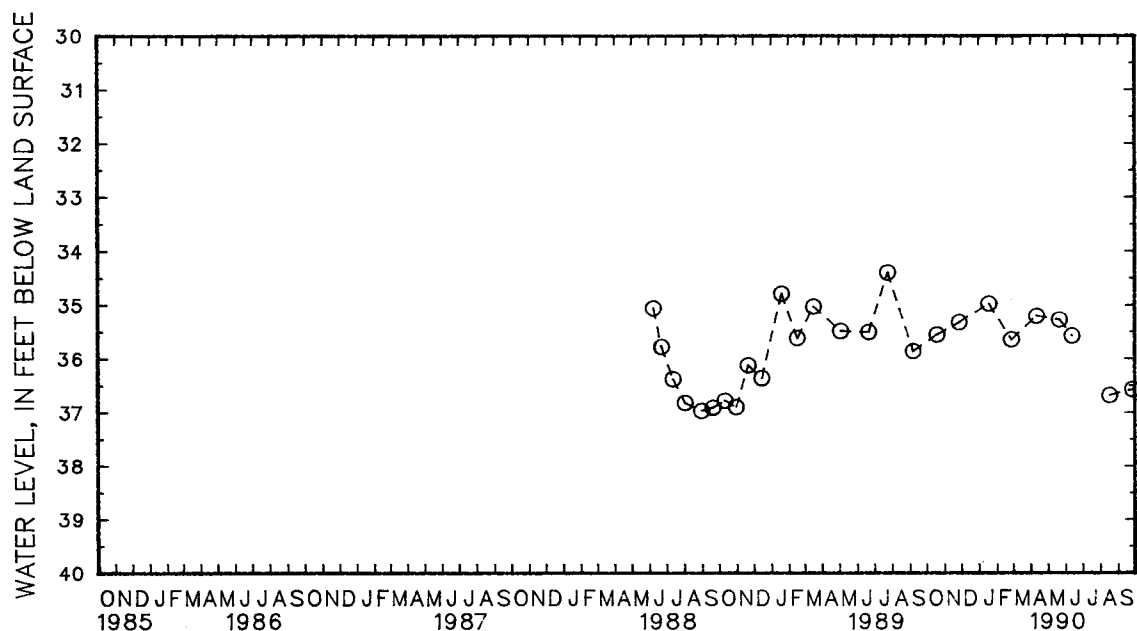
195

GARRETT COUNTY--Continued

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.40 ft below land surface, July 24, 1989;
lowest measured, 36.98 ft below land surface, Aug. 31, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 19	35.56	JAN 18	34.98	APR 11	35.21	JUN 12	35.58	SEP 26	36.58
NOV 27	35.33	FEB 26	35.65	MAY 21	35.28	AUG 17	36.69		



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

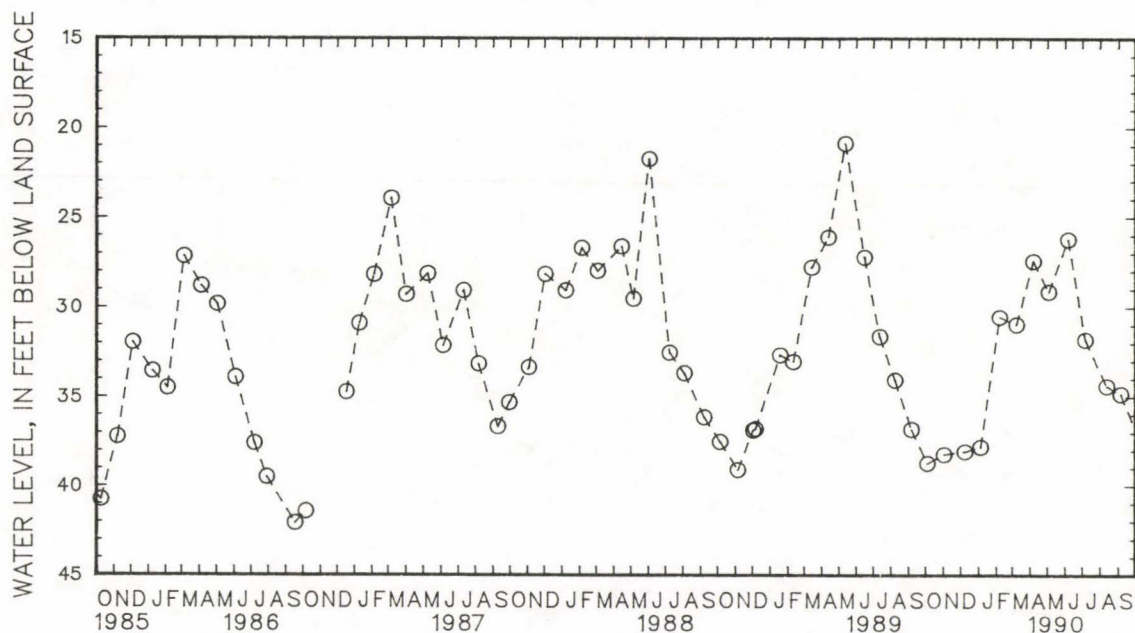
5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

197

MONTGOMERY COUNTY

lowest measured, dry, on Dec. 2, 1957, Dec. 7, 1964, Dec. 6, 1965, Jan. 3, 1966, Feb. 2, 1966.

DATE		WATER LEVEL		DATE		WATER LEVEL		DATE		WATER LEVEL							
OCT	4	38.74	DEC	8	38.08	FEB	6	30.54	APR	6	27.42	JUN	6	26.21	AUG	12	34.42
NOV	2	38.24	JAN	4	37.82	MAR	8	30.96	MAY	3	29.13	JUL	6	31.82	SEP	5	34.86



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

MARYLAND--Continued

MONTGOMERY COUNTY--Continued

WELL NUMBER.--MO Db 68. SITE ID.--390802077283801. PERMIT NUMBER.--MO-73-1869.

LOCATION.--Lat 39°08'02", long 77°28'38", Hydrologic Unit 02070008, south of Club Hollow Rd,
at the National Institutes of Health Animal Center.

Owner: U.S. Geological Survey.

AQUIFER.--New Oxford Formation of Upper Triassic age. Aquifer code: 231NOXF.

WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 250 ft; casing diameter 6 in., to 40 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 260 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 0.8 ft above land surface.

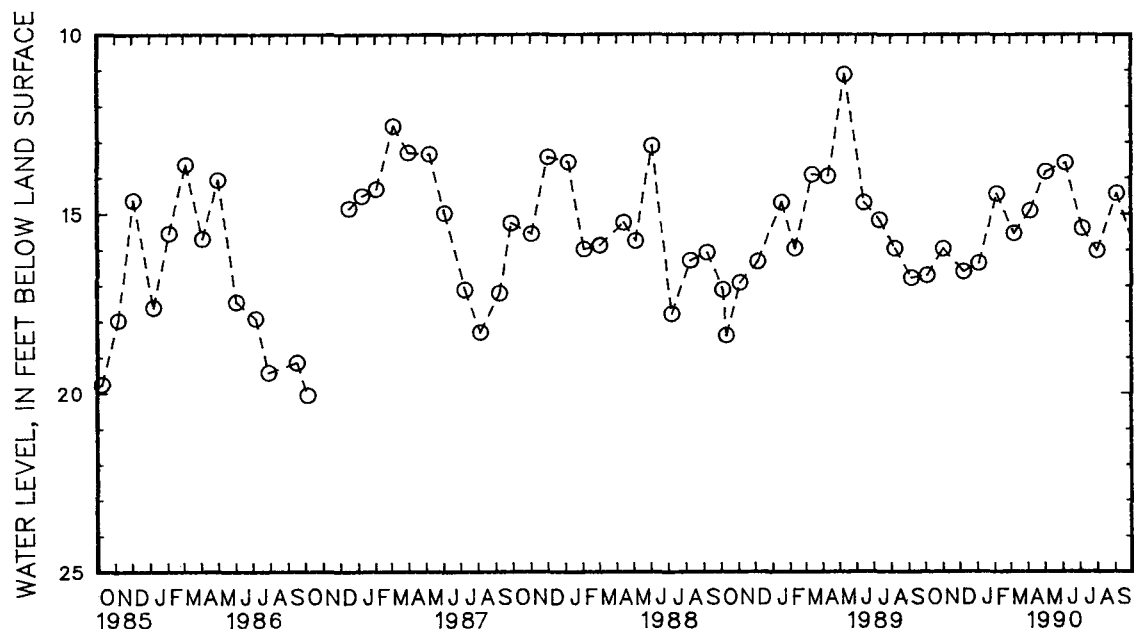
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--May 1978 to August 1980, June 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.12 ft below land surface, May 12, 1989;
lowest measured, 20.15 ft below land surface, Sept. 16, 1985.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL						
OCT	4	16.73	DEC	8	16.63	FEB	6	14.45	APR	6	14.92	JUN	6	13.58	AUG	1	16.04
NOV	2	15.99	JAN	4	16.39	MAR	8	15.55	MAY	3	13.83	JUL	6	15.41	SEP	5	14.43



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

199

MARYLAND--Continued

MONTGOMERY COUNTY--Continued

WELL NUMBER.--MO Eh 20. SITE ID.--390434076573002.

LOCATION.--Lat 39°04'34", long 76°57'30", Hydrologic Unit 02070010, at MD Rt. 196 and Fairland Rd., Fairland.

Owner: Cities Service Oil Co.

AQUIFER.--Wissahickon Formation (lower pelitic schist) of Paleozoic age. Aquifer code: 300WSCK.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

WELL CHARACTERISTICS.--Drilled, unused, water-table well, depth 102.9 ft; casing diameter 6 in., to 50 ft; open hole.

DATUM.--Elevation of land surface is 410 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing at land-surface datum.

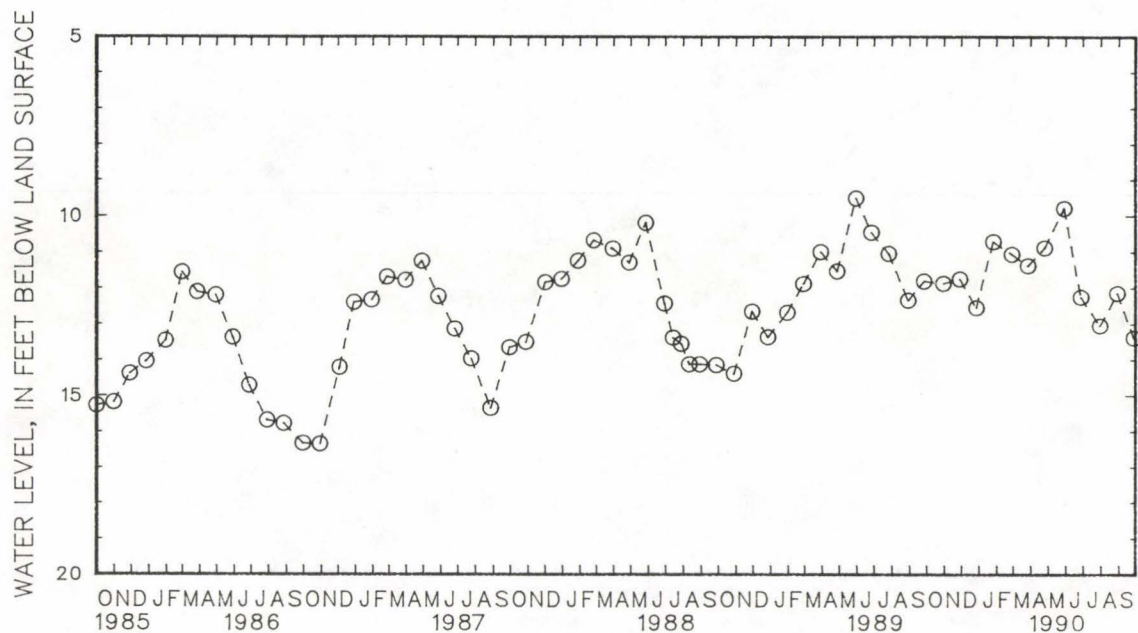
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--March 1955 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.39 ft below land-surface datum, June 25, 1972; lowest measured, 16.36 ft below land-surface datum, Oct. 29, 1986.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	11.88	DEC 27	12.56	FEB 27	11.07	APR 25	10.89	JUN 27	12.26	AUG 29	13.15
NOV 28	11.76	JAN 26	10.72	MAR 27	11.39	MAY 29	9.79	JUL 30	13.06	SEP 27	13.40



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

PRINCE GEORGES COUNTY

WELL NUMBER.--PG Bc 16. SITE ID.--390151076561501.

LOCATION.--Lat 39°01'51", long 76°56'15", Hydrologic Unit 02070010, at National Agricultural Research Center, Beltsville.

Owner: U.S. Department of Agriculture.

AQUIFER.--Patuxent Formation of Lower Cretaceous age. Aquifer code: 217PTXN.

WELL CHARACTERISTICS.--Dug brick-lined, unused, water-table well, measured depth 27.4 ft; casing diameter 40 in.

INSTRUMENTATION.-- Monthly measurements with chalked steel tape by USGS personnel. Equipped with water-level recorder from Oct. 31, 1962 to Feb. 9, 1965.

DATUM.--Elevation of land surface is 190 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of steel cover, 0.1 ft above land surface.

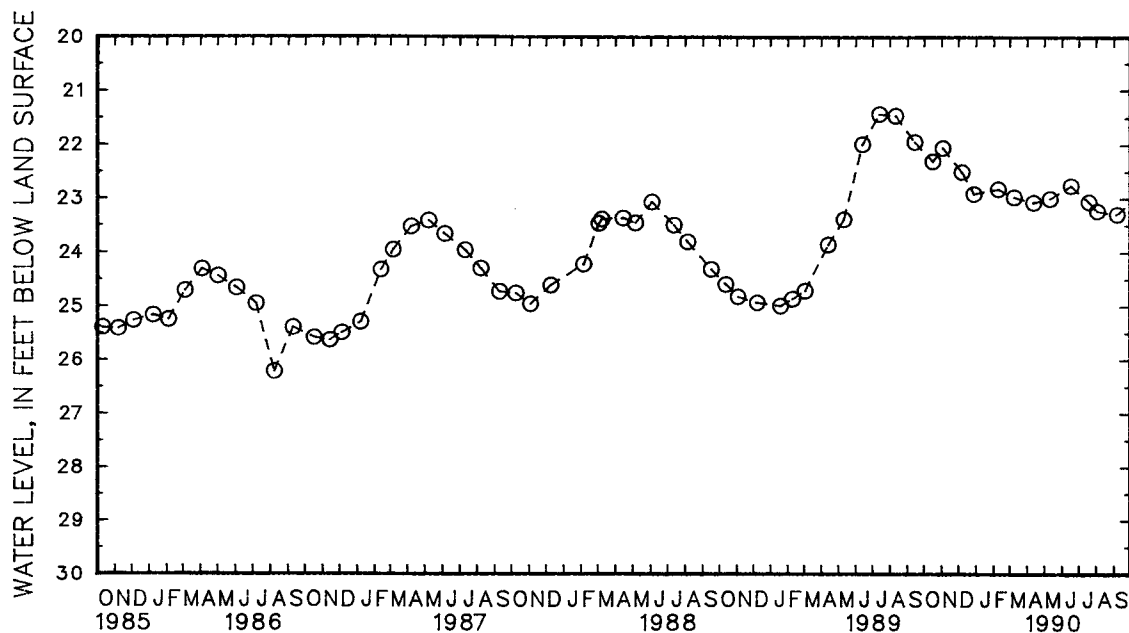
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--September 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.26 ft below land surface, July 6, 1972; lowest measured, 26.46 ft below land surface, July 8, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 16	22.31	DEC 7	22.51	FEB 9	22.83	APR 12	23.08	JUN 17	22.77	AUG 3	23.24
NOV 3	22.06	28	22.92	MAR 9	22.98	MAY 11	23.01	JUL 19	23.07	SEP 7	23.30



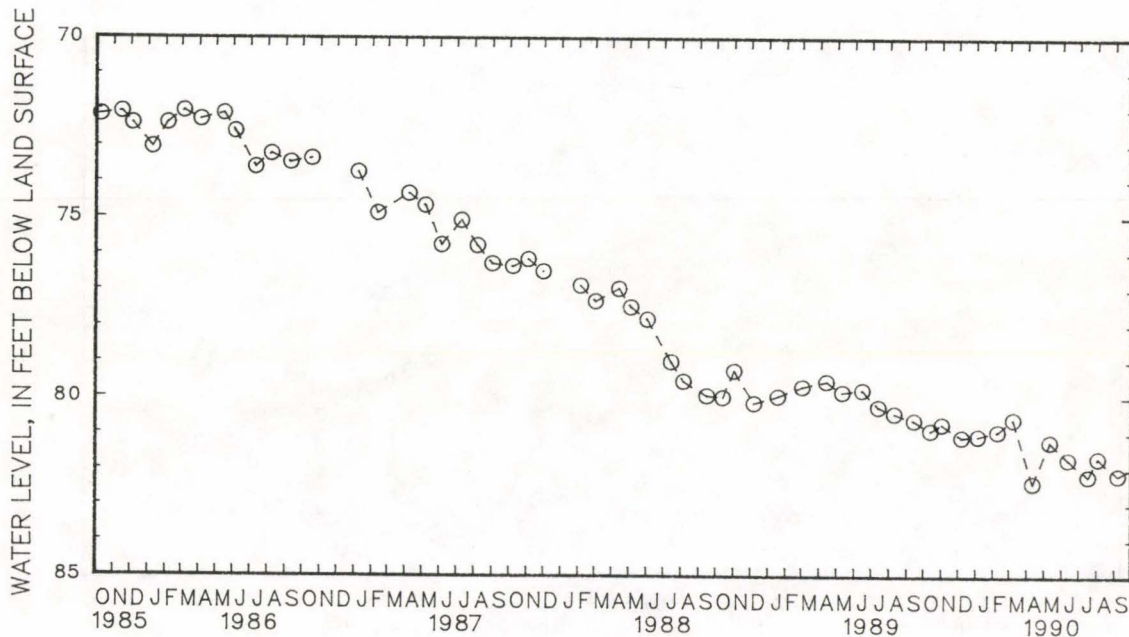
5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

201

PRINCE GEORGES COUNTY--Continued

highest measured, 68.99 ft below land surface, Oct. 3, 1979; lowest measured, 84.84 ft below land surface, Feb. 14, 1963.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 13	80.92	DEC 7	81.10	FEB 9	80.94	APR 11	82.38	JUN 12	81.71	AUG 3	81.67
NOV 2	80.74	JAN 5	81.07	MAR 8	80.60	MAY 11	81.22	JUL 17	82.18	SEP 7	82.15



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

PRINCE GEORGES COUNTY--Continued

WELL NUMBER.--PG Fc 17. SITE ID.--384230076555601.

LOCATION.--Lat 38°42'30", long 76°55'56", Hydrologic Unit 02070010, south of Floral Park Rd. and west of MD Rt. 5, Piscataway.

Owner: Potomac Edison Power Company, formerly Washington Gas Light Co.

AQUIFER.--Patapsco Formation of Lower Cretaceous age. Aquifer code: 217PPSC.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 750 ft; casing diameter 6 in.; casing perforated from 712 to 716 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with water-level recorder from Oct. 27, 1955 to Sept. 4, 1956.

DATUM.--Elevation of land surface is 58.6 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of casing, 0.5 ft above land surface.

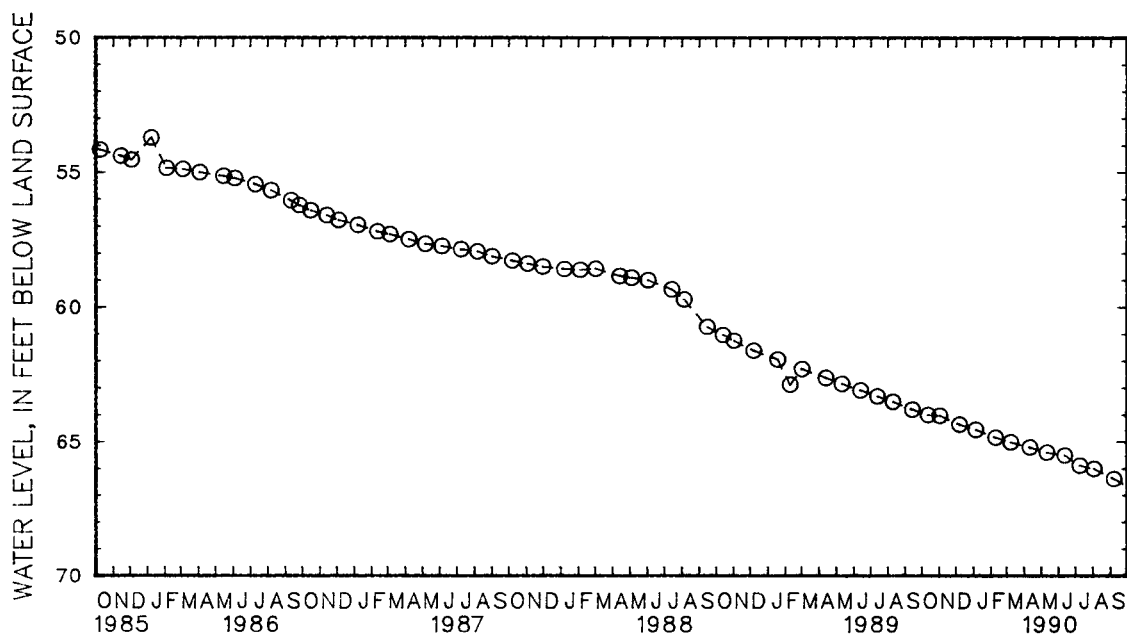
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--October 1955 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.62 ft below land surface, Oct. 27, 1955; lowest measured, 66.40 ft below land surface, Sept. 7, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	64.02	DEC 7	64.38	FEB 9	64.86	APR 11	65.22	JUN 12	65.52	AUG 3	66.02
NOV 2	64.05	JAN 5	64.57	MAR 8	65.03	MAY 11	65.41	JUL 9	65.90	SEP 7	66.40



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

PRINCE GEORGES COUNTY--Continued

WELL NUMBER.--PG Fd 41. SITE ID.--384131076533301. PERMIT NUMBER.--PG-01-8058.

