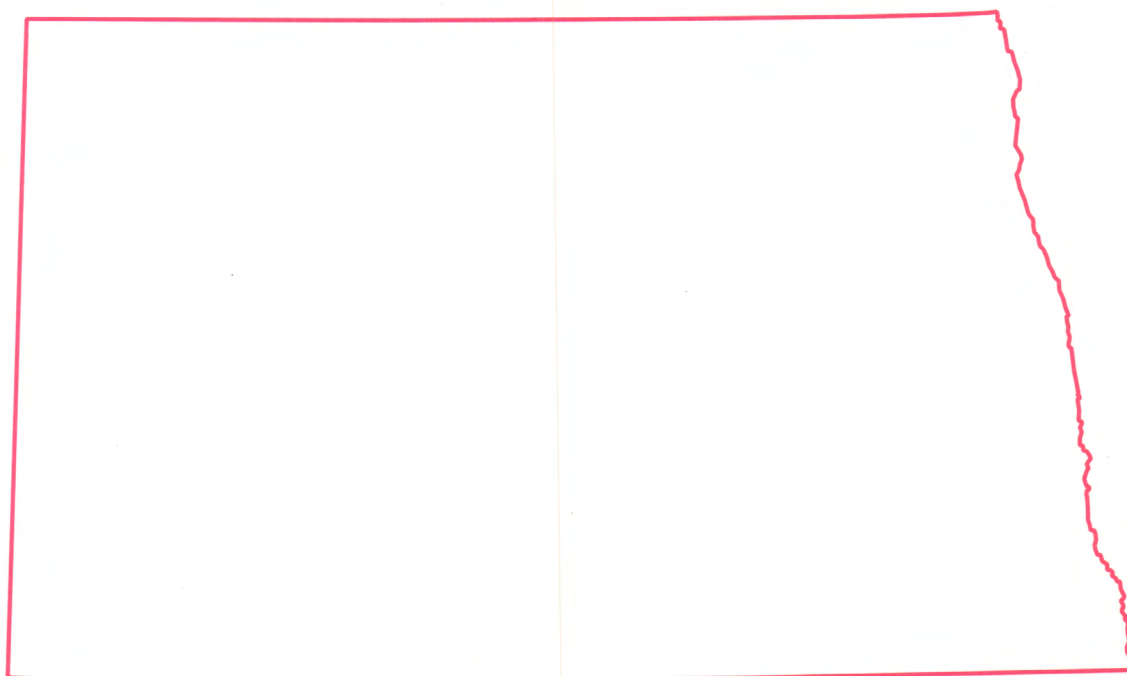
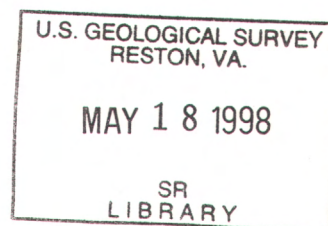


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Water Resources Data North Dakota Water Year 1997

Volume 2. Ground Water



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT ND-97-2
Prepared in cooperation with the State of North Dakota
and with other agencies



CALENDAR FOR WATER YEAR 1997

1996

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						1	2	1	2	3	4	5	6	7
6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14
13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21
20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28
27	28	29	30	31			24	25	26	27	28	29	30	29	30	31				

1997

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							1							1
5	6	7	8	9	10	11	2	3	4	5	6	7	8	2	3	4	5	6	7	8
12	13	14	15	16	17	18	9	10	11	12	13	14	15	9	10	11	12	13	14	15
19	20	21	22	23	24	25	16	17	18	19	20	21	22	16	17	18	19	20	21	22
26	27	28	29	30	31		23	24	25	26	27	28		23	24	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					1	2	3	1	2	3	4	5	6	7
6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28
27	28	29	30				25	26	27	28	29	30	31	29	30					