LOCATION.--Lat 38°41'31", long. 76°53'33", Hydrologic Unit 02070010, south side of MD Rt. 373, 1.14 mi west of intersection with MD Rt. 5, near T.B.

Owner: Colonial Investment Corp.

AQUIFER.--Magothy Formation of Upper Cretaceous age. Aquifer code: 211MGTY.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 362 ft; casing diameter 4 in., to 352 ft; screen diameter 2.5 in. from 352 to 362 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 198 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 2.8 ft above land surface.

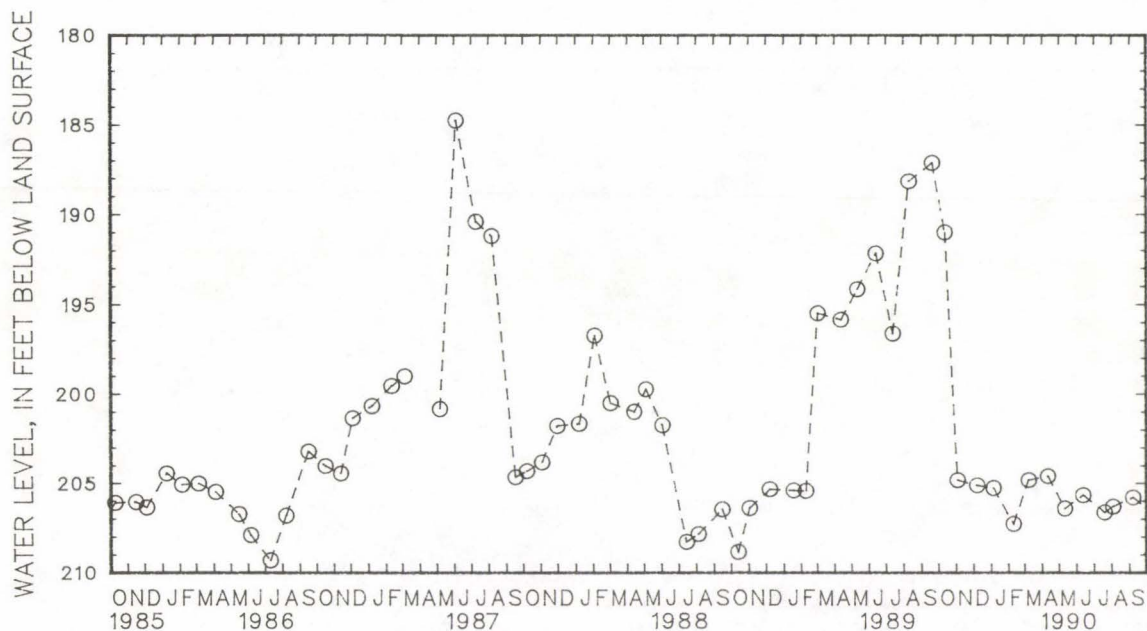
REMARKS.--Maryland Water-Level Network observation well. Water level reported 146 ft below land surface, March 11, 1955.

PERIOD OF RECORD.--May 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 157.24 ft below land surface, March 4, 1968; lowest measured, 209.31 ft below land surface, July 10, 1986.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	191.01	DEC 7	205.13	FEB 9	207.28	APR 11	204.60	JUN 12	205.67	AUG 3	206.31
NOV 3	204.84	JAN 5	205.28	MAR 8	204.82	MAY 11	206.42	JUL 19	206.63	SEP 7	205.80



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

ST. MARYS COUNTY

WELL NUMBER.--SM Bb 15. SITE ID.--382838076470101. PERMIT NUMBER.--SM-72-3430.

LOCATION.--Lat 38°28'38", long 76°47'01", Hydrologic Unit 02070011, at Charlotte Hall.

Owner: U.S. Geological Survey.

AQUIFER.--Aquia Formation of Paleocene age. Aquifer code: 125AQUI.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 460 ft; casing diameter 4 in., to 441 ft; casing diameter 2 in. from 441 to 450 ft; screen diameter 2 in. from 450 to 460 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 170 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 2.1 ft above land surface.

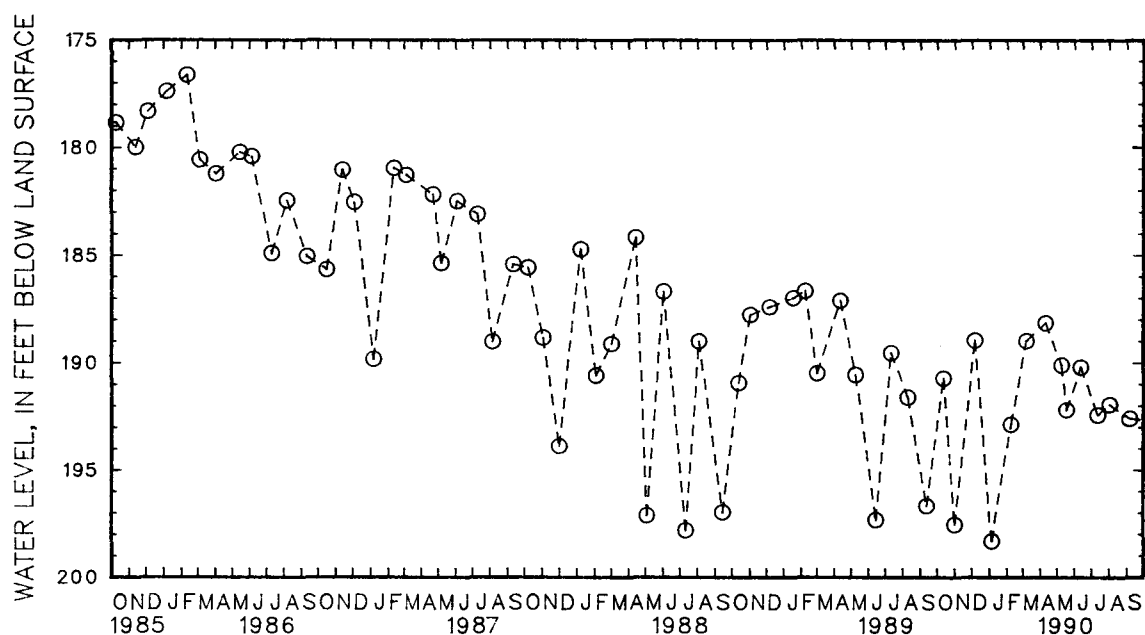
REMARKS.--Maryland Water-Level Network observation well. Water levels may be affected by nearby pumping.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 159.76 ft below land surface, Aug. 10, 1979, and Aug. 31, 1979; lowest measured, 207.55 ft below land surface, Dec. 12, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	190.70	JAN 5	198.32	APR 11	188.14	JUN 13	190.19	SEP 6	192.59
NOV 2	197.54	FEB 8	192.86	MAY 10	190.10	JUL 12	192.42		
DEC 7	188.95	MAR 8	188.97	18	192.18	AUG 2	191.93		



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

ST. MARYS COUNTY--Continued

WELL NUMBER.--SM Bb 22. SITE ID.--382838076470102. PERMIT NUMBER.--SM-73-3787.

LOCATION.--Lat 38°28'38", long 76°47'01", Hydrologic Unit 02070011, at Charlotte Hall Veterans Home.

Owner: U.S. Geological Survey.

AQUIFER.--Piney Point Formation of Middle Eocene age. Aquifer code: 124PNPN.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 218 ft; casing diameter 4 in., to 210 ft; screen diameter 2 in. from 210 to 218 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 170 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 1.55 ft above land surface.

REMARKS.--Maryland Water-Level Network observation well. Water levels may be affected by nearby pumping.

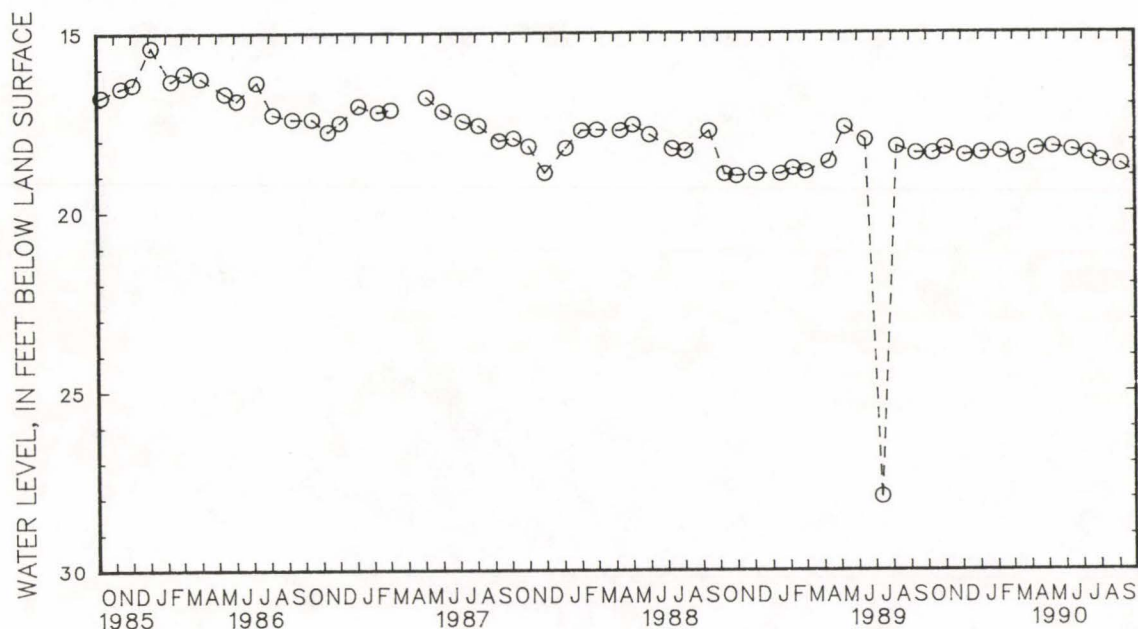
The July 12, 1989 water-level declined due to nearby pump test.

PERIOD OF RECORD.--July 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.27 ft below land surface, July 9, 1980; lowest measured, 27.95 ft below land surface, July 12, 1989--See Remarks.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	18.37	DEC 7	18.43	FEB 8	18.32	APR 11	18.24	JUN 13	18.28	AUG 2	18.58
NOV 2	18.22	JAN 5	18.36	MAR 8	18.50	MAY 10	18.19	JUL 12	18.37	SEP 6	18.68



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

ST. MARYS COUNTY--Continued

WELL NUMBER.--SM Dd 46. SITE ID.--381616076364701. PERMIT NUMBER.--SM-73-1990.
 LOCATION.--Lat 38°16'16", long 76°36'47", Hydrologic Unit 02070011, at Leonardtown Senior High School,
 Redgate.

Owner: U.S. Geological Survey.

AQUIFER.--Piney Point Formation of Middle Eocene age. Aquifer code: 124PNPN.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 296 ft; casing diameter 6 in., to 150 ft;
 casing diameter 2 in. from 150 to 286 ft; screen diameter 2 in. from 286 to 296 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 115 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 2.9 ft above land surface.

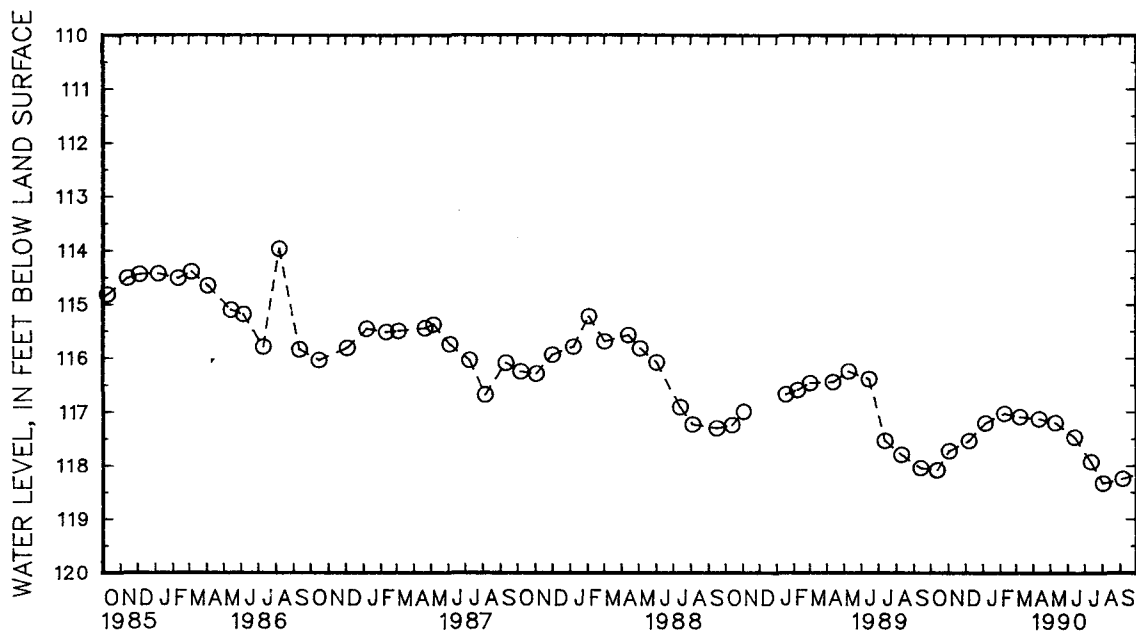
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--October 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 110.01 ft below land surface, Jan. 4, 1977;
 lowest measured, 118.33 ft below land surface, Aug. 2, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	118.09	DEC 7	117.54	FEB 8	117.03	APR 11	117.13	JUN 13	117.47	AUG 2	118.33
NOV 2	117.73	JAN 5	117.21	MAR 8	117.09	MAY 10	117.20	JUL 12	117.93	SEP 6	118.25



5 YEAR HYDROGRAPH
 OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

207

MARYLAND--Continued

ST. MARYS COUNTY--Continued

WELL NUMBER.--SM Dd 49. SITE ID.--381616076364702. PERMIT NUMBER.--SM-73-3081.

LOCATION.--Lat 38°16'16", long 76°36'47", Hydrologic Unit 02070011, at Leonardtown Senior High School, Redgate.

Owner: U.S. Geological Survey.

AQUIFER.--Aquia Formation of Paleocene age. Aquifer code: 125AQUI.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 619 ft; casing diameter 4 in., to 279 ft; casing diameter 1.5 in. from 279 to 534 ft and 544 to 619 ft; screen diameter 3 in. from 534 to 544 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 115 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 0.40 ft above land-surface datum.

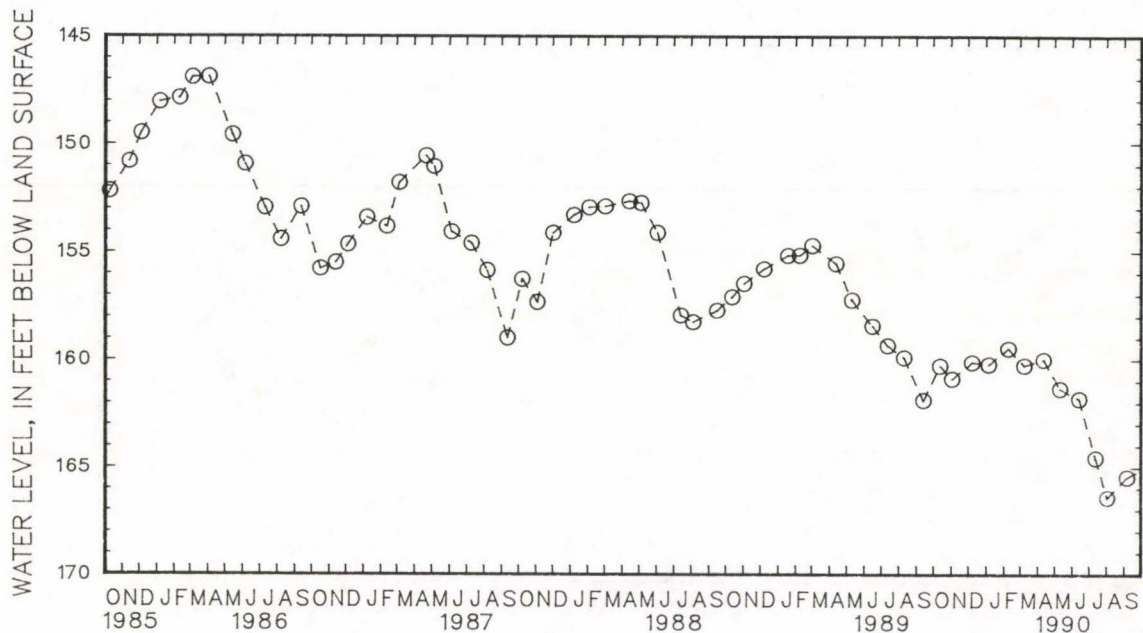
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--December 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 138.95 ft below land surface, April 5, 1979; lowest measured, 166.42 ft below land surface, Aug. 2, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	160.29	DEC 7	160.13	FEB 8	159.48	APR 11	160.00	JUN 13	161.82	AUG 2	166.42
NOV 2	160.89	JAN 5	160.22	MAR 8	160.27	MAY 10	161.35	JUL 12	164.57	SEP 6	165.46



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

ST. MARYS COUNTY--Continued

WELL NUMBER.--SM Dd 62. SITE ID.--381616076364703. PERMIT NUMBER.--SM-73-3786.

LOCATION.--Lat 38°16'16", 76°36'47", Hydrologic Unit 02070011, at Leonardtown Senior High School, Redgate.

Owner: U.S. Geological Survey.

AQUIFER.--Piney Point Formation of Middle Eocene age. Aquifer code: 124PNPN.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 358 ft; casing diameter 4 in., to 210 ft; casing diameter 2 in. from 210 to 348 ft; screen diameter 2 in. from 348 to 358 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 115 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 0.70 ft above land surface.

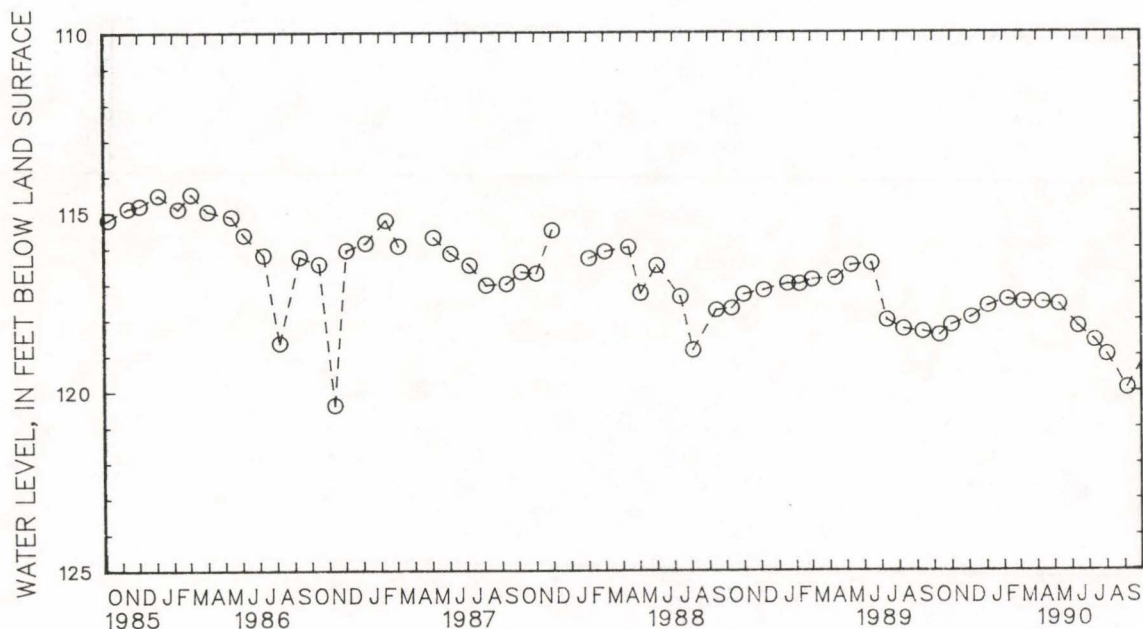
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--July 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 111.06 ft below land surface, Oct. 30, 1980; lowest measured, 120.39 ft below land surface, Nov. 12, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	118.45	DEC 7	117.95	FEB 8	117.45	APR 11	117.53	JUN 13	118.21	AUG 2	119.00
NOV 2	118.17	JAN 5	117.63	MAR 8	117.52	MAY 10	117.59	JUL 12	118.60	SEP 6	119.93



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

ST. MARYS COUNTY--Continued

WELL NUMBER.--SM Dd 63. SITE ID.--381615076364701. PERMIT NUMBER.--SM-73-3785.

LOCATION.--Lat 38°16'15", long 76°36'47", Hydrologic Unit 02070011, at Leonardtown Senior High School, Redgate.

Owner: U.S. Geological Survey.

AQUIFER.--Piney Point Formation of Middle Eocene age. Aquifer code: 124PNPN.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, depth 356 ft; casing diameter 4 in., to 327 ft; casing diameter 2 in. from 327 to 346 ft; screen diameter 2 in. from 346 to 356 ft.

INSTRUMENTATION.--Twice yearly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 115 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 1.00 ft above land surface.

REMARKS.--Maryland Water-Level Network observation well. Measured monthly from October 1977 to October 1986.

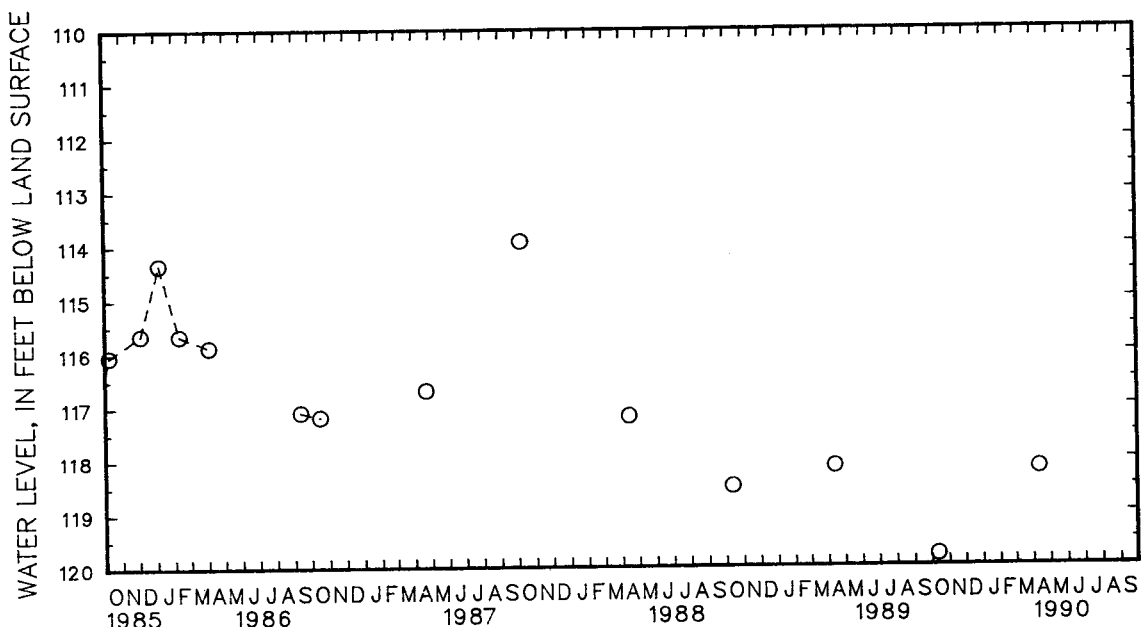
Measured twice yearly from April 1987 to current year.

PERIOD OF RECORD.--July 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 113.15 ft below land surface, March 2, 1981; lowest measured, 119.80 ft below land surface, Oct. 12, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	119.80	APR 11	118.18



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

ST. MARYS COUNTY--Continued

WELL NUMBER.--SM Df 71. SITE ID.--381527076283101. PERMIT NUMBER.--SM-73-3431.

LOCATION.--Lat 38°15'27", long 76°28'31", Hydrologic Unit 02070011, at Great Mills Rd., Lexington Park.

Owner: U.S. Geological Survey.

AQUIFER.--Aquia Formation of Paleocene age. Aquifer code: 125AQUI.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 560 ft; casing diameter 4 in., to 420 ft; casing diameter 2 in. from 420 to 550 ft; screen diameter 2 in. from 550 to 560 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 65 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 0.80 ft above land surface.

REMARKS.--Maryland Water-Level Network observation well.

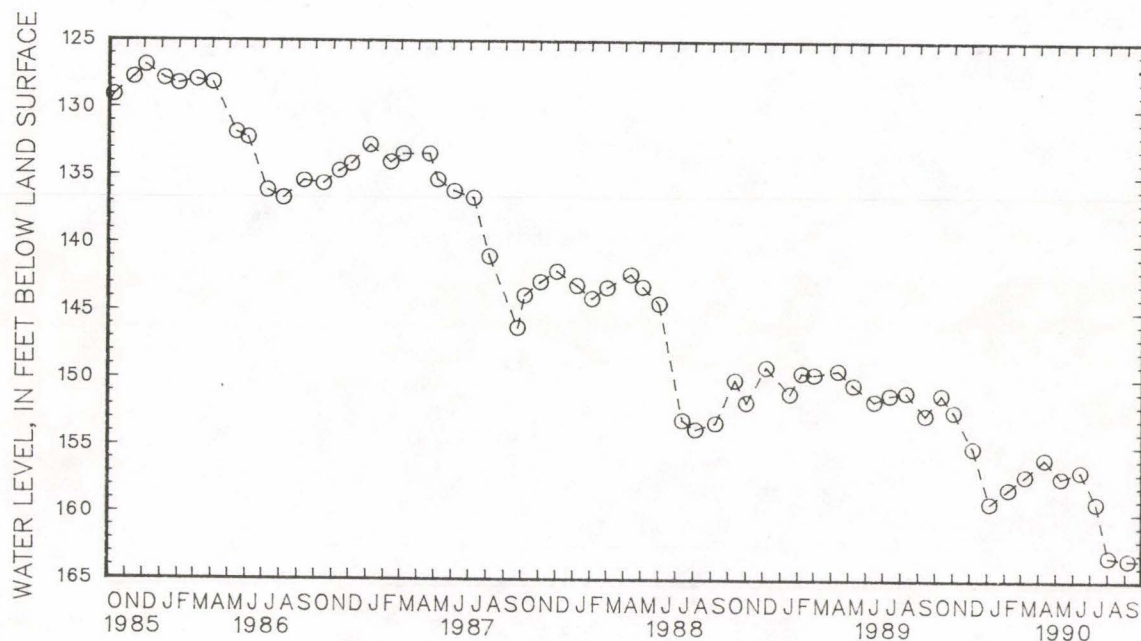
PERIOD OF RECORD.--August 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 119.19 ft below land surface, May 1, 1980;

lowest measured, 163.37 ft below land surface, Sept. 6, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	151.20	DEC 6	155.12	FEB 7	158.15	APR 11	155.90	JUN 13	156.81	AUG 2	163.16
NOV 2	152.44	JAN 5	159.22	MAR 8	157.16	MAY 10	157.29	JUL 11	159.18	SEP 6	163.37



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

ST. MARYS COUNTY--Continued

WELL NUMBER.--SM Ef 80. SITE ID.--381052076253001.

LOCATION.--Lat 38°10' 52", long 76°25' 30", Hydrologic Unit 02070011, 0.1 mi south of intersection of MD Rt 5 and Rosecroft Rd.

Owner: St. Mary's College of Maryland.

AQUIFER.--Omar Formation of Pleistocene age. Aquifer code: 112OMAR.

WELL CHARACTERISTICS.--Dug, unused, water-table well, depth 20.7 ft; casing diameter 42 in.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 40 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring Point: Top of casing, 1.5 ft above land surface.

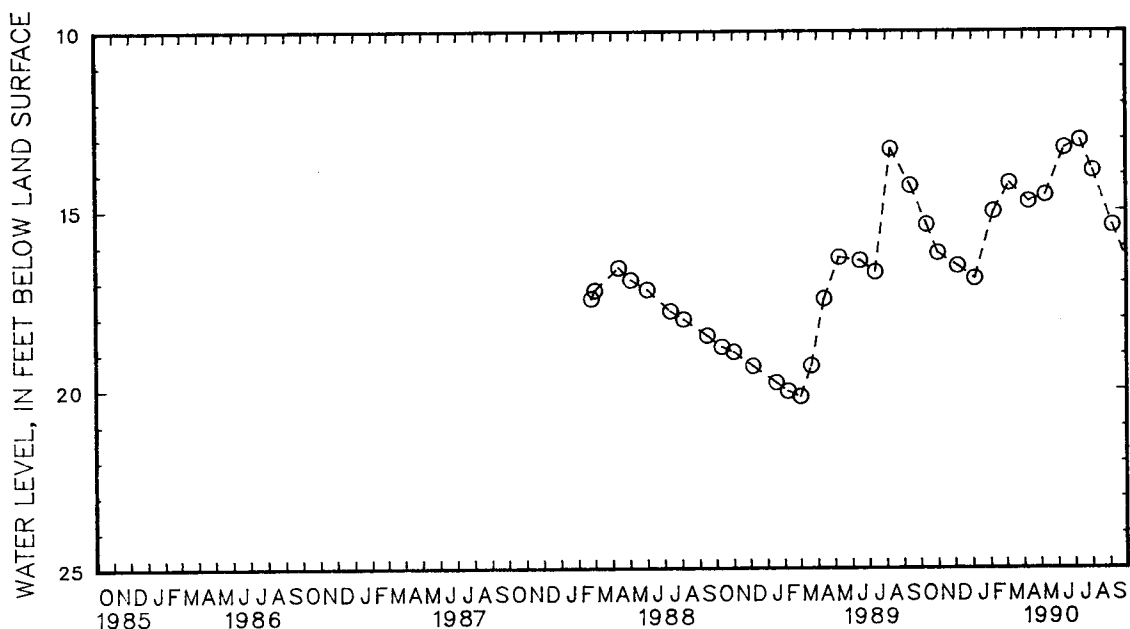
REMARKS.--Maryland Water-Level Network observation well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.05 ft below land surface, July 11, 1990;
lowest measured, 20.20 ft below land surface, March 1, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	15.41	DEC 6	16.56	FEB 7	15.04	APR 10	14.76	JUN 13	13.26	AUG 2	13.90
NOV 1	16.20	JAN 5	16.91	MAR 7	14.25	MAY 10	14.58	JUL 11	13.05	SEP 6	15.43



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

ST. MARYS COUNTY--Continued

WELL NUMBER.--SM Fe 30. SITE ID.--380834076303401. PERMIT NUMBER.--SM-73-1917.

LOCATION.--Lat 38°08'34", long 76°30'34", Hydrologic Unit 02070011, at water tower, Piney Point.

Owner: U.S. Geological Survey.

AQUIFER.--Piney Point Formation of Eocene age. Aquifer code: 124PNPN.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 270 ft; casing diameter 6 in., to 67 ft; casing diameter 2 in. from 67 to 260 ft; screen diameter 2 in. from 260 to 270 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with graphic water-level recorder from Oct. 12, 1988 to current year.

DATUM.--Elevation of land surface is 9 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 3.8 ft above land surface.

REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--August 1976 to current year.

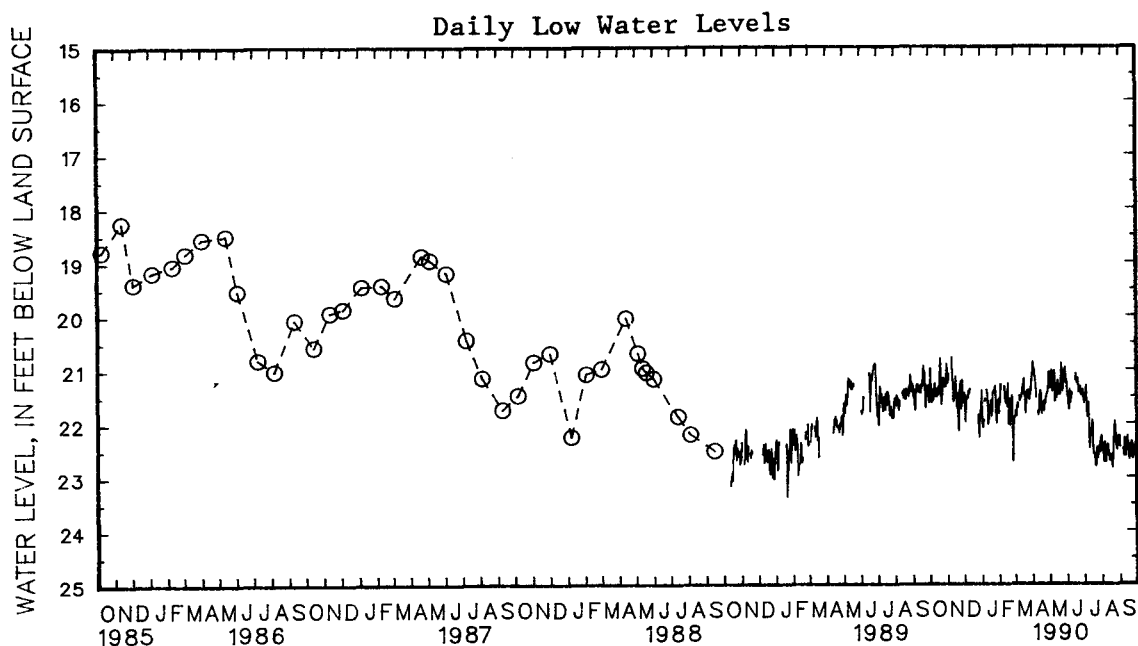
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.24 ft below land surface, Oct. 6, 1976; lowest measured, 23.65 ft below land surface, Dec. 23, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	21.39	20.59	21.26	20.55	21.56	21.14	21.84	20.77	21.81	21.18	21.88	21.37
2	20.98	20.44	21.24	20.90	21.44	20.80	22.09	21.62	21.54	20.96	21.78	21.26
3	21.34	20.62	21.09	20.59	21.94	20.66	22.08	21.79	21.61	21.12	21.87	21.37
4	21.62	21.13	---	---	21.97	21.50	21.94	21.37	21.28	20.68	21.68	21.25
5	21.60	21.19	---	---	21.59	21.21	---	---	---	---	21.63	21.19
6	21.40	21.04	---	---	21.54	20.97	21.59	21.07	---	---	21.70	21.29
7	21.57	21.08	---	---	21.50	21.12	21.55	21.10	---	---	---	---
8	21.37	20.94	---	---	21.53	21.08	---	---	---	---	---	---
9	21.51	21.09	20.78	20.32	21.41	21.04	---	---	21.33	20.82	21.50	20.98
10	21.26	20.86	21.10	20.54	21.45	20.88	21.38	20.66	21.51	20.83	21.59	21.13
11	21.39	20.89	21.30	20.80	21.38	20.74	21.44	20.87	21.59	21.01	21.50	21.01
12	21.37	20.86	21.60	20.86	21.37	20.85	21.57	20.92	21.64	20.92	21.54	20.94
13	21.51	20.86	21.60	20.95	---	---	22.03	21.27	21.44	20.95	21.49	20.98
14	21.45	20.92	21.42	20.78	---	---	21.95	21.51	21.70	20.93	21.43	20.85
15	21.48	20.86	21.27	20.75	---	---	21.81	21.38	21.55	20.95	21.31	20.84
16	21.42	20.78	21.13	20.43	---	---	21.72	21.26	21.27	20.76	21.29	20.70
17	21.33	20.77	21.52	20.97	22.02	21.63	21.65	21.19	22.03	20.98	21.18	20.72
18	21.45	20.93	21.62	21.07	---	---	21.57	21.08	21.93	21.43	21.48	20.88
19	21.05	20.11	21.73	21.37	---	---	21.88	21.44	21.56	21.03	21.45	20.99
20	20.80	20.13	21.45	21.02	---	---	21.79	21.35	22.05	21.56	21.82	20.90
21	21.24	20.77	22.08	21.27	---	---	21.41	20.97	21.95	21.52	21.82	21.32
22	21.66	21.06	22.15	21.26	---	---	21.44	21.00	21.68	21.16	21.42	21.00
23	21.48	20.97	21.45	20.99	---	---	21.38	20.91	21.49	21.00	21.40	20.86
24	21.24	20.85	21.28	20.87	---	---	21.41	20.98	21.89	21.21	21.44	20.79
25	21.16	20.72	21.23	20.80	21.85	21.06	21.31	20.82	22.72	21.80	21.39	20.84
26	21.31	20.79	21.74	21.04	22.00	21.05	21.60	20.80	22.59	21.64	21.55	20.92
27	21.33	20.91	21.58	20.86	22.27	21.54	21.81	21.29	21.92	21.18	21.57	20.81
28	21.31	20.80	21.20	20.63	21.93	21.46	22.00	21.37	21.90	21.17	21.47	20.78
29	21.32	20.91	21.63	20.98	21.80	21.39	21.79	21.11	---	---	21.43	20.50
30	21.16	20.68	21.55	21.05	21.69	21.27	21.56	20.90	---	---	21.28	20.44
31	20.90	20.39	---	---	21.39	20.81	21.81	21.05	---	---	21.12	20.58
MONTH	21.66	20.11	22.15	20.32	22.27	20.66	22.09	20.68	22.72	20.44	21.88	20.29

GROUND-WATER LEVELS
MARYLAND--Continued
ST. MARYS COUNTY--Continued
SM Fe 30--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	21.09	20.35	21.12	20.60	21.34	20.98	21.50	21.00	22.52	22.13	22.44	22.04
2	20.86	20.38	21.35	20.80	21.50	21.03	21.44	21.04	---	---	---	---
3	21.03	20.29	21.31	20.86	21.47	21.08	21.30	20.89	22.56	22.10	---	---
4	21.01	20.54	21.24	20.69	21.74	21.28	21.67	20.89	22.73	22.17	---	---
5	21.14	20.54	21.02	20.62	21.75	20.98	21.88	21.30	22.36	21.83	---	---
6	21.19	20.58	21.41	20.69	21.37	20.89	21.71	21.14	22.50	21.81	---	---
7	21.28	20.75	21.35	20.74	21.63	21.08	21.62	21.02	22.73	21.95	22.49	21.81
8	21.52	21.05	21.37	20.83	21.55	20.83	21.68	21.02	22.61	22.12	22.62	21.80
9	---	---	21.40	20.75	21.42	20.94	22.17	21.11	22.47	21.98	22.28	21.77
10	---	---	21.03	20.59	21.47	21.10	22.47	21.73	22.40	21.89	22.43	21.74
11	21.80	20.85	21.60	20.61	---	---	22.30	21.77	22.45	21.85	22.62	22.09
12	21.85	21.25	21.58	20.79	---	---	22.19	21.63	22.59	21.98	22.50	22.00
13	21.79	21.24	21.28	20.77	---	---	22.13	21.59	22.63	22.06	22.33	21.88
14	21.46	20.97	21.53	20.91	21.19	20.59	21.95	21.46	22.70	22.08	22.25	21.73
15	21.40	20.81	21.34	20.81	21.08	20.49	22.01	21.49	22.59	22.07	22.39	21.79
16	21.44	20.85	21.21	20.81	21.22	20.61	22.50	21.84	22.60	22.09	22.44	21.92
17	21.65	20.86	21.31	20.89	21.25	20.82	22.58	22.05	22.65	22.08	22.69	22.14
18	21.83	21.52	21.46	21.06	21.17	20.63	22.59	22.05	22.73	22.13	22.50	21.96
19	21.74	21.36	21.47	20.96	21.17	20.63	22.58	21.99	22.83	22.09	22.40	21.79
20	21.62	21.19	21.47	20.85	21.42	20.65	22.80	22.11	22.65	21.84	22.63	22.06
21	21.74	21.24	21.26	20.60	21.34	20.75	22.81	22.04	22.34	21.53	22.35	21.78
22	21.78	21.13	20.88	20.32	21.31	20.75	22.63	21.88	22.07	21.38	22.37	21.72
23	21.58	20.97	21.25	20.62	21.32	20.52	22.45	21.92	21.96	21.40	22.67	22.00
24	21.65	20.86	21.41	20.66	21.44	20.65	22.65	22.00	22.15	21.54	22.60	22.23
25	21.54	20.68	21.33	20.57	21.48	20.81	22.53	21.94	22.30	21.72	22.45	22.11
26	21.48	20.66	21.01	20.44	21.47	20.88	22.52	21.88	22.47	21.90	22.52	22.07
27	21.44	20.65	21.18	20.49	21.37	20.78	22.43	21.87	22.50	22.12	22.53	22.05
28	21.41	20.64	21.11	20.26	21.49	20.85	22.54	21.95	22.38	21.98	22.38	22.06
29	21.30	20.65	20.96	20.20	21.57	21.12	22.31	21.88	22.24	21.90	22.58	22.21
30	21.05	20.54	21.25	20.78	21.63	21.05	22.24	21.85	22.41	22.04	22.64	22.19
31	---	---	21.20	20.72	---	---	22.26	21.81	22.24	21.88	---	---
MONTH	21.85	20.29	21.60	20.20	21.75	20.49	22.81	20.89	22.83	21.38	22.69	21.72



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

ST. MARYS COUNTY--Continued

WELL NUMBER.--SM Fe 31. SITE ID.--380834076303402. PERMIT NUMBER.--SM-73-3088.

LOCATION.--Lat 38°08'34", long 76°30'34", Hydrologic Unit 02070011, at water tower, Piney Point.

Owner: U.S. Geological Survey.