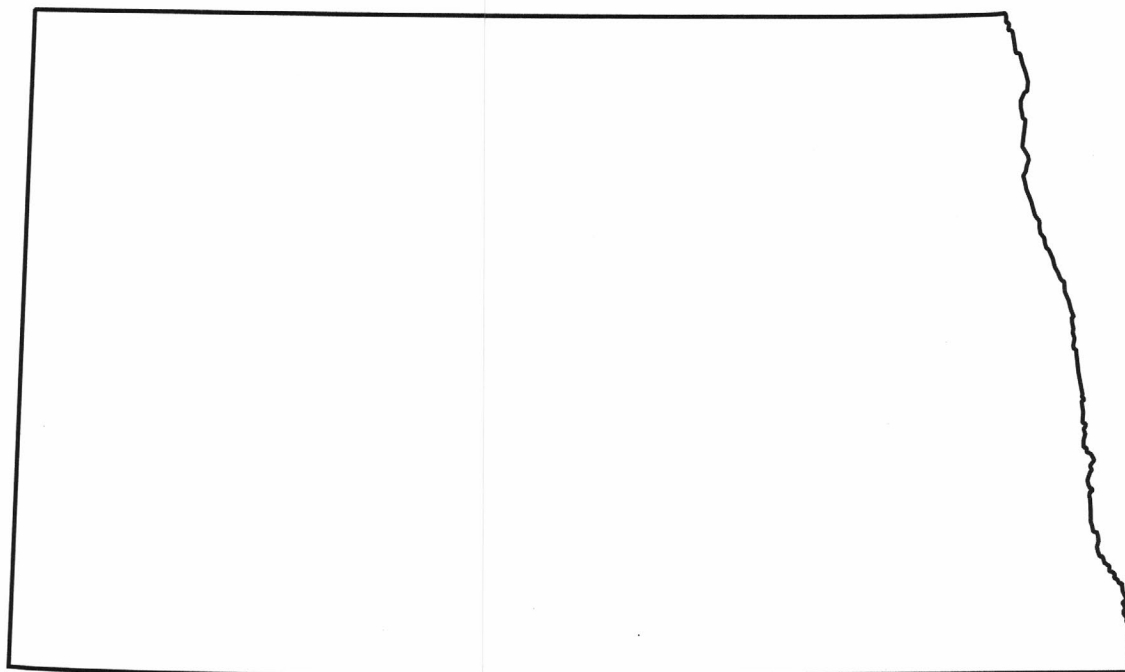
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Water Resources Data North Dakota Water Year 1997

Volume 2. Ground Water

by R.E. Harkness and J.D. Wald



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT ND-97-2
Prepared in cooperation with the State of North Dakota
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

BRUCE BABBITT, Secretary

GEOLOGICAL SURVEY

THOMAS J. CASADEVALL, Acting Director

For additional information write to:
District Chief, Water Resources Division
U.S. Geological Survey
821 East Interstate Avenue
Bismarck, North Dakota 58501-1199

1998

PREFACE

This edition of the annual hydrologic data report of North Dakota is one of a series of annual reports that document hydrologic data collected from the U.S. Geological Survey's 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 Federal, State, local agencies, and the private sector for developing and managing land and water resources in North Dakota. The records are contained in 2 volumes:

Volume 1. Surface-Water Data

Volume 2. Ground-Water Data

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 the primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to U.S. Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

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This report was prepared in cooperation with the State of North Dakota and with other agencies under the supervision of Gregg J. Wiche, District Chief, North Dakota.

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE Published April 1998		3. REPORT TYPE AND DATES COVERED Annual--October 1, 1996 to September 30, 1997
4. TITLE AND SUBTITLE Water Resources Data--North Dakota, Water Year 1997, Volume 2 Ground Water			5. FUNDING NUMBERS	
6. AUTHOR(S) R.E. Harkness and J.D. Wald				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Geological Survey, Water Resources Division North Dakota District 821 East Interstate Avenue Bismarck, ND 58501-1199			8. PERFORMING ORGANIZATION REPORT NUMBER USGS-WDR-ND-97-2	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Geological Survey, Water Resources Division North Dakota District 821 East Interstate Avenue Bismarck, ND 58501-1199			10. SPONSORING / MONITORING AGENCY REPORT NUMBER USGS-WDR-ND-97-2	
11. SUPPLEMENTARY NOTES Prepared in cooperation with Federal, State, and local agencies.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT No restriction on distribution. This report may be purchased from: National Technical Information Service Springfield, VA 22161			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) Water-resources data for the 1997 water year for North Dakota consists of records of discharge, stage, and water quality for streams; contents, stage, and water quality for lakes and reservoirs; and water levels and water quality for ground-water wells. Volume 2 contains water-level records for 159 ground-water wells and water-quality records for 46 monitoring wells. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating Federal, State, and local agencies in North Dakota.				
14. SUBJECT TERMS *North Dakota, *Hydrologic data, *Ground water, Chemical analyses, Water temperature, Sampling sites, Water levels, Water analyses			15. NUMBER OF PAGES 190	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT	