AQUIFER.--Aquia Formation of Paleocene age. Aquifer code: 125AQUI.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 639 ft; casing diameter 4 in., to 171 ft; casing diameter 2 in. from 171 to 451 ft; screen diameter 3 in. from 451 to 461 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 8 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing, 1.60 ft above land surface.

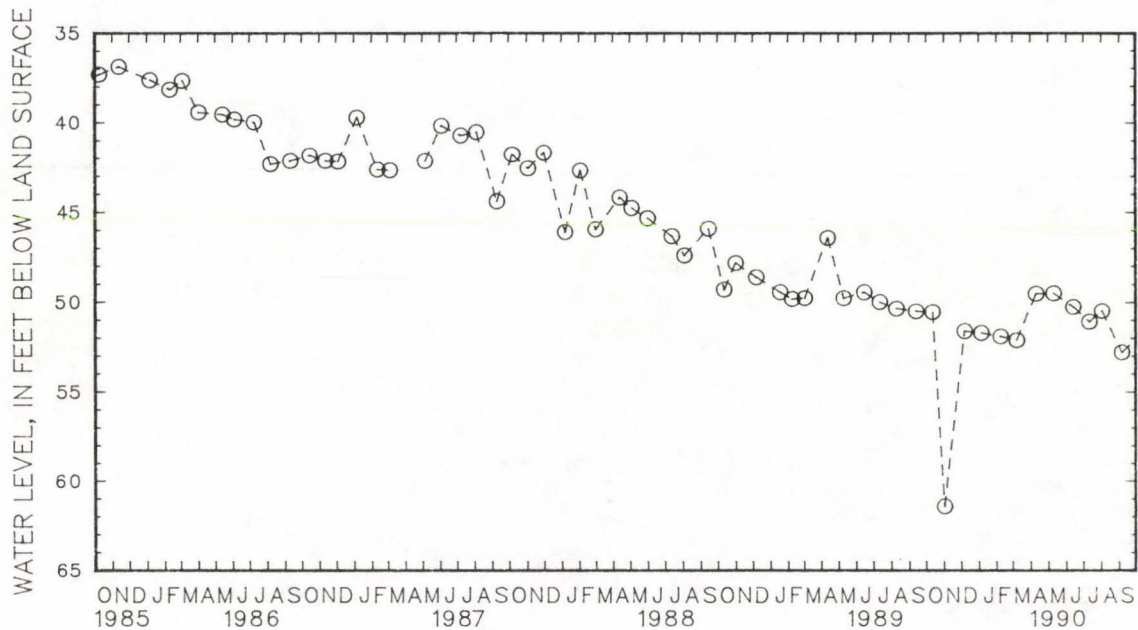
REMARKS.--Maryland Water-Level Network observation well. Water levels affected by nearby pumping.

PERIOD OF RECORD.--October 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.77 ft below land surface, Dec. 5, 1978; lowest measured, 61.42 ft below land surface, Nov. 2, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	50.57	DEC 7	51.59	FEB 8	51.89	APR 10	49.50	JUN 13	50.24	AUG 2	50.47
NOV 2	61.42	JAN 5	51.69	MAR 8	52.10	MAY 10	49.48	JUL 11	51.07	SEP 6	52.79



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

ST. MARYS COUNTY--Continued

WELL NUMBER.--SM Fg. 45. SITE ID.--380711076222201. PERMIT NUMBER.--SM-04-5190.

LOCATION.--Lat 38°07'11", long 76°22'22", Hydrologic Unit 02070011, in fire pumphouse at Ridge.

Owner: Ridge Volunteer Fire Department.

AQUIFER.--Piney Point Formation of Middle Eocene age. Aquifer code: 124PNPN.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, depth 436 ft; casing diameter 6 in., to 386 ft; casing diameter 4 in. from 415 to 436 ft; screen diameter 5 in. from 386 to 415 ft.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 65 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Hole in sanitary seal, 0.55 ft above land surface.

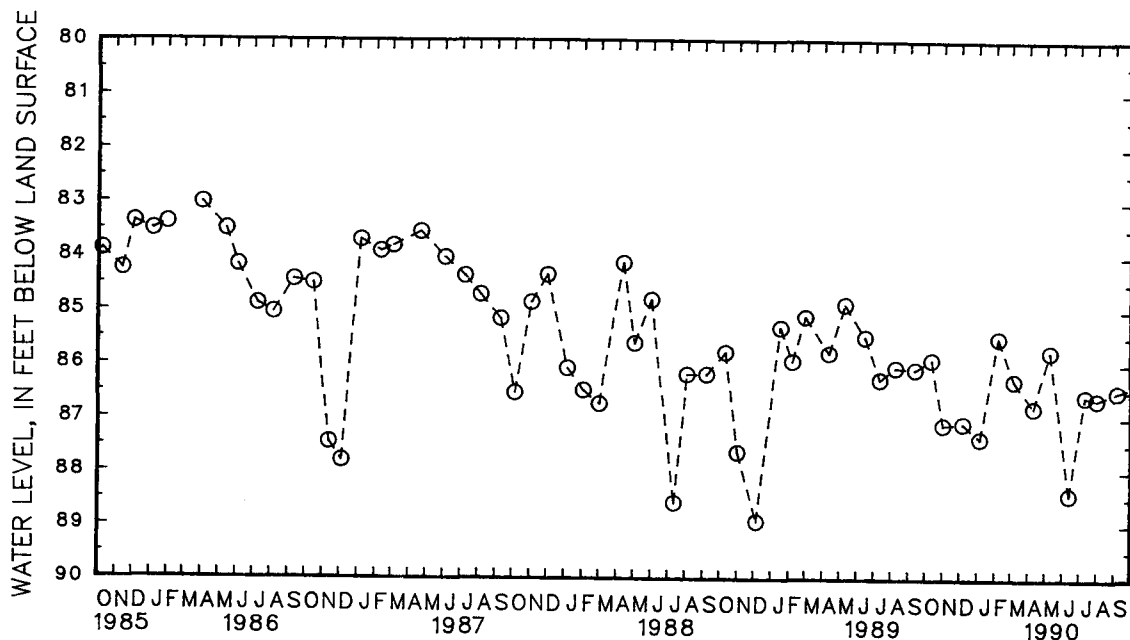
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--May 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 74.83 ft below land surface, May 16, 1967; lowest measured, 88.93 ft below land surface, Dec. 6, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	85.92	DEC 6	87.10	FEB 7	85.51	APR 10	86.80	JUN 13	88.42	AUG 1	86.64
NOV 1	87.13	JAN 5	87.38	MAR 7	86.30	MAY 10	85.76	JUL 11	86.58	SEP 6	86.50



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

WASHINGTON COUNTY

WELL NUMBER.--WA Ac 1. SITE ID.--394154078103501.

LOCATION.--Lat 39°41'54", long 78°10'35", Hydrologic Unit 02070004, at Hancock.

Owner: Susan Creager.

AQUIFER.--Romney Formation of Middle Devonian age. Aquifer code: 344RMNY.

WELL CHARACTERISTICS.--Drilled, unused, water-table well, depth 86.2 ft; casing diameter 4 in., to unknown depth; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface is 440 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of tile pipe, 0.2 ft above land surface.

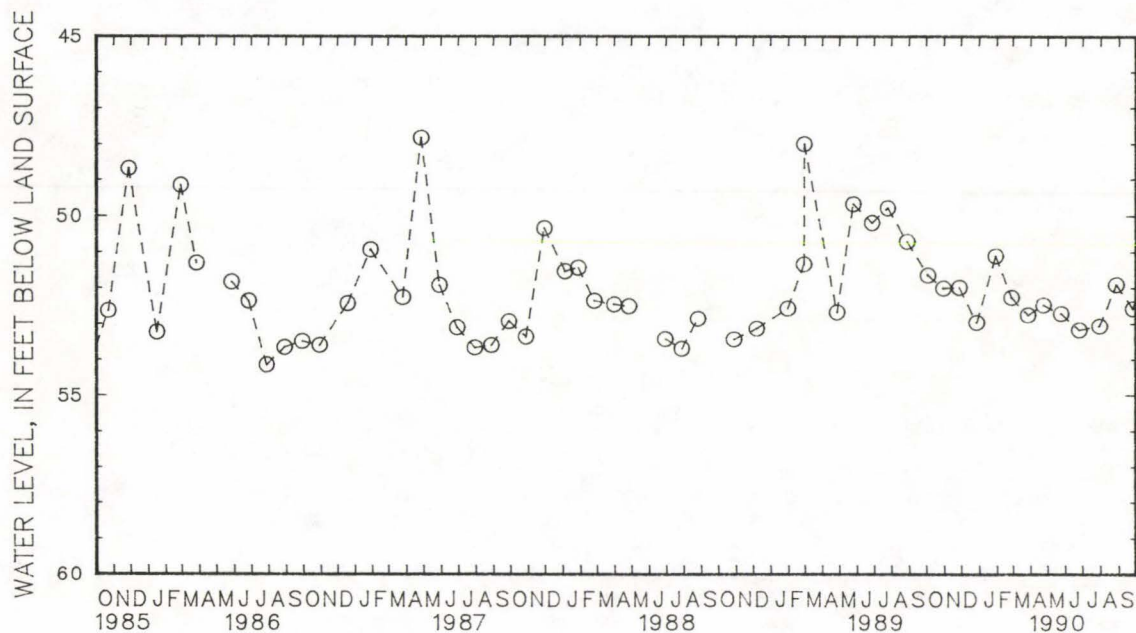
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--October 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.65 ft below land surface, Jan. 2, 1976; lowest measured, 55.83 ft below land surface, Nov. 19, 1953.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	52.02	DEC 27	52.98	FEB 26	52.28	APR 23	52.49	JUN 25	53.19	AUG 27	51.92
NOV 27	52.00	JAN 29	51.12	MAR 27	52.77	MAY 24	52.73	JUL 30	53.08	SEP 25	52.59



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

WASHINGTON COUNTY--Continued

WELL NUMBER.--WA Bk 25. SITE ID.--393851077343001. PERMIT NUMBER.--WA-70-0235.

LOCATION.--Lat 39°38'51", long 77°34'30", Hydrologic Unit 02070004, 0.5 mi south of Smithsburg at Hagerstown Water Supply Plant.

Owner: U.S. Geological Survey.

AQUIFER.--Tomstown Dolomite of Lower Cambrian age. Aquifer code: 377TMSN.

WELL CHARACTERISTICS.--Drilled, unused, water-table well, depth 200 ft; casing diameter 6 in., to 128 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with graphic water-level recorder from April 27, 1970 to current year.

DATUM.--Elevation of land surface is 790 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of shelter shelf, 3.5 ft above land surface.

REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--April 1970 to current year.

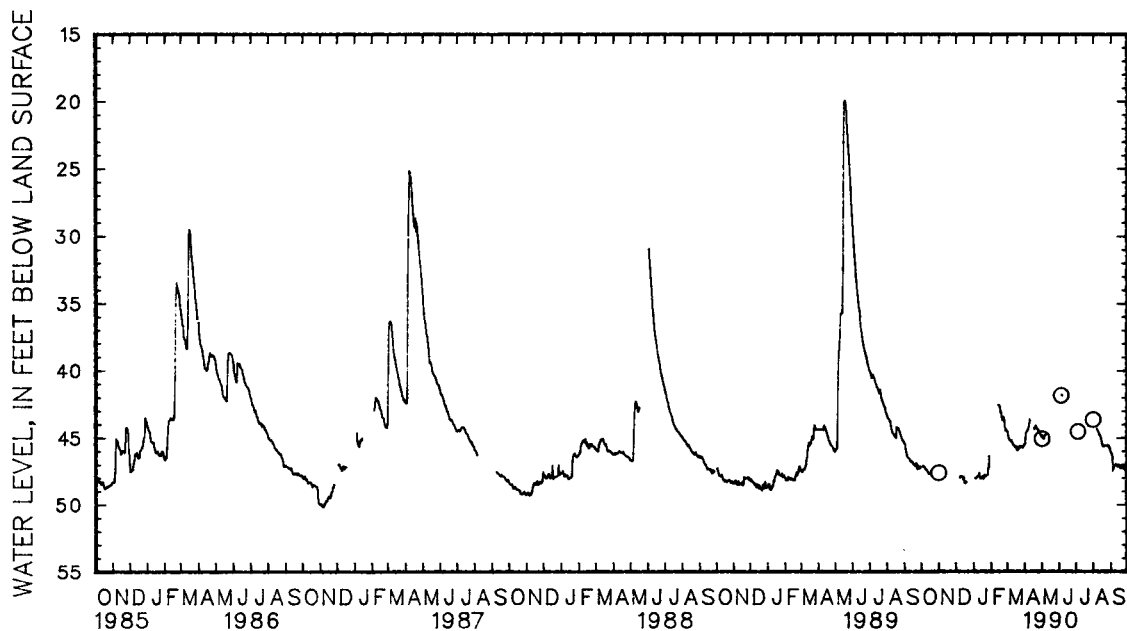
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.68 ft below land surface, April 6, 1984; lowest measured, 51.37 ft below land surface Jan. 31, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	---	---	---	---	---	---	44.68	44.52
2	---	---	---	---	---	---	---	---	---	---	44.87	44.55
3	---	---	---	---	---	---	---	---	---	---	45.04	44.88
4	---	---	---	---	---	---	48.29	48.06	---	---	45.22	45.04
5	---	---	---	---	---	---	48.27	48.10	---	---	45.51	45.18
6	---	---	---	---	---	---	48.19	48.04	---	---	---	---
7	---	---	---	---	---	---	48.17	48.00	---	---	---	---
8	---	---	---	---	48.16	48.04	48.07	47.93	---	---	45.39	45.28
9	---	---	---	---	48.04	47.92	48.08	47.91	---	---	45.35	45.22
10	---	---	---	---	48.02	47.91	48.12	47.90	---	---	45.49	45.35
11	---	---	---	---	48.09	47.95	48.09	47.69	---	---	45.56	45.44
12	---	---	---	---	48.08	47.98	48.06	47.87	---	---	45.59	45.52
13	---	---	---	---	48.17	47.96	48.21	48.07	---	---	45.68	45.60
14	---	---	---	---	48.27	48.14	48.22	48.12	42.78	42.56	45.71	45.64
15	---	---	---	---	48.29	47.97	48.13	48.08	42.78	42.65	45.82	45.70
16	---	---	---	---	48.41	48.28	48.14	48.10	42.82	42.61	45.85	45.76
17	---	---	---	---	48.43	48.40	48.11	47.96	43.29	42.84	45.83	45.67
18	---	---	---	---	48.47	48.45	48.17	47.94	43.29	43.21	46.09	45.82
19	---	---	---	---	48.46	48.33	48.25	48.11	43.55	43.13	46.08	45.95
20	---	---	---	---	48.50	48.37	48.11	47.88	43.79	43.55	46.06	45.93
21	---	---	---	---	---	---	48.00	47.84	43.81	43.72	45.97	45.90
22	---	---	---	---	---	---	48.04	47.87	43.75	43.47	45.97	45.70
23	---	---	---	---	---	---	48.08	47.91	43.76	43.51	45.89	45.68
24	---	---	---	---	---	---	---	---	44.13	43.71	45.89	45.75
25	---	---	---	---	---	---	---	---	44.58	44.14	45.81	45.65
26	---	---	---	---	---	---	48.01	47.81	44.63	44.48	45.75	45.66
27	---	---	---	---	---	---	47.84	47.40	44.48	44.38	45.83	45.72
28	---	---	---	---	---	---	47.40	47.25	44.59	44.46	45.82	45.71
29	---	---	---	---	---	---	47.25	46.42	---	---	45.84	45.75
30	---	---	---	---	---	---	---	---	---	---	45.75	45.66
31	---	---	---	---	---	---	---	---	---	---	45.65	45.60
MONTH	---	---	---	---	48.50	47.91	48.29	46.42	44.63	42.56	45.97	44.52

GROUND-WATER LEVELS
 MARYLAND--Continued
 WASHINGTON COUNTY--Continued
 WA Bk 25--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	45.62	45.56	45.04	44.92	---	---	---	---	---	---	46.17	46.09
2	45.63	45.45	45.21	45.01	---	---	---	---	---	---	46.21	46.13
3	45.55	45.02	45.02	44.88	---	---	---	---	---	---	46.42	46.21
4	45.00	44.60	45.16	44.94	---	---	---	---	---	---	47.58	46.41
5	44.67	44.54	45.26	45.14	---	---	---	---	---	---	47.60	47.53
6	44.63	44.49	45.13	44.98	41.90	41.81	---	---	---	---	47.55	47.49
7	44.50	44.43	44.98	44.88	42.00	41.86	---	---	---	---	47.54	47.32
8	44.49	44.35	44.88	44.80	---	---	---	---	44.51	44.38	47.31	47.16
9	44.41	44.12	44.89	44.78	---	---	---	---	44.57	44.50	47.24	47.15
10	44.11	43.68	---	---	---	---	---	---	44.63	44.55	47.20	47.04
11	43.97	43.75	---	---	---	---	---	---	44.80	44.63	47.12	47.04
12	---	---	---	---	---	---	---	---	44.88	44.81	47.19	47.11
13	---	---	---	---	---	---	---	---	44.96	44.84	47.23	47.16
14	---	---	---	---	---	---	---	---	45.10	44.96	47.18	47.07
15	---	---	---	---	---	---	---	---	45.27	45.10	47.21	47.05
16	---	---	---	---	---	---	---	---	45.44	45.27	47.25	47.08
17	---	---	---	---	---	---	---	---	45.60	45.44	47.42	47.25
18	44.42	44.28	---	---	---	---	---	---	45.70	45.59	47.42	47.30
19	44.46	44.38	---	---	---	---	---	---	45.87	45.69	47.34	47.16
20	44.37	44.23	---	---	---	---	---	---	45.92	45.69	47.42	47.25
21	44.31	44.14	---	---	---	---	---	---	45.71	45.60	47.43	47.29
22	44.39	44.27	---	---	---	---	---	---	45.66	45.61	47.30	47.20
23	44.42	44.30	---	---	---	---	---	---	45.69	45.62	47.36	47.22
24	44.50	44.38	---	---	---	---	---	---	45.69	45.62	47.43	47.35
25	44.56	44.42	---	---	---	---	---	---	---	---	47.42	47.29
26	44.58	44.49	---	---	---	---	---	---	---	---	47.44	47.31
27	44.69	44.59	---	---	---	---	---	---	45.66	45.58	47.53	47.44
28	44.75	44.64	---	---	---	---	---	---	45.74	45.66	47.58	47.47
29	44.89	44.76	---	---	---	---	---	---	45.81	45.70	47.64	47.56
30	44.96	44.85	---	---	---	---	---	---	45.92	45.77	47.68	47.56
31	---	---	---	---	---	---	---	---	46.09	45.93	---	---
MONTH	45.63	43.68	45.26	44.78	42.00	41.81	---	---	46.09	44.38	47.68	46.09



5 YEAR HYDROGRAPH
 OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

WASHINGTON COUNTY--Continued

WELL NUMBER.--WA Ch 106. SITE ID.--393414077461801. PERMIT NUMBER.--WA-73-2095.

LOCATION.--Lat 39°34'14", long 77°46'18", Hydrologic Unit 02070004, at Fountain Rock School.

Owner: U.S. Geological Survey.

AQUIFER.--Conococheague Limestone of Upper Cambrian age. Aquifer code: 371CCCG.

WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 69 ft; casing diameter 6 in., to 41 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with graphic water-level recorder from March 29, 1978 to June 19, 1981, Nov. 6, 1985 to May 3, 1987, and July 1, 1987 to current year.

DATUM.--Elevation of land surface is 520 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.45 ft above land surface.

REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--February 1978 to June 1981, April 1984 to current year.

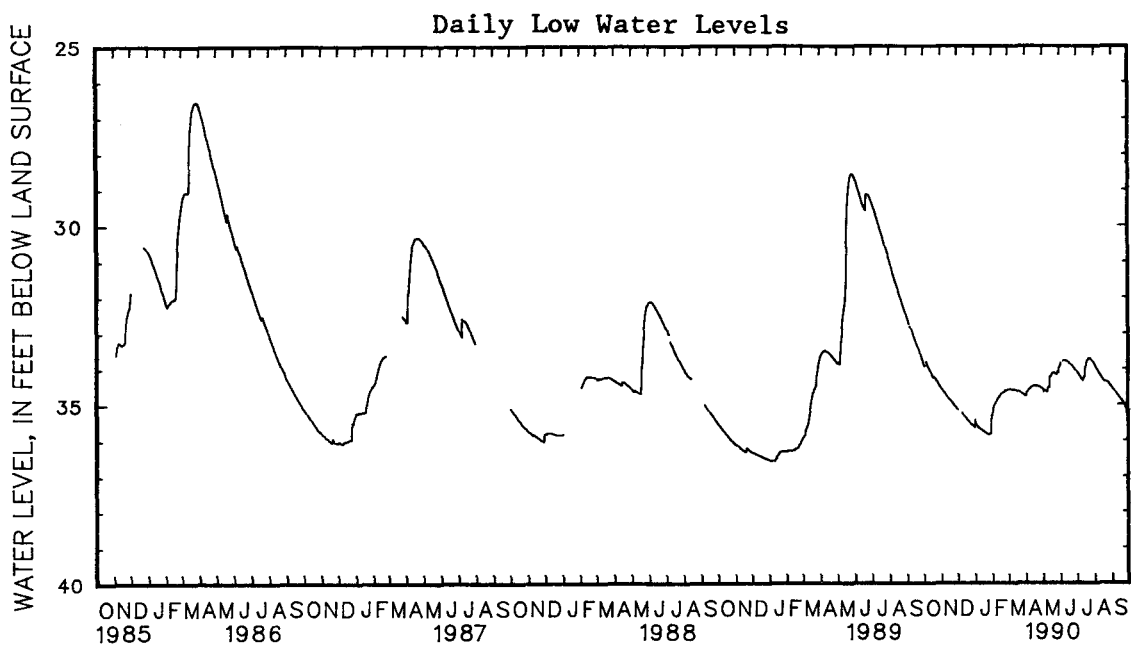
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.41 ft below land surface, April 23, 1984 and Apr. 23, 1987; lowest measured, 36.59 ft below land surface, Jan. 11, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	33.93	33.92	34.57	34.55	35.15	35.13	35.45	35.30	35.27	35.19	34.61	34.60
2	33.95	33.93	34.59	34.57	35.16	35.15	35.57	35.43	35.19	35.13	34.60	34.60
3	33.95	33.95	34.61	34.59	---	---	35.59	35.57	35.13	35.06	34.60	34.60
4	---	---	34.63	34.61	---	---	---	---	35.06	35.03	34.60	34.60
5	33.85	33.82	34.65	34.63	---	---	35.63	35.63	35.03	35.00	34.60	34.60
6	33.88	33.85	34.67	34.65	---	---	35.65	35.63	35.00	34.97	---	---
7	33.92	33.88	34.69	34.67	---	---	35.66	35.65	34.97	34.95	---	---
8	33.96	33.92	34.71	34.69	35.26	35.26	35.68	35.66	34.95	34.92	34.61	34.61
9	33.99	33.96	34.72	34.71	35.28	35.26	35.69	35.67	34.92	34.89	34.61	34.61
10	34.02	33.99	34.75	34.72	35.30	35.28	35.70	35.69	34.89	34.84	34.61	34.61
11	34.06	34.02	34.77	34.75	35.32	35.30	35.71	35.70	34.84	34.83	34.61	34.60
12	34.09	34.06	34.80	34.77	35.34	35.32	35.72	35.71	34.83	34.81	34.61	34.60
13	34.12	34.09	34.82	34.80	35.35	35.34	35.73	35.72	34.81	34.78	34.61	34.61
14	34.14	34.12	34.85	34.82	35.37	35.35	35.75	35.73	34.78	34.76	34.62	34.61
15	34.18	34.14	34.87	34.85	35.39	35.37	35.75	35.75	34.76	34.74	34.62	34.62
16	34.22	34.18	34.88	34.85	35.41	35.39	35.77	35.75	34.74	34.72	34.63	34.62
17	34.26	34.22	34.89	34.86	35.43	35.41	35.77	35.77	34.72	34.71	34.63	34.63
18	34.28	34.26	34.91	34.89	35.45	35.43	35.79	35.77	34.71	34.70	34.65	34.63
19	34.28	34.24	34.93	34.91	35.47	35.45	35.80	35.79	34.70	34.68	34.65	34.65
20	34.26	34.16	34.94	34.93	35.48	35.47	35.81	35.80	34.68	34.68	34.65	34.65
21	34.28	34.23	34.97	34.94	35.50	35.48	35.82	35.81	34.68	34.67	34.66	34.65
22	34.31	34.28	34.98	34.97	35.52	35.50	35.84	35.82	34.67	34.65	34.66	34.65
23	34.33	34.31	35.01	34.98	35.54	35.52	35.84	35.84	34.65	34.63	34.68	34.66
24	34.36	34.33	35.03	35.01	35.56	35.54	35.86	35.84	34.63	34.62	34.69	34.68
25	34.38	34.36	35.05	35.03	35.57	35.56	35.86	35.86	34.63	34.62	34.71	34.69
26	34.41	34.38	35.06	35.05	35.58	35.57	35.86	35.84	34.63	34.62	34.71	34.70
27	34.45	34.41	35.08	35.06	35.60	35.58	35.84	35.84	34.62	34.62	34.72	34.71
28	34.47	34.45	35.10	35.08	35.61	35.60	35.84	35.84	34.62	34.61	34.73	34.72
29	34.50	34.47	35.11	35.10	35.62	35.61	35.84	35.06	---	---	34.74	34.73
30	34.52	34.50	35.13	35.11	35.64	35.62	35.33	35.18	---	---	34.76	34.74
31	34.55	34.52	---	---	35.66	35.45	35.33	35.28	---	---	34.77	34.75
MONTH	34.55	33.82	35.13	34.55	35.66	35.13	35.86	35.06	35.27	34.61	34.77	34.60

GROUND-WATER LEVELS
MARYLAND--Continued
WASHINGTON COUNTY--Continued
WA Ch 106--Continued

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	34.78	34.77	34.59	34.57	33.91	33.88	34.10	34.08	33.88	33.86	34.53	34.52
2	34.79	34.61	34.60	34.59	33.87	33.84	34.12	34.10	33.92	33.88	34.55	34.53
3	34.68	34.67	34.66	34.60	---	---	34.15	34.12	33.95	33.92	34.58	34.55
4	34.68	34.66	34.64	34.62	---	---	34.17	34.15	33.98	33.95	34.61	34.58
5	34.66	34.63	34.62	34.59	---	---	34.20	34.17	34.01	33.98	34.62	34.61
6	34.63	34.62	34.63	34.62	33.80	33.79	34.22	34.20	34.04	34.01	34.63	34.62
7	34.61	34.59	34.65	34.63	33.79	33.78	34.24	34.22	34.06	34.04	34.65	34.63
8	34.59	34.58	34.66	34.64	33.79	33.78	34.27	34.24	34.09	34.07	34.67	34.65
9	34.58	34.56	34.67	34.66	33.79	33.78	34.29	34.27	34.12	34.09	34.69	34.67
10	34.56	34.55	34.67	34.63	33.79	33.79	34.32	34.29	34.15	34.12	34.71	34.69
11	34.55	34.53	34.55	34.47	33.80	33.79	34.34	34.32	34.18	34.15	34.74	34.71
12	34.53	34.52	34.55	34.55	33.80	33.79	34.35	34.14	34.21	34.18	34.76	34.74
13	34.52	34.52	34.55	33.64	33.82	33.80	34.27	34.22	34.24	34.21	34.78	34.76
14	34.52	34.51	34.25	33.90	33.82	33.82	34.27	34.25	34.27	34.24	34.79	34.78
15	34.51	34.51	34.25	34.22	33.83	33.82	34.25	33.79	34.30	34.27	34.82	34.79
16	34.51	34.50	34.22	34.18	33.84	33.83	33.97	33.91	34.31	34.30	34.84	34.82
17	34.50	34.50	34.18	34.16	33.86	33.84	33.95	33.85	34.33	34.31	34.87	34.84
18	34.50	34.50	34.16	34.14	33.88	33.86	33.85	33.80	34.35	34.33	34.88	34.87
19	34.51	34.50	34.15	34.14	33.89	33.88	33.80	33.78	34.37	34.35	34.90	34.88
20	34.51	34.50	34.14	34.14	33.90	33.89	33.78	33.75	34.37	34.36	34.93	34.90
21	34.50	34.50	34.14	34.14	33.92	33.90	33.76	33.73	34.37	34.37	34.95	34.93
22	34.51	34.50	34.15	34.14	33.94	33.92	33.73	33.73	34.38	34.37	34.98	34.95
23	34.51	34.51	34.15	34.15	33.95	33.94	33.73	33.73	34.38	34.37	35.01	34.98
24	34.52	34.51	34.17	34.15	33.97	33.95	33.73	33.73	34.38	34.37	35.02	35.01
25	34.52	34.52	34.18	34.17	33.99	33.97	33.75	33.73	34.40	34.38	35.04	35.02
26	34.52	34.52	34.18	34.08	34.01	33.99	33.77	33.74	34.41	34.40	35.06	35.04
27	34.54	34.52	34.12	34.12	34.03	34.01	33.78	33.77	34.43	34.41	35.24	35.06
28	34.55	34.54	34.13	34.12	34.06	34.03	33.80	33.78	34.45	34.43	35.08	35.08
29	34.56	34.55	34.13	33.99	34.07	34.06	33.82	33.80	34.49	34.46	35.10	35.08
30	34.57	34.56	33.99	33.97	34.08	34.07	33.83	33.82	34.49	34.49	35.12	35.10
31	---	---	33.97	33.91	---	---	33.86	33.83	34.52	34.49	---	---
MONTH	34.79	34.50	34.67	33.64	34.08	33.78	34.35	33.73	34.52	33.86	35.24	34.52



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

WASHINGTON COUNTY--Continued

WELL NUMBER.--WA C1 82. SITE ID.--393402077434201. PERMIT NUMBER.--WA-73-2101.

LOCATION.--Lat 39°34'02", long 77°43'42", Hydrologic Unit 02070004, at Maryland Correction Institution, Hagerstown.

Owner: U.S. Geological Survey.

AQUIFER.--Conococheague Limestone of Upper Cambrian age. Aquifer code: 371CCCG.

WELL CHARACTERISTICS.--Drilled, observation, water-table well, depth 84 ft; casing diameter 6 in., to 32 ft; open hole.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel. Equipped with digital water-level recorder--60-minute recorder interval from April 25, 1978 to June 19, 1981.

DATUM.--Elevation of land surface is 500 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of casing 2.3 ft above land surface.

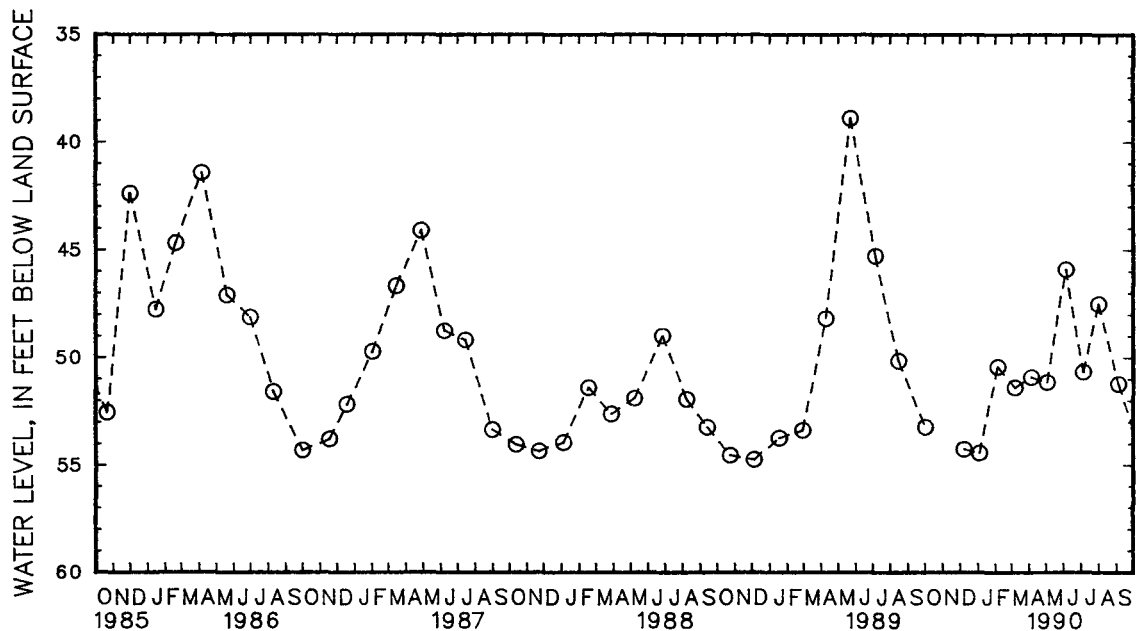
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--February 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.56 ft below land surface, Feb. 28, 1979; lowest measured, 59.28 ft below land surface, Feb. 1, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	53.24	JAN 4	54.44	MAR 7	51.39	MAY 3	51.14	JUL 5	50.67	SEP 4	51.23
DEC 8	54.27	FEB 5	50.43	APR 5	50.91	JUN 5	45.89	AUG 1	47.50		



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER LEVELS

MARYLAND--Continued

WASHINGTON COUNTY--Continued

WELL NUMBER.--WA Dj 2. SITE ID.--392904077371501.

LOCATION.--Lat 39°29'04", long 77°37'15", Hydrologic Unit 02070004, at Turner's Gap on Alt. U.S. 40.

Owner: Russell Schwartz.

AQUIFER.--Weverton Formation of Lower Cambrian age. Aquifer code: 377WVRN.

WELL CHARACTERISTICS.--Dug, stone-lined, observation, water-table well, depth 61.3 ft; casing diameter 48 in.

INSTRUMENTATION.--Monthly measurements with chalked steel tape by USGS personnel.

DATUM.--Elevation of land surface is 1,070 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top of concrete cover, 0.25 ft above land surface.

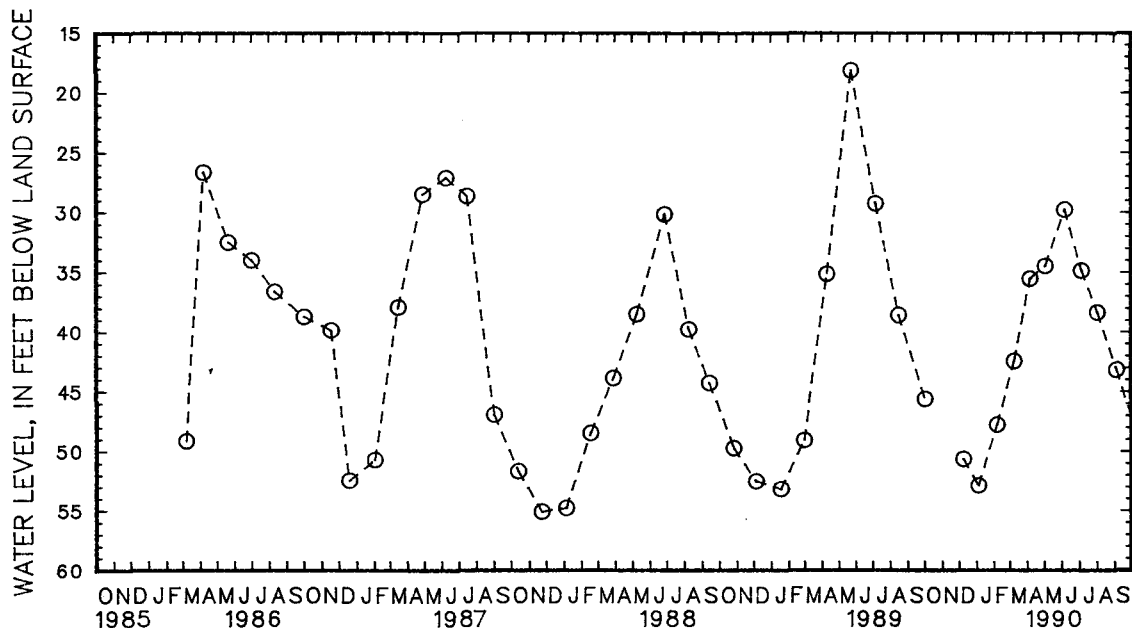
REMARKS.--Maryland Water-Level Network observation well.

PERIOD OF RECORD.--December 1956 to current year.

EXTREMES FOR PERIOD FOR RECORD.--Highest water level measured, 16.35 ft below land surface, April 23, 1984;
lowest measured, 58.88 ft below land surface, Oct. 5, 1961.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	45.67	JAN 4	52.90	MAR 9	42.45	MAY 3	34.45	JUL 5	34.85	SEP 5	43.21
DEC 8	50.68	FEB 6	47.78	APR 6	35.52	JUN 6	29.75	AUG 2	38.37		



5 YEAR HYDROGRAPH
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1990

GROUND-WATER QUALITY RECORDS

REMARK CODES.--The following remark codes may appear with the water-quality data in this section.

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
E	Estimated
>	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.

NOTE: In March 1989 the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

ALLEGANY COUNTY, MARYLAND

LOCAL IDENTIFIER	DATE	TIME	STATION	NUMBER	GEOLOGIC UNIT	Sam-pling method, codes	Elev. of land surface datum (ft above ngvd)	Flow rate, instantaneous (g/M)	Specific conductance (US/CM)	Ph (stand-ard units)
AL Ce 4	09-26-90	1010	393438078420601	3470RSK	4010	710	30	184	7.53	
		Temperature, water (deg C)	Color (plat-inum-cobalt units)	Calcium dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)	Potas-sium, dis-solved (mg/L as K)	Alka-linity, wat wh tot it field mg/L as CaCO3	Bicar-bonate water, wh it field mg/L as HCO3	Sulfate dis-solved (mg/L as SO4)
		13.0	<1	35	2.7	1.8	0.80	87	106	10
		Chloride, dis-solved (mg/L as Cl)	Fluo-ride, dis-solved (mg/L as F)	Silica, dis-solved (mg/L as SiO2)	Solids, residue at 180 deg. C dis-solved (mg/L)	Solids, sum of consti-tuents, dis-solved (mg/L)	Nitro-gen, NO2+NO3 total (mg/L as N)	Nitro-gen, ammonia total (mg/L as N)	Phos-phorous total (mg/L as P)	
		0.10	<0.10	11	103	114	0.100	<0.010	0.040	
		Phos-phorus, ortho, total (mg/L as P)	Alum-inum, total recov-erable (ug/L as Al)	Boron, total recov-erable (ug/L as B)	Iron, total recov-erable (ug/L as Fe)	Iron, dis-solved (ug/L as Fe)	Manga-nese, total recov-erable (ug/L as Mn)	Manga-nese, dis-solved (ug/L as Mn)	Carbon, organic total (mg/L as C)	
		0.050	<10	<10	<10	<3	<10	<1	0.1	

Geologic unit (aquifer): 347ORSK - Oriskany Group

Sampling method: 4010 - Thief sampler

QUALITY OF GROUND WATER

227

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

CHARLES COUNTY, MARYLAND

LOCAL IDENT- IFIER		DATE	TIME	STATION	NUMBER	GEO- LOGIC UNIT	Sam- pling method, codes	Depth below land surface (water level) (ft)	Depth of well, total (ft)	Depth to top of sample inter- val (ft)	Depth to bot- tom of sample inter- val (ft)
CH Bb	6	10-12-89	0900	383505077101006		217PPSC	4040	--	398.00	251	397
		08-30-90	1345			217PPSC	4040	--	398.00	251	397
CH Bb	7	10-12-89	1000	383505077101007		217PPSC	4040	--	399.00	255	399
		08-30-90	1345			217PPSC	4040	--	399.00	255	399
CH Bb	9	10-19-89	1100	383505077101009		217PPSC	4040	--	390.00	185	376
		08-30-90	1630			217PPSC	4040	--	390.00	185	376
CH Bb	12	10-20-89	1100	383552077100401		217PPSC	4040	--	515.00	238	298
CH Bb	17	10-20-89	1130	383524077111802		217PPSC	4040	--	294.00	--	--
		09-06-90	1350			217PPSC	4040	114.34	294.00	240	294
CH Bb	19	10-19-89	1015	383533077104002		217PPSC	4040	--	380.00	270	380
		08-30-90	1710			217PPSC	4040	--	380.00	270	380
CH Bc	3	10-12-89	1200	383507077094903		210CRCS	4040	--	390.00	--	--
		08-30-90	1400			210CRCS	4040	--	390.00	--	--
CH Bc	5	10-17-89	1100	383524077094401		210CRCS	4040	--	430.00	--	--
CH Bc	6	10-20-89	1205	383631077083501		217PTXN	4040	--	412.00	362	412
CH Bc	23	10-20-89	1020	383545077095501		217PPSC	4040	--	352.00	229	311
		08-31-90	0845			217PPSC	4040	--	311.00	229	311
CH Bc	49	10-20-89	1050	383540077090701		217PTXN	4040	--	404.00	340	404
CH Bc	67	10-19-89	0820	383606077092101		217PPSC	4040	--	522.00	488	522
		08-31-90	0900			217PTXN	4040	--	522.00	488	522
CH Bc	68	10-20-89	1200	383610077081001		217PTXN	4040	--	514.00	414	514
CH Bc	70	10-13-89	1200	383554077085702		217PTXN	4040	131.02	442.00	372	442
		08-31-90	0930			217PPSC	4040	--	442.00	372	442
CH Bc	72	10-19-89	0800	383548077091101		217PPSC	4040	--	360.00	224	347
CH Bc	74	10-25-89	1530	383709077061001		217PTXN	4040	233.47	748.00	--	--
CH Cb	7	10-18-89	1430	383422077114601		217PPSC	4040	--	400.00	154	167
		07-23-90	1500			217PPSC	4040	85.34	400.00	154	167
CH Cb	9	10-17-89	1200	383354077121501		217PPSC	4040	--	280.00	191	280
		08-31-90	1330			217PPSC	4040	--	280.00	191	280
		09-29-90	1100			217PPSC	4040	78.36	280.00	240	244
		09-29-90	1300			217PPSC	4040	78.36	280.00	191	206
CH Cb	11	10-13-89	1130	383313077125401		217PTXN	4040	--	454.00	--	--
CH Cb	18	10-18-89	1605	383412077112802		217PPSC	4040	--	295.00	261	295
		08-31-90	1350			217PPSC	4040	--	295.00	261	295
CH Cb	19	10-18-89	0900	383448077105202		217PPSC	4040	--	302.00	208	302
		08-31-90	1415			217PPSC	4040	--	302.00	208	302
CH Cb	28	10-13-89	1100	383315077131401		217PPSC	4040	--	290.00	190	290
		09-01-90	1230			217PPSC	4040	--	290.00	190	290
CH Cb	29	10-17-89	1230	383451077102601		217PPSC	4040	--	286.00	228	286
		08-30-90	1650			217PPSC	4040	--	286.00	228	286
CH Cb	34	10-18-89	1450	383427077121001		217PPSC	4040	--	232.00	217	232
		08-31-90	1540			217PPSC	4040	--	232.00	217	232
CH Cb	35	10-19-89	1000	383407077120501		217PTXN	4040	--	486.00	433	486
		08-31-90	1600			217PTXN	4040	--	486.00	433	486
CH Cb	38	09-07-90	1015	383328077114201		217PPSC	4040	77.25	235.00	220	235
CH Cb	39	11-02-89	1400	383332077111501		217PPSC	4040	--	383.00	--	--
CH Cb	40	11-02-89	1405	383308077110301		217PPSC	4040	--	301.00	--	--
CH Ee	16	05-09-90	1335	382103076560201		112TLBT	4040	15.34	23.00	21	23
CH Ee	90	05-08-90	1359	382456076562201		124NNJM	4040	4.35	21.00	11	16
		05-08-90	1430			124NNJM	4040	4.35	21.00	11	16