CONTENTS

	Page
Preface	iii
Introduction.....	1
Cooperation.....	1
Summary of hydrologic conditions	1
Explanation of the records	1
Well identification numbers	1
Latitude-longitude system	3
Local well numbers	3
Records of ground-water levels.....	3
Data collection and computation.....	3
Data presentation.....	3
Availability of data.....	3
Records of ground-water quality	3
Onsite measurements and sample collection.....	3
Data collection and computation.....	5
Data presentation	5
Availability of data.....	5
Access to USGS water data	5
Definition of terms.....	5
Publications on techniques of water-resources investigations.....	6
Ground-water levels.....	10
Miscellaneous ground-water levels	173
Ground-water quality.....	182
Index	189

ILLUSTRATIONS

Figure 1. Map showing location of ground-water observation wells	2
2. System for numbering wells (latitude and longitude)	4
3. System for numbering wells (township and range).....	4

GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

Page

GROUND-WATER LEVELS

ADAMS COUNTY

461614102515202	Local number, 132-097-07CAB2	Ludlow-Hell Creek aquifer	10
461614102515203	Local number, 132-097-07CAB3	Ludlow aquifer	11

BENSON COUNTY

475224098443202	Local number, 151-063-29AAC2	Warwick aquifer	12
475601099264701	Local number, 151-069-01BBB	Maddock aquifer.....	14
475515099292101	Local number, 151-069-03CCC	Maddock aquifer.....	15
480958099154801	Local number, 154-067-15BBB	Spiritwood aquifer.....	16
481041099442701	Local number, 154-071-11AAD1	Fox Hills aquifer.....	17
482212099475801	Local number, 156-071-04BBA	Pleasant Lake aquifer	18

BOTTINEAU COUNTY

483333101135402	Local number, 159-082-35BBB2	Glenburn aquifer.....	20
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BOWMAN COUNTY

461039103282801	Local number, 131-102-07DDD1	Hell Creek-Fox Hills aquifer.....	21
461039103282803	Local number, 131-102-07DDD3	Tongue River-Ludlow aquifer	22

BURKE COUNTY

485618102455401	Local number, 163-093-17DDD	Columbus aquifer	23
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BURLEIGH COUNTY

464540100222101	Local number, 138-077-22AAD	McKenzie aquifer	24
464556100454901	Local number, 138-080-15CDD	Bismarck aquifer	26
470556100142501	Local number, 142-075-19CCB	Wing Channel aquifer.....	28

CASS COUNTY

463926096513801	Local number, 137-049-27BBC	West Fargo aquifer	29
464537096512901	Local number, 138-049-22BBA	West Fargo aquifer	30
465312096543301	Local number, 139-049-06ADB	West Fargo aquifer	31
470818097294104	Local number, 142-054-03DDD4	Page aquifer.....	33
471326097332902	Local number, 143-054-08BBB2	Page aquifer.....	34

CAVALIER COUNTY

484534098254401	Local number, 161-060-21BBB	Pierre Shale aquifer	35
484444098504301	Local number, 161-063-29BBB	Munich aquifer	36

DICKEY COUNTY

460830098224701	Local number, 131-062-24DDD1	Nortonville aquifer	37
460830098224702	Local number, 131-062-24DDD2	Ellendale aquifer.....	38

DIVIDE COUNTY

484746104015901	Local number, 161-103-02CCB	Skjermo Lake aquifer	39
485438103121001	Local number, 163-097-25DDD	Yellowstone aquifer.....	40

DUNN COUNTY

471323102290101	Local number, 143-093-09BCB	Sentinel Butte aquifer.....	41
472144102453402	Local number, 145-095-22DAD2	Killdeer aquifer.....	42
472144102453403	Local number, 145-095-22DAD3	Killdeer aquifer	43
472537102144801	Local number, 146-091-35BBC	Goodman Creek aquifer	44

EDDY COUNTY

473934099032301	Local number, 148-066-03DDC	New Rockford aquifer	45
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EMMONS COUNTY

462539100061101	Local number, 134-075-15BBB	Fox Hills aquifer.....	46
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FOSTER COUNTY

473051099093601	Local number, 147-067-35AAA	Carrington aquifer	47
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GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

Page

GROUND-WATER LEVELS--Continued

GOLDEN VALLEY COUNTY

465421103590706	Local number, 140-105-30CCC6	Hell Creek-Fox Hills aquifer.....	48
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GRAND FORKS COUNTY

475646097372201	Local number, 152-054-31BBB	Elk Valley aquifer.....	49
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GRANT COUNTY