Geologic unit (aquifer): 112TLBT - Talbot Formation
 124NNJM - Nanjemoy Formation
 210CRCS - Cretaceous System
 217PPSC - Patapsco Formation
 217PTXN - Patuxent Formation

Sampling method: 4020 - Bailer
 4040 - Submersible pump

QUALITY OF GROUND WATER

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

CHARLES COUNTY, MARYLAND--Continued

LOCAL IDENT- IFIER	DATE	Elev. of land surface datum (ft above ngvd)	Pump or flow period prior to sam- pling (min)	Flow rate, instan- taneous (g/M)	Spe- cific con- duct- ance (US/CM)	Ph (stand- ard units)	Temper- ature, water (deg C)	Calcium dis- solved (mg/L as Ca)	Magne- sium, dis- solved (mg/L as Mg)	Sodium, dis- solved (mg/L as Na)
CH Bb 6	10-12-89	38.7	280	150	282	7.76	17.0	0.31	0.25	63
	08-30-90	38.7	>1000	150	288	7.63	17.5	2.2	0.67	69
CH Bb 7	10-12-89	38.9	24	150	291	8.00	17.0	0.25	0.15	67
	08-30-90	38.9	>1000	150	305	7.89	18.0	1.4	0.97	68
CH Bb 9	10-19-89	32.1	120	150	296	7.86	17.0	0.76	0.39	60
	08-30-90	32.1	90	150	269	7.91	17.5	0.30	0.28	68
CH Bb 12	10-20-89	95.0	50	200	841	7.14	15.0	8.8	5.8	180
CH Bb 17	10-20-89	52.0	210	7.5	616	7.44	16.0	3.8	1.4	130
	09-06-90	52.0	180	8.0	620	7.10	17.0	4.0	1.6	140
CH Bb 19	10-19-89	90.0	45	150	501	7.74	16.5	0.80	0.71	110
	08-30-90	90.0	120	150	467	7.68	17.0	0.85	0.77	120
CH Bc 3	10-12-89	18.7	--	150	268	7.94	17.5	0.21	0.18	66
	08-30-90	18.7	>1000	150	282	7.63	17.5	0.30	0.28	70
CH Bc 5	10-17-89	38.2	240	6.0	330	7.64	18.5	1.1	0.78	73
CH Bc 6	10-20-89	55.0	35	150	240	8.08	16.0	0.07	<0.01	58
CH Bc 23	10-20-89	65.0	180	150	542	7.49	16.5	2.0	1.5	120
	08-31-90	65.0	120	150	475	7.81	17.0	0.35	0.33	150
CH Bc 49	10-20-89	33.0	50	150	245	8.10	17.0	0.28	0.17	59
CH Bc 67	10-19-89	30.0	20	200	711	7.95	18.0	0.31	0.30	140
	08-31-90	30.0	120	200	693	7.90	18.5	--	--	--
CH Bc 68	10-20-89	75.0	--	150	216	8.10	16.0	0.08	0.06	56
CH Bc 70	10-13-89	35.0	30	200	278	8.09	17.0	0.10	<0.01	58
	08-31-90	35.0	120	200	245	8.10	17.5	0.39	0.31	64
CH Bc 72	10-19-89	34.0	60	200	309	7.95	16.0	0.27	0.24	66
CH Bc 74	10-25-89	165	--	80	239	7.87	17.0	0.22	0.04	55
CH Cb 7	10-18-89	36.0	360	6.0	304	7.49	16.0	2.7	1.4	63
	07-23-90	36.0	--	8.5	293	7.59	15.5	2.5	1.5	62
CH Cb 9	10-17-89	27.0	60	150	408	8.05	18.0	0.70	0.63	82
	08-31-90	24.0	>1000	150	378	8.05	17.5	0.78	0.77	90
	09-29-90	24.0	30	7.5	--	--	17.0	0.80	0.72	78
	09-29-90	24.0	70	7.5	--	--	17.0	0.67	0.70	88
CH Cb 11	10-13-89	5.0	20	100	624	7.67	14.0	2.4	0.80	120
CH Cb 18	10-18-89	30.5	70	150	519	7.63	17.0	0.50	0.57	110
	08-31-90	30.5	>1000	150	507	7.95	17.0	0.61	0.64	120
CH Cb 19	10-18-89	32.0	--	150	384	8.04	17.0	0.51	0.41	84
	08-31-90	32.0	30	150	311	7.96	16.5	0.75	0.58	74
CH Cb 28	10-13-89	5.0	20	150	335	7.57	14.0	1.4	1.0	62
	09-01-90	5.0	30	150	297	7.73	17.0	1.7	1.2	110
CH Cb 29	10-17-89	12.4	120	150	335	8.09	19.0	0.24	0.23	71
	08-30-90	12.4	1000	150	305	7.86	17.5	0.25	0.28	77
CH Cb 34	10-18-89	30.0	--	120	1310	7.43	16.5	7.5	7.6	260
	08-31-90	30.0	70	120	1330	7.07	16.5	8.9	8.2	280
CH Cb 35	10-19-89	30.0	45	200	626	7.86	17.5	0.36	0.33	130
	08-31-90	25.0	90	300	578	7.76	17.5	0.41	0.45	140
CH Cb 38	09-07-90	5.0	30	10	280	7.63	17.5	1.1	0.93	67
CH Cb 39	11-02-89	10.0	20	15	257	7.87	15.5	0.18	0.21	66
CH Cb 40	11-02-89	80.0	20	15	384	7.57	15.0	0.78	0.77	85
CH Ee 16	05-09-90	40.0	120	1.3	260	6.95	15.0	37	4.0	5.5
CH Ee 90	05-08-90	6.8	19	1.3	255	5.83	15.5	24	5.4	9.7
	05-08-90	6.8	19	--	--	--	--	24	5.5	11

QUALITY OF GROUND WATER

229

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

CHARLES COUNTY, MARYLAND--Continued

LOCAL IDENT- I- PIER	DATE	Potas- sium, dis- solved (mg/L as K)	Alka- linity, wat wh tot it field mg/L as CaCO3	Sulfate dis- solved (mg/L as SO4)	Chlo- ride, dis- solved (mg/L as Cl)	Fluo- ride, dis- solved (mg/L as F)	Bromide dis- solved (mg/L as BR)	Silica, dis- solved (mg/L as SiO2)	Solids, residue at 180 deg. C dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)
CH Bb 6	10-12-89	--	--	--	7.7	--	0.040	31	199	--
	08-30-90	--	--	13	13	--	0.030	32	189	--
CH Bb 7	10-12-89	--	--	--	9.9	--	0.040	31	206	--
	08-30-90	--	--	15	9.8	--	0.030	32	186	--
CH Bb 9	10-19-89	--	--	11	3.8	--	0.010	34	188	--
	08-30-90	--	--	11	9.7	--	0.040	32	185	--
CH Bb 12	10-20-89	--	--	<1.0	60	--	0.43	34	524	--
CH Bb 17	10-20-89	--	--	<1.0	78	--	0.45	41	397	--
	09-06-90	--	--	<1.0	84	--	0.47	41	407	--
CH Bb 19	10-19-89	--	--	2.0	22	--	0.17	34	303	--
	08-30-90	--	--	1.5	23	--	0.26	35	292	--
CH Bc 3	10-12-89	--	--	--	6.3	--	0.030	32	186	--
	08-30-90	--	--	7.1	7.3	--	0.040	34	185	--
CH Bc 5	10-17-89	--	--	8.0	8.8	--	0.030	29	211	--
CH Bc 6	10-20-89	--	--	13	2.4	--	0.010	38	188	--
CH Bc 23	10-20-89	--	--	<1.0	25	--	0.16	34	338	--
	08-31-90	--	--	10	120	--	0.40	34	393	--
CH Bc 49	10-20-89	--	--	11	2.9	--	<0.010	35	--	--
CH Bc 67	10-19-89	--	--	7.0	120	--	0.39	34	397	--
	08-31-90	--	--	--	--	--	--	--	--	--
CH Bc 68	10-20-89	--	--	12	1.2	--	<0.010	36	178	--
CH Bc 70	10-13-89	--	--	12	1.3	--	<0.010	34	171	--
	08-31-90	--	--	13	5.0	--	0.010	34	181	--
CH Bc 72	10-19-89	--	--	10	5.4	--	0.030	36	205	--
CH Bc 74	10-25-89	--	--	15	1.3	--	0.010	35	167	--
CH Cb 7	10-18-89	--	--	8.0	8.1	--	0.030	32	196	--
	07-23-90	2.8	--	8.0	11	0.80	--	33	187	197
CH Cb 9	10-17-89	--	--	10	20	--	0.070	31	230	--
	08-31-90	--	--	11	23	--	0.060	34	229	--
	09-29-90	--	--	12	18	1.0	0.070	33	229	--
	09-29-90	--	--	12	29	0.90	0.11	33	245	--
CH Cb 11	10-13-89	--	--	6.0	44	--	0.15	31	354	--
CH Cb 18	10-18-89	--	--	7.0	43	--	0.18	33	312	--
	08-31-90	--	--	11	47	--	0.20	33	308	--
CH Cb 19	10-18-89	--	--	7.0	19	--	0.090	33	240	--
	08-31-90	--	--	10	11	--	0.050	35	209	--
CH Cb 28	10-13-89	--	--	11	6.2	--	0.020	32	191	--
	09-01-90	--	--	1.3	26	--	0.15	33	292	--
CH Cb 29	10-17-89	--	--	10	7.1	--	0.040	34	201	--
	08-30-90	--	--	12	8.7	--	0.050	36	202	--
CH Cb 34	10-18-89	--	--	<1.0	200	--	0.96	38	756	--
	08-31-90	--	--	<1.0	210	--	1.1	39	770	--
CH Cb 35	10-19-89	--	--	7.0	42	--	0.14	32	352	--
	08-31-90	--	--	6.2	46	--	0.16	34	312	--
CH Cb 38	09-07-90	--	--	11	4.5	--	0.020	34	197	--
CH Cb 39	11-02-89	--	--	12	2.3	--	0.020	34	183	--
CH Cb 40	11-02-89	--	--	10	1.7	--	0.020	32	249	--
CH Ee 16	05-09-90	3.2	90	19	11	1.4	--	66	--	201
CH Ee 90	05-08-90	5.0	32	47	10	<0.10	--	11	--	133
	05-08-90	5.1	--	47	9.5	<0.10	--	11	--	134

QUALITY OF GROUND WATER

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

CHARLES COUNTY, MARYLAND--Continued

LOCAL IDENT- IFIER	DATE	Nitro- gen, NO2+NO3 total (mg/L as N)	Phos- phorous total (mg/L as P)	Alum- inum, total recov- erable (ug/L as Al)	Barium, dis- solved (ug/L as BA)	Beryl- lium, dis- solved (ug/L as BE)	Boron, total recov- erable (ug/L as B)	Cadmium dis- solved (ug/L as Cd)	Chro- mium, dis- solved (ug/L as CR)	Cobalt, dis- solved (ug/L as CO)
CH Bb 6	10-12-89	--	--	--	--	--	--	--	--	--
	08-30-90	--	--	--	4	<0.5	--	<1	<5	<3
CH Bb 7	10-12-89	--	--	--	--	--	--	--	--	--
	08-30-90	--	--	--	9	<0.5	--	<1	<5	<3
CH Bb 9	10-19-89	--	--	--	9	<0.5	--	1	<5	<3
	08-30-90	--	--	--	7	<0.5	--	<1	<5	<3
CH Bb 12	10-20-89	--	--	--	72	<0.5	--	2	<5	<3
CH Bb 17	10-20-89	--	--	--	23	<0.5	--	<1	<5	<3
	09-06-90	--	--	--	26	<0.5	--	<1	<5	<3
CH Bb 19	10-19-89	--	--	--	12	<0.5	--	<1	<5	<3
	08-30-90	--	--	--	14	<0.5	--	<1	<5	<3
CH Bc 3	10-12-89	--	--	--	--	--	--	--	--	--
	08-30-90	--	--	--	5	<0.5	--	1	<5	<3
CH Bc 5	10-17-89	--	--	--	--	--	--	--	--	--
CH Bc 6	10-20-89	--	--	--	<2	<0.5	--	<1	<5	<3
CH Bc 23	10-20-89	--	--	--	34	<0.5	--	<1	<5	<3
	08-31-90	--	--	--	11	<0.5	--	<1	<5	<3
CH Bc 49	10-20-89	--	--	--	<2	<0.5	--	<1	<5	<3
CH Bc 67	10-19-89	--	--	--	10	<0.5	--	<1	<5	<3
	08-31-90	--	--	--	--	--	--	--	--	--
CH Bc 68	10-20-89	--	--	--	<2	<0.5	--	<1	<5	<3
CH Bc 70	10-13-89	--	--	--	--	--	--	--	--	--
	08-31-90	--	--	--	8	<0.5	--	<1	<5	<3
CH Bc 72	10-19-89	--	--	--	6	<0.5	--	<1	<5	<3
CH Bc 74	10-25-89	--	--	--	<2	<0.5	--	<1	<5	<3
CH Cb 7	10-18-89	--	--	--	14	<0.5	--	<1	<5	<3
	07-23-90	<0.10	1.60	220	--	--	250	--	--	--
CH Cb 9	10-17-89	--	--	--	--	--	--	--	--	--
	08-31-90	--	--	--	7	<0.5	--	<1	<5	<3
	09-29-90	--	--	--	6	<0.5	--	<1	<5	<3
	09-29-90	--	--	--	9	<0.5	--	<1	<5	<3
CH Cb 11	10-13-89	--	--	--	--	--	--	--	--	--
CH Cb 18	10-18-89	--	--	--	4	<0.5	--	<1	<5	<3
	08-31-90	--	--	--	6	<0.5	--	<1	<5	<3
CH Cb 19	10-18-89	--	--	--	--	--	--	--	--	--
	08-31-90	--	--	--	9	<0.5	--	<1	<5	<3
CH Cb 28	10-13-89	--	--	--	--	--	--	--	--	--
	09-01-90	--	--	--	28	<0.5	--	<1	<5	<3
CH Cb 29	10-17-89	--	--	--	--	--	--	--	--	--
	08-30-90	--	--	--	5	<0.5	--	<1	<5	<3
CH Cb 34	10-18-89	--	--	--	34	<0.5	--	<1	<5	<3
	08-31-90	--	--	--	65	<0.5	--	1	<5	<3
CH Cb 35	10-19-89	--	--	--	9	<0.5	--	<1	<5	<3
	08-31-90	--	--	--	10	<0.5	--	<1	<5	<3
CH Cb 38	09-07-90	--	--	--	8	<0.5	--	<1	<5	<3
CH Cb 39	11-02-89	--	--	--	2	<0.5	--	<1	<5	<3
CH Cb 40	11-02-89	--	--	--	7	<0.5	--	<1	<5	<3
CH Ee 16	05-09-90	0.20	1.40	40	--	--	20	--	--	--
CH Ee 90	05-08-90	5.70	0.020	370	--	--	20	--	--	--
	05-08-90	5.60	0.050	220	--	--	10	--	--	--

QUALITY OF GROUND WATER

231

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

CHARLES COUNTY, MARYLAND--Continued

LOCAL IDENT- IFIER	DATE	Copper, dis- solved (ug/L as Cu)	Iron, total recov- erable (ug/L as Fe)	Iron, dis- solved (ug/L as Fe)	Lead, dis- solved (ug/L as Pb)	Lithium dis- solved (ug/L as Li)	Manga- nese, total recov- erable (ug/L as Mn)	Manga- nese, dis- solved (ug/L as Mn)	Molyb- denum, dis- solved (ug/L as Mo)
CH Bb 6	10-12-89	--	--	48	--	--	--	10	--
	08-30-90	<10	--	250	<10	6	--	18	<10
CH Bb 7	10-12-89	--	--	32	--	--	--	9	--
	08-30-90	<10	--	490	<10	6	--	25	<10
CH Bb 9	10-19-89	<10	--	55	<10	<4	--	11	<10
	08-30-90	<10	--	48	<10	<4	--	11	<10
CH Bb 12	10-20-89	<10	--	1100	<10	13	--	120	<10
CH Bb 17	10-20-89	<10	--	2600	<10	7	--	100	<10
	09-06-90	<10	--	3200	<10	7	--	130	<10
CH Bb 19	10-19-89	<10	--	460	<10	5	--	36	<10
	08-30-90	<10	--	260	<10	<4	--	30	<10
CH Bc 3	10-12-89	--	--	48	--	--	--	7	--
	08-30-90	<10	--	44	10	<4	--	8	<10
CH Bc 5	10-17-89	--	--	340	--	--	--	16	--
CH Bc 6	10-20-89	<10	--	110	<10	<4	--	3	<10
CH Bc 23	10-20-89	<10	--	280	10	5	--	42	<10
	08-31-90	<10	--	100	<10	4	--	10	<10
CH Bc 49	10-20-89	<10	--	120	<10	<4	--	11	<10
CH Bc 67	10-19-89	<10	--	150	<10	5	--	10	<10
	08-31-90	--	--	--	--	--	--	--	--
CH Bc 68	10-20-89	<10	--	80	<10	<4	--	3	<10
CH Bc 70	10-13-89	--	--	82	--	--	--	4	--
	08-31-90	<10	--	47	<10	<4	--	10	<10
CH Bc 72	10-19-89	<10	--	110	<10	<4	--	8	<10
CH Bc 74	10-25-89	<10	--	21	<10	<4	--	2	<10
CH Cb 7	10-18-89	<10	--	650	<10	5	--	47	<10
	07-23-90	--	1800	460	--	--	40	43	--
CH Cb 9	10-17-89	--	--	100	--	--	--	18	--
	08-31-90	<10	--	150	<10	<4	--	21	<10
	09-29-90	<10	--	250	<10	5	--	45	<10
	09-29-90	<10	--	400	<10	4	--	31	<10
	10-13-89	--	--	220	--	--	--	20	--
CH Cb 11	10-18-89	10	--	190	<10	6	--	24	<10
CH Cb 18	08-31-90	<10	--	270	<10	4	--	23	<10
	10-18-89	--	--	81	--	--	--	16	--
CH Cb 19	08-31-90	<10	--	93	<10	<4	--	18	<10
	10-13-89	--	--	480	--	--	--	25	--
CH Cb 28	09-01-90	<10	--	240	<10	5	--	34	<10
CH Cb 29	10-17-89	--	--	96	--	--	--	10	--
	08-30-90	<10	--	85	10	<4	--	10	<10
CH Cb 34	10-18-89	<10	--	47	<10	20	--	300	<10
	08-31-90	<10	--	2300	10	19	--	360	<10
CH Cb 35	10-19-89	<10	--	110	<10	5	--	11	<10
	08-31-90	<10	--	100	<10	<4	--	13	<10
CH Cb 38	09-07-90	<10	--	410	<10	5	--	26	<10
CH Cb 39	11-02-89	<10	--	280	<10	<4	--	11	<10
CH Cb 40	11-02-89	<10	--	610	<10	5	--	24	<10
CH Ee 16	05-09-90	--	600	25	--	--	30	25	--
CH Ee 90	05-08-90	--	1200	9	--	--	20	7	--
	05-08-90	--	780	11	--	--	20	8	--