463000101575101	Local number, 135-090-23BBB1	Fox Hills aquifer.....	51
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463000101575102	Local number, 135-090-23BBB2	Tongue River aquifer.....	52
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GRIGGS COUNTY

472412098261201	Local number, 145-061-04DAD1	Spiritwood aquifer.....	53
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472555098013501	Local number, 146-058-26CBC	McVile aquifer.....	55
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473425098232901	Local number, 147-061-01CCC	Spiritwood aquifer.....	56
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HETTINGER COUNTY

463153102521001	Local number, 135-097-04DCA	Fox Hills aquifer.....	57
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KIDDER COUNTY

465518099391602	Local number, 140-071-28BBA2	Long Lake aquifer.....	58
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470638099324301	Local number, 142-070-16DDD	Long Lake aquifer.....	60
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LaMOURE COUNTY

461958098132901	Local number, 133-060-16DAA	LaMoure aquifer.....	61
-----------------	-----------------------------	----------------------	----

462447098432602	Local number, 134-064-22BBB2	Edgeley aquifer.....	63
-----------------	------------------------------	----------------------	----

LOGAN COUNTY

463417099271002	Local number, 136-070-26BBB2	Streeter aquifer.....	65
-----------------	------------------------------	-----------------------	----

463240099483801	Local number, 136-073-35DDD1	Napoleon aquifer.....	66
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463240099483802	Local number, 136-073-35DDD2	Napoleon aquifer.....	67
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McHENRY COUNTY

480913100372501	Local number, 154-077-18CCC	New Rockford aquifer.....	68
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480722100444202	Local number, 154-078-31BAA2	Hell Creek aquifer.....	70
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481948100305901	Local number, 156-077-13CCB1	Denbigh aquifer.....	71
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481948100305902	Local number, 156-077-13CCB2	Denbigh aquifer.....	72
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McINTOSH COUNTY

455807099450701	Local number, 129-072-30BBB	Zeeland aquifer.....	73
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460411099200701	Local number, 130-069-21BBB1	Spring Creek aquifer.....	74
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460411099200702	Local number, 130-069-21BBB2	Spring Creek aquifer.....	75
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461446099312801	Local number, 132-071-14DDD1	Wishek aquifer.....	76
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461446099312802	Local number, 132-071-14DDD2	Wishek aquifer.....	77
-----------------	------------------------------	---------------------	----

McKENZIE COUNTY

474814103104701	Local number, 150-098-23AAB	Cherry Creek aquifer.....	78
-----------------	-----------------------------	---------------------------	----

475452103570101	Local number, 151-104-11ADD	Trenton aquifer.....	79
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475321103574901	Local number, 151-104-23BAC	Trenton aquifer.....	80
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475903104010801	Local number, 152-104-17DBC	Trenton aquifer.....	81
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475850104022501	Local number, 152-104-18DCC	Trenton aquifer.....	82
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475736103581601	Local number, 152-104-27ADB	Trenton aquifer.....	83
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475636104003001	Local number, 152-104-33BCC	Trenton aquifer.....	84
-----------------	-----------------------------	----------------------	----

475609103585402	Local number, 152-104-34CDC2	Trenton aquifer.....	85
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475616103574701	Local number, 152-104-35CCA	Trenton aquifer.....	86
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475629103570901	Local number, 152-104-35DBA	Trenton aquifer.....	87
-----------------	-----------------------------	----------------------	----

475609103564901	Local number, 152-104-35DDD	Trenton aquifer.....	88
-----------------	-----------------------------	----------------------	----

McLEAN COUNTY

474026100583201	Local number, 148-081-03AAB	Horseshoe Valley aquifer.....	89
-----------------	-----------------------------	-------------------------------	----

GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

Page

GROUND-WATER LEVELS--Continued

MERCER COUNTY

472641102105901	Local number, 146-090-20CCC	Fox Hills aquifer.....	91
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MORTON COUNTY

464734100543501	Local number, 138-081-09ABB1	Fox Hills aquifer.....	92
464734100543502	Local number, 138-081-09ABB2	Hell Creek aquifer	93
464734100543504	Local number, 138-081-09ABB4	Cannonball-Ludlow aquifer	94
464847101303801	Local number, 139-086-35BCC	Sims aquifer.....	95
464846101464501	Local number, 139-088-34-BCC1	Fox Hills aquifer.....	96
464846101464502	Local number, 139-088-34-BCC2	Hell Creek aquifer	97
464846101464503	Local number, 139-088-34-BCC3	Tongue River aquifer.....	98