QUALITY OF GROUND WATER

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

CHARLES COUNTY, MARYLAND--Continued

LOCAL IDENT- I- FIER	DATE	Nickel, dis- solved (ug/L as Ni)	Silver, dis- solved (ug/L as Ag)	Stron- tium, dis- solved (ug/L as Sr)	Vana- dium, dis- solved (ug/L as V)	Zinc, dis- solved (ug/L as Zn)	Radon 222, total (pCi/L)	Tritium total (pCi/L)	Carbon, organic total (mg/L as C)
CH Bb 6	10-12-89	--	--	--	--	--	--	--	0.9
	08-30-90	<10	<1.0	17	<6	<3	--	--	0.9
CH Bb 7	10-12-89	--	--	--	--	--	--	--	0.6
	08-30-90	<10	<1.0	15	<6	<3	--	--	0.7
CH Bb 9	10-19-89	<10	2.0	8	<6	9	--	--	0.4
	08-30-90	<10	<1.0	4	<6	4	--	--	0.4
CH Bb 12	10-20-89	<10	<1.0	88	<6	4	--	<1.0	4.7
CH Bb 17	10-20-89	<10	<1.0	22	<6	11	--	<1.0	2.9
	09-06-90	<10	<1.0	25	<6	5	--	--	2.7
CH Bb 19	10-19-89	<10	<1.0	10	<6	<3	--	<1.0	1.2
	08-30-90	<10	<1.0	11	<6	5	--	--	1.7
CH Bc 3	10-12-89	--	--	--	--	--	--	--	0.8
	08-30-90	<10	<1.0	4	<6	<3	--	--	0.6
CH Bc 5	10-17-89	--	--	--	--	--	--	--	0.7
CH Bc 6	10-20-89	<10	<1.0	<1	<6	<3	--	--	0.3
CH Bc 23	10-20-89	<10	<1.0	20	<6	5	--	<1.0	2.9
	08-31-90	<10	<1.0	4	<6	<3	--	--	3.0
CH Bc 49	10-20-89	<10	<1.0	1	<6	<3	--	--	0.3
CH Bc 67	10-19-89	<10	<1.0	4	<6	<3	--	<1.0	0.2
	08-31-90	--	--	--	--	--	--	--	--
CH Bc 68	10-20-89	<10	<1.0	1	<6	<3	--	--	0.3
CH Bc 70	10-13-89	--	--	--	--	--	--	--	0.3
	08-31-90	<10	<1.0	3	<6	<3	--	--	0.3
CH Bc 72	10-19-89	<10	<1.0	3	<6	<3	--	--	0.6
CH Bc 74	10-25-89	<10	<1.0	2	<6	25	--	--	0.3
CH Cb 7	10-18-89	<10	<1.0	25	<6	<3	--	--	0.5
	07-23-90	--	--	--	--	--	--	--	0.6
CH Cb 9	10-17-89	--	--	--	--	--	--	<1.0	0.4
	08-31-90	<10	<1.0	12	<6	<3	--	--	0.4
	09-29-90	<10	<1.0	10	<6	34	--	--	0.5
	09-29-90	<10	<1.0	9	<6	28	--	--	0.3
	10-13-89	--	--	--	--	--	--	<1.0	0.2
CH Cb 11	10-18-89	<10	<1.0	6	<6	12	--	<1.0	0.9
CH Cb 18	08-31-90	<10	1.0	9	<6	<3	--	--	1.0
CH Cb 19	10-18-89	--	--	--	--	--	--	<1.0	0.7
	08-31-90	<10	<1.0	9	<6	8	--	--	0.5
CH Cb 28	10-13-89	--	--	--	--	--	--	<1.0	0.4
	09-01-90	<10	<1.0	17	<6	<3	--	--	0.3
CH Cb 29	10-17-89	--	--	--	--	--	--	--	0.5
	08-30-90	<10	<1.0	5	<6	<3	--	--	0.4
CH Cb 34	10-18-89	<10	<1.0	88	<6	12	--	--	5.3
	08-31-90	<10	2.0	99	<6	5	--	--	6.0
CH Cb 35	10-19-89	<10	<1.0	4	<6	7	--	<1.0	0.2
	08-31-90	<10	1.0	6	<6	15	--	--	0.1
CH Cb 38	09-07-90	<10	<1.0	12	<6	60	--	--	0.2
CH Cb 39	11-02-89	<10	1.0	3	<6	39	--	<1.0	0.3
CH Cb 40	11-02-89	10	<1.0	9	<6	17	--	--	0.5
CH Ee 16	05-09-90	--	--	--	--	--	1200	--	0.7
CH Ee 90	05-08-90	--	--	--	--	--	1800	--	2.6
	05-08-90	--	--	--	--	--	--	--	2.8

CHARLES COUNTY, MARYLAND--Continued

[illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

FREDERICK COUNTY, MARYLAND

LOCAL IDENT- I- FIER	DATE	TIME	STATION	NUMBER	GEO- LOGIC UNIT	SITE TYPE	Sam- pling method, codes	Depth below land surface (water level) (ft)	Depth of well, total (ft)	Depth to top of sample inter- val (ft)	Depth to bot- tom of sample inter- val (ft)
FR Af 27	04-16-90	1537	394200077190701	231GBRG	GW	4040	0.99	365.00	39	365	
FR Cd 38	04-16-90	1750	393218077271001	377WVRN	SP	4010	--	--	--	--	
FR Dd 178	04-17-90	1040	392552077262201	377FDCK	SP	4010	--	--	--	--	
FR Df 35	10-02-89	1355	392517077190401	300SMCK	GW	4040	61.22	302.00	26	302	
	05-22-90	1536		300SMCK	GW	4040	57.29	302.00	26	302	
FR Fb 12	04-17-90	1330	391846077370501	400PCMB	SP	4010	--	--	--	--	

LOCAL IDENT- I- FIER	DATE	Elev. of land surface datum (ft above ngvd)	Pump or flow period prior to sam- pling (min)	Flow rate, instan- taneous (g/M)	Spe- cific con- duct- ance (US/CM)	Ph (stand- ard units)	Temper- ature, water (deg C)	Calcium dis- solved (mg/L as Ca)	Magne- sium, dis- solved (mg/L as Mg)	Sodium, dis- solved (mg/L as Na)
FR Af 27	04-16-90	385	137	17	496	7.53	13.5	55	20	19
FR Cd 38	04-16-90	820	--	--	25	5.09	11.5	0.83	0.77	1.3
FR Dd 178	04-17-90	315	--	--	601	7.36	13.0	91	12	21
FR Df 35	10-02-89	570	1445	7.5	123	6.62	12.5	15	5.8	1.7
	05-22-90	570	271	4.3	133	6.85	12.5	15	6.3	1.9
FR Fb 12	04-17-90	300	--	7.0	346	6.39	12.0	30	11	15

LOCAL IDENT- I- FIER	DATE	Potas- sium, dis- solved (mg/L as K)	Alka- linity, wat wh tot it field (mg/L as CaCO3)	Bicar- bonate water, wh it field (mg/L as HCO3)	Sulfate dis- solved (mg/L as SO4)	Chlo- ride, dis- solved (mg/L as Cl)	Fluo- ride, dis- solved (mg/L as F)	Silica, dis- solved (mg/L as SiO2)	Solids, residue at 180 deg. C dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)
FR Af 27	04-16-90	0.3	178	--	63	8.2	<0.10	27	310	298
FR Cd 38	04-16-90	1.3	3	--	2.7	2.2	<0.10	6.6	9	18
FR Dd 178	04-17-90	1.9	199	--	28	50	<0.10	9.6	349	331
FR Df 35	10-02-89	0.5	62	76	<1.0	1.5	0.10	11	--	--
	05-22-90	0.5	67	82	<1.0	2.9	<0.10	11	--	--
FR Fb 12	04-17-90	1.3	34	--	39	42	<0.10	25	238	184

LOCAL IDENT- I- FIER	DATE	Nitro- gen, NO2+NO3 total (mg/L as N)	Phos- phorous total (mg/L as P)	Alum- inum, total recov- erable (ug/L as Al)	Alum- inum, dis- solved (ug/L as Al)	Arsenic, dis- solved (ug/L as As)	Barium, dis- solved (ug/L as BA)	Beryl- lium, dis- solved (ug/L as BE)	Boron, total recov- erable (ug/L as B)	Cadmium dis- solved (ug/L as Cd)
FR Af 27	04-16-90	1.90	<0.010	40	--	--	--	--	150	--
FR Cd 38	04-16-90	0.40	<0.010	<10	--	--	--	--	<10	--
FR Dd 178	04-17-90	5.30	0.030	<10	--	--	--	--	<10	--
FR Df 35	10-02-89	0.40	0.140	90	--	--	--	--	<10	--
	05-22-90	0.40	0.090	<10	<10	<1	47	<0.5	<10	<1
FR Fb 12	04-17-90	4.80	0.080	<10	--	--	--	--	30	--

Geologic unit (aquifer): 231GBRG - Gettysburg Shale
 300SMCK - Sams Creek Metabasalt
 377FDCK - Frederick Limestone
 377WVRN - Weverton Formation
 400PCMB - Precambrian Erathem

Sampling method: 4010 - Thief sampler
 4040 - Submersible pump

Site type: GW - Groundwater
 SP - Spring

FREDERICK COUNTY, MARYLAND--Continued

[illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

FREDERICK COUNTY, MARYLAND--Continued

LOCAL IDENT- I- FIER	DATE	1,1,2- Tri- chloro- ethane, total (ug/L)	1,1,2,2 Tetra- chloro- ethane, total (ug/L)	1,2- Dibromo ethane, whole, total (ug/L)	1,2-Di- chloro- benzene total (ug/L)	1,2-Di- chloro- ethane, total (ug/L)	1,2-Di- chloro- propane total (ug/L)	1,2- Transdi- chloro- ethene, total (ug/L)	1,3-Di- chloro- propene total (ug/L)	1,3-Di- chloro- benzene total (ug/L)
FR Af 27	04-16-90	--	--	--	--	--	--	--	--	--
FR Cd 38	04-16-90	--	--	--	--	--	--	--	--	--
FR Dd 178	04-17-90	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
FR Df 35	10-02-89	--	--	--	--	--	--	--	--	--
	05-22-90	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
FR Fb 12	04-17-90	--	--	--	--	--	--	--	--	--

LOCAL IDENT- I- FIER	DATE	1,4-Di- chloro- benzene total (ug/L)	2- Chloro- ethyl- vinyl- ether, total (ug/L)	PCB, dis- solved (ug/L)	Ala- chlor, total recover (ug/L)	Aldrin, dis- solved (ug/L)	Ame- tryne, total (ug/L)	Atra- zine, total (ug/L)	Chlor- dane, dis- solved (ug/L)
FR Af 27	04-16-90	--	--	--	--	--	--	--	--
FR Cd 38	04-16-90	--	--	--	--	--	--	--	--
FR Dd 178	04-17-90	<3.0	<3.0	<0.1	<0.10	<0.01	<0.10	<0.10	<0.1
FR Df 35	10-02-89	--	--	--	--	--	--	--	--
	05-22-90	<3.0	<3.0	<0.1	<0.10	<0.01	<0.10	<0.10	<0.1
FR Fb 12	04-17-90	--	--	--	--	--	--	--	--

LOCAL IDENT- I- FIER	DATE	Cyan- azine, total (ug/L)	DDD, dis- solved (ug/L)	DDE, dis- solved (ug/L)	DDT, dis- solved (ug/L)	Di- azinon, dis- solved (ug/L)	Di- eldrin, dis- solved (ug/L)	Endo- sulfan, dissolv (ug/L)	Endrin, dis- solved (ug/L)
FR Af 27	04-16-90	--	--	--	--	--	--	--	--
FR Cd 38	04-16-90	--	--	--	--	--	--	--	--
FR Dd 178	04-17-90	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
FR Df 35	10-02-89	--	--	--	--	--	--	--	--
	05-22-90	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
FR Fb 12	04-17-90	--	--	--	--	--	--	--	--

LOCAL IDENT- I- FIER	DATE	Ethion, dissolv (ug/L)	Hepta- chlor, dis- solved (ug/L)	Hepta- chlor epoxide dis- solved (ug/L)	Lindane dis- solved (ug/L)	Mala- thion, dis- solved (ug/L)	Meth- oxy- chlor, dissolv (ug/L)	Methyl para- thion, dis- solved (ug/L)	Methyl- tri- thion dissolv (ug/L)
FR Af 27	04-16-90	--	--	--	--	--	--	--	--
FR Cd 38	04-16-90	--	--	--	--	--	--	--	--
FR Dd 178	04-17-90	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
FR Df 35	10-02-89	--	--	--	--	--	--	--	--
	05-22-90	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
FR Fb 12	04-17-90	--	--	--	--	--	--	--	--

LOCAL IDENT- I- FIER	DATE	Metola- chlor, water, whole, Tot.Rec (ug/L)	Metri- thion, water, whole, Tot.Rec (ug/L)	Mirex, dis- solved (ug/L)	Para- thion, dis- solved (ug/L)	Per- thane, dissolv (ug/L)	Prome- tryne, total (ug/L)	Prome- tone, total (ug/L)	Pro- pazine, total (ug/L)
FR Af 27	04-16-90	--	--	--	--	--	--	--	--
FR Cd 38	04-16-90	--	--	--	--	--	--	--	--
FR Dd 178	04-17-90	<0.1	<0.1	<0.01	<0.01	<0.10	<0.1	<0.1	<0.10
FR Df 35	10-02-89	--	--	--	--	--	--	--	--
	05-22-90	<0.1	<0.1	<0.01	<0.01	<0.10	<0.1	<0.1	<0.10
FR Fb 12	04-17-90	--	--	--	--	--	--	--	--

LOCAL IDENT- I- FIER	DATE	Tox- aphene, dis- solved (ug/L)	Tri- thion, dissolv (ug/L)	2,4-D, total (ug/L)	2,4-DP, total (ug/L)	2,4,5-T total (ug/L)	Silvex, total (ug/L)	Sima- zine, total (ug/L)	Sime- tryne, total (ug/L)
FR Af 27	04-16-90	--	--	--	--	--	--	--	--
FR Cd 38	04-16-90	--	--	--	--	--	--	--	--
FR Dd 178	04-17-90	<1.0	<0.01	--	--	--	--	<0.10	<0.1
FR Df 35	10-02-89	--	--	--	--	--	--	--	--
	05-22-90	<1.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1
FR Fb 12	04-17-90	--	--	--	--	--	--	--	--

QUALITY OF GROUND WATER

237

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

GARRETT COUNTY, MARYLAND

LOCAL IDENT- I- FIER	DATE	TIME	STATION	NUMBER	GEO- LOGIC UNIT	Sam- pling method, codes	Elev. of land surface datum (ft above ngvd)	Flow rate, instan- taneous (g/M)	Spe- cific con- duct- ance (US/CM)	Ph (stand- ard units)
GA Eb 72	09-25-90	1325	392420079221701		341JNGS	4010	2410	20	52	4.94
		Temperature, water (deg C)	Color (plat- inum- cobalt units)	Calcium dis- solved (mg/L as Ca)	Magne- sium, dis- solved (mg/L as Mg)	Sodium, dis- solved (mg/L as Na)	Potas- sium, dis- solved (mg/L as K)	Alka- linity, wat wh tot it field mg/L as CaCO3	Bicar- bonate water, wh it field mg/L as HCO3	Sulfate dis- solved (mg/L as SO4)
		10.0	2	3.6	1.2	1.7	1.0	3	4	10
		Chlo- ride, dis- solved (mg/L as Cl)	Fluo- ride, dis- solved (mg/L as F)	Silica, dis- solved (mg/L as SiO2)	Solids, residue at 180 deg. C dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO2+NO3 total (mg/L as N)	Nitro- gen, ammonia total (mg/L as N)	Phos- phorous total (mg/L as P)	
		3.7	<0.10	4.5	31	28	0.500	<0.010	<0.010	
		Phos- phorus, ortho, total (mg/L as P)	Alum- inum, total recov- erable (ug/L as Al)	Boron, total recov- erable (ug/L as B)	Iron, total recov- erable (ug/L as Fe)	Iron, dis- solved (ug/L as Fe)	Manga- nese, total recov- erable (ug/L as Mn)	Manga- nese, dis- solved (ug/L as Mn)	Carbon, organic total (mg/L as C)	
		0.020	70	50	30	<3	40	49	0.7	

Geologic unit (aquifer): 341JNGS - Jennings Formation

Sampling method: 4010 - Thief sample

QUALITY OF GROUND WATER
WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MONTGOMERY COUNTY, MARYLAND

LOCAL IDENT- I- FIER	DATE	TIME	STATION	NUMBER	GEO- LOGIC UNIT	Sam- pling method, codes	Depth below land surface (water level) (ft)	Depth of well, total (ft)	Depth to top of sample inter- val (ft)	Depth to bot- tom of sample inter- val (ft)
MO Db 68	05-23-90	1600	390802077283801	231NOXF	4040	13.23	252.00	40	252	
		Elev. of land surface datum (ft above ngvd)	Pump or flow period prior to sam- pling (min)	Flow rate, instan- taneous (g/M)	Spe- cific con- duct- ance (US/CM)	Ph (stand- ard units)	Temper- ature, water (deg C)	Calcium dis- solved (mg/L as Ca)	Magne- sium, dis- solved (mg/L as Mg)	Sodium, dis- solved (mg/L as Na)
		260	165	8.0	231	7.62	13.5	34	7.0	5.9
		Potas- sium, dis- solved (mg/L as K)	Alka- linity, wat wh tot it field mg/L as CaCO3	Bicar- bonate water, wh it field mg/L as HCO3	Sulfate dis- solved (mg/L as SO4)	Chlo- ride, dis- solved (mg/L as Cl)	Fluo- ride, dis- solved (mg/L as F)	Silica, dis- solved (mg/L as SiO2)	Nitro- gen, dis- solved NO2+NO3 total (mg/L as N)	Phos- phorous total (mg/L as P)
		0.4	115	140	<1.0	3.7	<0.10	22	1.30	0.060
		Alum- inum, total recov- erable (ug/L as Al)	Alum- inum, dis- solved (ug/L as Al)	Arsenic, dis- solved (ug/L as As)	Barium, dis- solved (ug/L as BA)	Beryl- lium, dis- solved (ug/L as BE)	Boron, total recov- erable (ug/L as B)	Cadmium dis- solved (ug/L as Cd)	Chro- mium, dis- solved (ug/L as CR)	Cobalt, dis- solved (ug/L as CO)
		<10	<10	<1	120	<0.5	<10	<1	<1	<1
		Copper, dis- solved (ug/L as Cu)	Iron, total recov- erable (ug/L as Fe)	Iron, dis- solved (ug/L as Fe)	Lead, dis- solved (ug/L as Pb)	Lithium dis- solved (ug/L as Li)	Manga- nese, total recov- erable (ug/L as Mn)	Manga- nese, dis- solved (ug/L as Mn)	Mercury dis- solved (ug/L as Hg)	Molyb- denum, dis- solved (ug/L as Mo)
		<1	420	5	<1	7	<10	1	0.1	<1
		Nickel, dis- solved (ug/L as Ni)	Sele- nium, dis- solved (ug/L as SE)	Vana- dium, dis- solved (ug/L as V)	Zinc, dis- solved (ug/L as Zn)	Radon 222, total (pCi/L)	Carbon, organic total (mg/L as C)	Pcn, dissolv (ug/L)	Bromo- form, total (ug/L)	Benzene total (ug/L)
		<1	<1	2	6	850	0.3	<0.10	<3.0	<3.0
		Carbon- tetra- chlo- ride, total (ug/L)	Chloro- benzene total (ug/L)	Chloro- di- bromo- methane total (ug/L)	Chloro- form, total (ug/L)	Chloro- ethane, total (ug/L)	Cis 1,3-di- chloro- propene total (ug/L)	Di- chloro- bromo- methane total (ug/L)	Di- chloro- di- fluoro- methane total (ug/L)	Ethyl- benzene total (ug/L)
		<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
		Methyl- bromide total (ug/L)	Methyl- chlo- ride, total (ug/L)	Methyl- ene chlo- ride, total (ug/L)	Styrene total (ug/L)	Tetra- chloro- ethyl- ene, total (ug/L)	Tri- chloro- fluoro- methane total (ug/L)	Toluene total (ug/L)	Trans- 1,3-di- chloro- propene total (ug/L)	
		<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	

Geologic unit (aquifer): 231NOXF - New Oxford Formation

Sampling method: 4040 - Submersible pump

MONTGOMERY COUNTY, MARYLAND--Continued

[illegible]

QUALITY OF GROUND WATER

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

PRINCE GEORGES COUNTY, MARYLAND

LOCAL IDENT- IFIER	DATE	TIME	STATION	NUMBER	GEO- LOGIC UNIT	Sam- pling method, codes	Depth below land surface (water level) (ft)	Depth of well, total (ft)	Depth to top of sample inter- val (ft)	Depth to bot- tom of sample inter- val (ft)
PG Bc 37	04-23-90	1450	385920076571701			4040	9.82	25.00	15	25
		Elev. of land surface datum (ft above ngvd)	Pump or flow period prior to sam- pling (min)	Flow rate, instan- taneous (g/M)	Spe- cific con- duct- ance (US/CM)	Ph (stand- ard units)	Temper- ature, water (deg C)	Calcium dis- solved (mg/L as Ca)	Magne- sium, dis- solved (mg/L as Mg)	Sodium, dis- solved (mg/L as Na)
		165	81	1.2	1710	4.95	11.5	15	9.5	270
		Potas- sium, dis- solved (mg/L as K)	Alka- linity, wat wh tot it field mg/L as CaCO3	Bicar- bonate water, wh it field mg/L as HCO3	Sulfate dis- solved (mg/L as SO4)	Chlo- ride, dis- solved (mg/L as Cl)	Fluo- ride, dis- solved (mg/L as F)	Silica, dis- solved (mg/L as SiO2)	Solids, residue at 180 deg. C dis- solved (mg/L)	
		4.4	13	17	20	460	<0.10	10	886	
		Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO2+NO3 total (mg/L as N)	Phos- phorous total (mg/L as P)	Alum- inum, total recov- erable (ug/L as Al)	Boron, total recov- erable (ug/L as B)	Iron, total recov- erable (ug/L as Fe)	Iron, dis- solved (ug/L as Fe)	Manga- nese, total recov- erable (ug/L as Mn)	
		807	0.20	<0.01	240	20	12000	9600	880	
		Manga- nese, dis- solved (ug/L as Mn)	Zinc, total recov- erable (ug/L as Zn)	Radon 222, total (pCi/L)	Carbon, organic total (mg/L as C)	Bromo- form, total (ug/L)	Benzene total (ug/L)	Carbon- tetra- chloro- ride, total (ug/L)	Chloro- benzene total (ug/L)	
		800	50	550	1.2	<3.0	<3.0	<3.0	<3.0	
		Chloro- di- bromo- methane total (ug/L)	Chloro- form, total (ug/L)	Chloro- ethane, total (ug/L)	Cis 1,3-di- chloro- propene total (ug/L)	Di- chloro- bromo- methane total (ug/L)	Di- chloro- di- fluoro- methane total (ug/L)	Ethyl- benzene total (ug/L)	Methyl- bromide total (ug/L)	
		<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	
		Methyl- chloro- ride, total (ug/L)	Methyl- ene chloro- ride, total (ug/L)	Styrene total (ug/L)	Tetra- chloro- ethyl- ene, total (ug/L)	Tri- chloro- fluoro- methane total (ug/L)	Toluene total (ug/L)	Trans- 1,3-di- chloro- propene total (ug/L)	Tri- chloro- ethyl- ene, total (ug/L)	
		<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	

Geologic unit (aquifer): 112PCPC - Pleistocene-Pliocene series

Sampling method: 4040 - Submersible pump

PRINCE GEORGES COUNTY, MARYLAND--Continued

[illegible]

QUALITY OF GROUND WATER
WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
ST. MARYS COUNTY, MARYLAND

LOCAL IDENT- IFIER	DATE	TIME	STATION	NUMBER	GEO- LOGIC UNIT	Sam- pling method, codes	Depth below land surface (water level) (ft)	Depth of well, total (ft)	Depth to top of sample inter- val (ft)	Depth to bot- tom of sample inter- val (ft)
SM Ef 80	05-09-90	0930	381052076253001	112OMAR		4040	14.40	20.70	21	21
		Elev. of land surface datum (ft above ngvd)	Pump or flow period prior to sam- pling (min)	Flow rate, instan- taneous (g/M)	Spe- cific con- duct- ance (US/CM)	Ph (stand- ard units)	Temper- ature, water (deg C)	Calcium dis- solved (mg/L as Ca)	Magne- sium, dis- solved (mg/L as Mg)	Sodium, dis- solved (mg/L as Na)
		40.0	79	1.2	166	5.43	13.0	19	3.0	1.9
		Potas- sium, dis- solved (mg/L as K)	Alka- linity, wat wh tot it field mg/L as CaCO3	Sulfate dis- solved (mg/L as SO4)	Chlor- ide, dis- solved (mg/L as Cl)	Fluor- ide, dis- solved (mg/L as F)	Silica, dis- solved (mg/L as SiO2)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO2+NO3 total (mg/L as N)	Phos- phorous total (mg/L as P)
		3.2	12	43	4.7	<0.10	3.9	87	5.70	0.020
		Alum- inum, total recov- erable (ug/L as Al)	Boron, total recov- erable (ug/L as B)	Iron, total recov- erable (ug/L as Fe)	Iron, dis- solved (ug/L as Fe)	Manga- nese, total recov- erable (ug/L as Mn)	Manga- nese, dis- solved (ug/L as Mn)	Radon 222, total (pCi/L)	Carbon, organic total (mg/L as C)	
		10	10	20	8	10	7	250	1.2	
		Pcn, dissolv (ug/L)	PCB, dis- solved (ug/L)	Aldrin, dis- solved (ug/L)	Chlor- dane, dis- solved (ug/L)	DDD, dis- solved (ug/L)	DDE, dis- solved (ug/L)	DDT, dis- solved (ug/L)	Di- azinon, dis- solved (ug/L)	
		<0.10	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	
		Di- eldrin, dis- solved (ug/L)	Endo- sulfan, dissolv (ug/L)	Endrin, dis- solved (ug/L)	Ethion, dissolv (ug/L)	Hepta- chlor, dis- solved (ug/L)	Hepta- chlor epoxide dis- solved (ug/L)	Lindane dis- solved (ug/L)	Mala- thion, dis- solved (ug/L)	
		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
		Meth- oxy- chlor, dissolv (ug/L)	Methyl para- thion, dis- solved (ug/L)	Methyl- tri- thion dissolv (ug/L)	Mirex, dis- solved (ug/L)	Para- thion, dis- solved (ug/L)	Per- thane, dissolv (ug/L)	Tox- aphene, dis- solved (ug/L)	Tri- thion, dissolv (ug/L)	
		<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<1.0	<0.01	

Geologic unit (aquifer): 112OMAR - Omar Formation

Sampling method: 4040 - Submersible pump

WASHINGTON COUNTY, MARYLAND

Sampling method: 4010 - Thief sampler

INDEX

	Page		Page
Accuracy of records, explanation of.....	8-9	Crest-stage partial-record stations.....	119
Acre-foot, definition of.....	14	Cubic feet per second per square mile,	
Adenosine triphosphate, definition of.....	14	definition of.....	15
Albert Powell Fish Hatchery Spring		Cubic foot per second, definition of.....	15
at Beaver Creek, MD.....	58	Cumberland, MD, North Branch Potomac River near..	49
Algae, definition of.....	14	Wills Creek near.....	48
Algal growth potential, definition of.....	14		
Allegheny County, MD, ground-water levels in	121-123	Data, accuracy of.....	8-9
ground-water quality record in.....	226	collection and computation of.....	6, 12, 13
Anacostia River, Northeast Branch,		explanation of.....	6-9
at Riverdale, MD.....	108	other available.....	9
Anacostia River, Northwest Branch,		presentation of.....	7-8, 12-13
near Hyattsville, MD.....	109	Datum, explanation of.....	12
Antietam Creek near Sharpsburg, MD.....	59	Dawsonville, MD, Seneca Creek at.....	98
Aquifer, definition of.....	14	Deep Creek Reservoir near Oakland, MD.....	115
Artesian, definition of.....	14	Definition of terms.....	14-20
Artificial substrate, definition of.....	19	Delaware and Maryland, 1990, water	
Ash mass, definition of.....	14	resources data for, explanation of.....	1-20
Average discharge, explanation of.....	7	Diatoms, definition of.....	17
		Discharge, definition of.....	15
Bacteria, definition of.....	14	Dissolved, definition of.....	15
Barton, MD, Savage River near.....	44	Dissolved-solids concentration, definition of....	15
Bear Creek at Friendsville, MD.....	117	Downstream order and station number.....	4
Beaver Creek, MD, Albert Powell Fish		Downstream order system, explanation of.....	4
Hatchery Spring at.....	58	Drainage area, definition of.....	15
Bed load, definition of.....	18	Drainage basin, definition of.....	15
Bed load discharge, definition of.....	18	Dry mass, definition of.....	14
Bed material, definition of.....	14		
Bennett Creek at Park Mills, MD.....	97	Emmitsburg, MD, Toms Creek at.....	71
Bernard Frank Lake.....	107	Estimated daily discharge, explanation of.....	6, 8
Bibliographic Data Sheet.....	iv	Extremes, explanation of.....	7-8, 11, 13
Big Pipe Creek at Bruceville, MD.....	72		
Biochemical oxygen demand, definition of.....	14	Factors for converting English units to	
Biomass, definition of.....	14	International System (SI) units...Inside back cover	
Bloomington, MD, Savage River below Savage River		Fairfax Water Treatment Plant.....	99
Dam, near.....	45	Fairview, MD, Conococheague Creek at.....	53
Blue-green algae, definition of.....	17	Fecal coliform bacteria, definition of.....	14
Bottom material, definition of.....	15	Fecal streptococcal bacteria, definition of.....	14
Bridgeport, MD, Monocacy River at.....	67-70	Fishing Creek tributary near Lewistown, MD.....	86-93
Bruceville, MD, Big Pipe Creek at.....	72	Fluvial sediment data, explanation of.....	10
Burnt Mills Dam.....	109	Fort Pendelton, MD, McMillan Fork near.....	34-39
		Foxville, MD, Hunting Creek near.....	73-78
Carroll County, MD, ground-water level in.....	124	Hunting Creek tributary near.....	79-84
Casselman River at Grantsville, MD.....	118	Franklin, MD, Georges Creek at.....	47
Catoctin Creek near Middletown, MD.....	63	Frederick County, MD, ground-water levels in....	157-161
Cells/volume, definition of.....	15	ground-water spring discharge in.....	120
Cfs-day, definition of.....	15	ground-water quality records in.....	234-236
Chain Bridge, Washington, DC, Potomac River at...	104-106	Frederick, MD, Monocacy River at Jug Bridge near.	94
Charles County, MD, ground-water levels in.....	125-156	Monocacy River at Reich's Ford Bridge near....	95-96
ground-water quality records in.....	227-232	Friendsville, MD, Bear Creek at.....	117
Chemical data, explanation of.....	9, 11, 13	Youghiogheny River at.....	116
Chemical oxygen demand, definition of.....	15		
Chesapeake and Ohio Canal, diversions to.....	99	Gage, explanation of.....	7
Chlorophyll, definition of.....	15	Gage height, definition of.....	16
Clements, MD, St. Clement Creek near.....	112	Gaging station, definition of.....	16
Collection and computation of data.....	6, 12, 13	Garrett County, MD, ground-water	
Collection and examination of data,		levels in.....	162-196
explanation of:		ground-water quality record in.....	237
sediment.....	10	Georges Creek at Franklin, MD.....	47
water temperature.....	10	Goose Creek, diversions from.....	99
Color unit, definition of.....	15	Grantsville, MD, Casselman River at.....	111
Concentration, explanation of.....	14	Great Falls, MD, diversions at.....	99
Conococheague Creek at Fairview, MD.....	53	Great Mills, MD, St. Marys River at.....	113
Contents, definition of.....	15	Green algae, definition of.....	17
Control, definition of.....	15	Grimes, MD, Marsh Run at.....	54
Control structure, definition of.....	15	Ground-water level records.....	120-224
Conversion factors, English units to		explanation of.....	12-13
International System (SI) units...Inside back cover		Ground-water quality records.....	226-243
Cooperation, record of.....	1-2	Ground-water records.....	120-243

INDEX

	Page		Page
Hancock, MD, Potomac River at.....	52	Oakland, MD, Youghiogheny River near.....	114
Hardness, definition of.....	16	Deep Creek Reservoir near.....	115
Hunting Creek at Jintown, MD.....	85	Ohio River basin.....	114-118
near Foxville, MD.....	73-78	Order, downstream and station number.....	4
Hunting Creek Lake.....	85	Organic mass, definition of.....	15
Hunting Creek tributary near Foxville, MD.....	79-84	Organism count/area, definition of.....	16
Hyattsville, MD, Northwest Branch		Organism count/volume, definition of.....	17
Anacostia River near.....	109	Organism, definition of.....	16
Hydrologic Bench-Mark Network, definition of.....	16		
Hydrologic conditions, summary of.....	2	Parameter codes, definition of.....	17
Hydrologic-data station records.....	32-118	Park Mills, MD, Bennett Creek at.....	97
Hydrologic unit, definition of.....	16	Partial-record station, definition of.....	17
		Partial-record stations and miscellaneous sites..	119
Instantaneous discharge, definition of.....	15	Partial-record stations, explanation of.....	8
Introduction.....	1	Particle-size classification, definition of.....	17
		Particle size, definition of.....	17
Jintown, MD, Hunting Creek at.....	85	Paw Paw, WV, Potomac River at.....	51
		Peak discharge, explanation of.....	8
Lakes and reservoirs:		Percent composition, definition of.....	17
Deep Creek Reservoir near Oakland, MD,		Period of record, explanation of.....	7, 11, 12
month-end contents of.....	115	Periphyton, definition of.....	17
Savage River Reservoir, MD, month-end		Pesticides, definition of.....	17
contents of.....	45	Phytoplankton, definition of.....	17
Land-surface datum, definition of.....	16	Picocurie, definition of.....	17
Latitude-longitude system, explanation of.....	5	Piscataway Creek at Piscataway, MD.....	110
Laurel Run at Dobbin Road near Wilson, MD.....	32	Plankton, definition of.....	17
Lewistown, MD, Fishing Creek tributary near.....	86-93	Point of Rocks, MD, Potomac River at.....	3, 64-66
Little Falls Dam, diversions at.....	99	Potomac Filtration Plant, diversions at.....	99
Location, explanation of.....	7, 11, 12	Potomac River at Chain Bridge, Washington, DC....	104-106
Luke, MD, North Branch Potomac River.....	46	at Hancock, MD.....	52
		at Paw Paw, WV.....	51
Marsh Run at Grimes, MD.....	54	at Point of Rocks, MD.....	3, 64-66
Maryland and Delaware, 1990, water resources		at Shepherdstown, WV.....	55-57
data for, explanation of.....	1-20	near Washington, DC.....	99-103
Max discharge, explanation of.....	8	North Branch at Luke, MD.....	46
McMillan Fork at Fort Pendelton, MD.....	34-39	at Steyer, MD.....	40
Mean concentration, definition of.....	18	near Cumberland, MD.....	49
Mean discharge, definition of.....	15	South Branch, near Springfield, WV.....	50
explanation of.....	8	Potomac River basin, gaging-station records in...	32-113
Measuring point, definition of.....	16	Preface.....	iii
Metamorphic stage, definition of.....	16	Primary productivity, definition of.....	18
Methylene blue active substance, definition of...	16	Prince Georges County, MD, ground-water levels in	200-203
Micrograms per gram, definition of.....	16	ground-water quality record in.....	240-241
Micrograms per liter, definition of.....	16	Publications on Techniques of Water-Resources	
Middletown, MD, Catocin Creek near.....	63	Investigations.....	21-22
Milligrams, per area or volume per unit time of			
carbon.....	18	Radiochemical program, definition of.....	18
oxygen.....	18	Records, explanation of.....	4-13
Milligrams per liter, definition of.....	16	Recoverable from bottom material, definition of..	18
Millville, WV, Shenandoah River at.....	60-62	Remarks, explanation of.....	7, 11, 12
Min discharge, explanation of.....	8	Reservoirs, See Lakes and reservoirs.....	
Miscellaneous sites, explanation of.....	8	Return period, definition of.....	18
Monocacy River at Bridgeport, MD.....	67-70	Revised records, explanation of,	
at Jug Bridge near Frederick, MD.....	94	stage and water-discharge.....	7, 8
at Reich's Ford Bridge near Frederick, MD.....	95-96	Revisions, explanation of, water-quality records.	11
Monongahela River basin, gaging-station		Riverdale, MD, Northeast Branch Anacostia	
records in.....	114-118	River at.....	108
Montgomery County, MD, ground-water		Rock Creek at Sherrill Drive, Washington, DC....	107
levels in.....	197-199	Rockville, MD, City of, diversions by.....	99
ground-water quality record in.....	238-239	Runoff in inches, definition of.....	18
Mt. Storm, WV, Stony River near.....	41-43		
		St. Clement Creek near Clements, MD.....	112
National Geodetic Vertical Datum of 1929 (NGVD),		St. Marys County, MD, ground-water levels in....	204-216
definition of.....	16	ground-water quality record in.....	242
National Stream-Quality Accounting Network,		St. Marys River at Great Mills, MD.....	113
definition of.....	16	Sand Run, North Fork, near Wilson, MD.....	33
National Technical Information Service.....	1	Savage River, below Savage River Dam, near	
National Trends Network, definition of.....	16	Bloomington, MD.....	45
Natural substrate, definition of.....	19	near Barton, MD.....	44
Needwood Lake.....	107	Savage River Reservoir, MD, capacity of.....	45
Newtown, MD, Zekiah Swamp Run near.....	111	month-end contents of.....	45
North Branch Potomac River at Luke, MD.....	46	Sediment, definition of.....	18
at Steyer, MD.....	40	explanation of.....	10
near Cumberland, MD.....	49	Seneca Creek at Dawsonville, MD.....	98
Northeast Branch Anacostia River at		7-day 10-year low flow, definition of.....	19
Riverdale, MD.....	108	Sharpsburg, MD, Antietam Creek near.....	59
North Fork Sand Run near Wilson, MD.....	33	Shenandoah River at Millville, WV.....	60-62
Northwest Branch Anacostia River		Shepherdstown, WV, Potomac River at.....	55-57
near Hyattsville, MD.....	109	Sodium-adsorption-ratio, definition of.....	19
Numbering system for wells and miscellaneous		Solute, definition of.....	19
sites, explanation of.....	5	South Branch Potomac River near Springfield, WV..	50

INDEX

	Page		Page
Specific conductance, definition of.....	19	Violets Lock, diversions at.....	99
Springfield, WV, South Branch Potomac River near.....	50	Washington County, MD, ground-water levels in....	217-224
Stage-discharge relation, definition of.....	19	ground-water quality record in.....	243
Station identification numbers, explanation of.....	4	Washington, DC, Potomac River at Chain Bridge.....	104-106
Steyer, MD, North Branch Potomac River at.....	40	Potomac River near.....	99-103
Stony River near Mt. Storm, WV.....	41-43	Rock Creek at Sherrill Drive.....	107
Streamflow, definition of.....	19	WATSTORE data, access to.....	13
Substrate, definition of:		WDR, definition of.....	20
artificial.....	19	Water-quality codes	
natural.....	19	Ground-water.....	225
Surface area, definition of.....	19	Surface-water.....	31
Surface-water records, explanation of.....	5-11	Water-quality records, explanation of.....	9-11, 13
Surficial bed material, definition of.....	19	Water resources data for Maryland and Delaware, 1990, explanation of.....	1-20
Suspended, definition of.....	19	WSP, definition of.....	20
Suspended, recoverable, definition of.....	19	Water temperature data, explanation of.....	10
Suspended-sediment concentration, definition of..	18	Water year, explanation of.....	20
Suspended sediment, definition of.....	18	Weighted average, definition of.....	20
Suspended-sediment discharge, definition of.....	18	Well descriptions and water-level measurements:	
Suspended-sediment load, definition of.....	18	Maryland,	
Suspended, total, definition of.....	19	Allegany County.....	121-123
Taxonomy, definition of.....	20	Carroll County.....	124
Techniques of Water-Resources Investigations, publications on.....	21-22	Charles County.....	125-156
Temperature, explanation of.....	10	Frederick County.....	157-161
Terms and abbreviations, definition of.....	4-20	Garrett County.....	162-196
Thermograph, definition of.....	20	Montgomery County.....	197-199
Time-weighted average, definition of.....	20	Prince Georges County.....	200-203
Toms Creek at Emmitsburg, MD.....	71	Saint Marys County.....	204-216
Tons per acre-foot, definition of.....	20	Washington County.....	217-224
Tons per day, definition of.....	20	Wet mass, definition of.....	15
Total coliform bacteria, definition of.....	14	Wills Creek near Cumberland, MD.....	48
Total, definition of.....	20	Wilson, MD, Laurel Run at Dobbin Road.....	32
Total discharge, explanation of.....	20	North Fork Sand Run near.....	33
Total organism count, definition of.....	17	Youghiogheny River at Friendsville, MD.....	116
Total, recoverable, definition of.....	20	near Oakland, MD.....	114
Total sediment discharge, definition of.....	18	Zekiah Swamp Run near Newtown, MD.....	111
Total-sediment load, definition of.....	18	Zooplankton, definition of.....	17
Tritium network, definition of.....	20		

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	2.54×10^1	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^0	kilometers (km)
<i>Area</i>		
acres	4.047×10^3	square meters (m ²)
	4.047×10^{-1}	square hectometers (hm ²)
	4.047×10^{-3}	square kilometers (km ²)
square miles (mi ²)	2.590×10^0	square kilometers (km ²)
<i>Volume</i>		
gallons (gal)	3.785×10^0	liters (L)
	3.785×10^0	cubic decimeters (dm ³)
	3.785×10^{-3}	cubic meters (m ³)
million gallons	3.785×10^3	cubic meters (m ³)
	3.785×10^{-3}	cubic hectometers (hm ³)
cubic feet (ft ³)	2.832×10^1	cubic decimeters (dm ³)
	2.832×10^{-2}	cubic meters (m ³)
cfs-days	2.447×10^3	cubic meters (m ³)
	2.447×10^{-3}	cubic hectometers (hm ³)
acre-feet (acre-ft)	1.233×10^3	cubic meters (m ³)
	1.233×10^{-3}	cubic hectometers (hm ³)
	1.233×10^{-6}	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	2.832×10^1	liters per second (L/s)
	2.832×10^1	cubic decimeters per second (dm ³ /s)
	2.832×10^{-2}	cubic meters per second (m ³ /s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm ³ /s)
	6.309×10^{-5}	cubic meters per second (m ³ /s)
million gallons per day	4.381×10^1	cubic decimeters per second (dm ³ /s)
	4.381×10^{-2}	cubic meters per second (m ³ /s)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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