MOUNTRAIL COUNTY

480120101571901	Local number, 152-088-04BBBD1	Sentinel Butte aquifer.....	99
480120101571902	Local number, 152-088-04BBBD2	Sentinel Butte aquifer.....	100

NELSON COUNTY

474806098133401	Local number, 150-059-20AAA	McVile aquifer.....	101
480138098074101	Local number, 153-058-32DBB	Pierre Shale aquifer	103

OLIVER COUNTY

470642101162701	Local number, 142-084-24BBA	Fox Hills aquifer.....	104
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PEMBINA COUNTY

485425097550502	Local number, 163-056-29CDD2	Pembina River aquifer.....	105
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PIERCE COUNTY

475139099484801	Local number, 151-072-36AAA1	New Rockford aquifer	106
482033099594901	Local number, 156-073-12CCC	Fox Hills aquifer.....	108
483054100071901	Local number, 158-073-17BBB	Lake Souris aquifer	109

RAMSEY COUNTY

480351098552303	Local number, 153-064-19AAB3	Spiritwood aquifer.....	110
480449099002402	Local number, 153-065-09DDD2	Spiritwood aquifer.....	112
480817099013201	Local number, 154-065-21CCC	Spiritwood aquifer.....	113
481929098392601	Local number, 156-062-20BBB	Pierre Shale aquifer	114

RANSOM COUNTY

461838097553402	Local number, 133-058-25BBA2	Englevale aquifer.....	115
462400097552502	Local number, 134-058-24CDC2	Englevale aquifer.....	116

RENVILLE COUNTY

484500101294901	Local number, 161-084-24DDD	Fox Hills aquifer.....	118
-----------------	-----------------------------	------------------------	-----

RICHLAND COUNTY

460358096581401	Local number, 130-050-17DDD	Milnor Channel aquifer	119
462425096441202	Local number, 134-048-20ADD2	Colfax aquifer.....	120
462633097163402	Local number, 134-052-06CCD2	Sheyenne Delta aquifer	121
463422097115602	Local number, 136-052-22DDD2	Sheyenne Delta aquifer	123

ROLETTE COUNTY

484731099504104	Local number, 161-071-03CDD4	Shell Valley aquifer	125
484310099572401	Local number, 161-072-35CDC	Shell Valley aquifer	126
485707100053701	Local number, 163-073-11CCC1	Fox Hills aquifer.....	127
485707100053702	Local number, 163-073-11CCC2	Hell Creek aquifer	128

SARGENT COUNTY

460120097591803	Local number, 129-058-06AAA3	Oakes aquifer.....	129
461003097191501	Local number, 131-053-10CCC	Milnor Channel aquifer	130

GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

Page

GROUND-WATER LEVELS--Continued

SHERIDAN COUNTY

472638100065901	Local number, 146-074-21CCC	Lower Hell Creek-Fox Hills aquifer	131
474817100063801	Local number, 150-074-14CCC	Martin aquifer	132

SIOUX COUNTY

460244101272701	Local number, 130-086-28CCC1	Fox Hills aquifer	133
460244101272702	Local number, 130-086-28CCC2	Hell Creek aquifer	134
462239100375601	Local number, 134-079-32ADD	Strasburg aquifer	135

STARK COUNTY

465755102410701	Local number, 140-095-08AAA	Sentinel Butte aquifer	136
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STEELE COUNTY

472024097315201	Local number, 145-054-27CDC	Dakota aquifer	137
-----------------	-----------------------------	----------------------	-----

STUTSMAN COUNTY

463846098274101	Local number, 137-062-26DDD	Spiritwood aquifer	138
465243098284801	Local number, 139-062-02CCC	Spiritwood aquifer	139
465757098274401	Local number, 140-062-02DDD	Spiritwood aquifer	141

TOWNER COUNTY

482908099134601	Local number, 158-066-30BBB	Spiritwood aquifer	142
484209099174101	Local number, 160-067-10BBB1	Spiritwood aquifer	143
484209099174102	Local number, 160-067-10BBB2	Spiritwood aquifer	144
485659099222801	Local number, 163-067-18AAA1	Spiritwood aquifer	145
485659099222802	Local number, 163-067-18AAA2	Spiritwood aquifer	146

WALSH COUNTY

481234097234604	Local number, 155-053-25CDD4	Glacial Clay aquifer	147
481234097234605	Local number, 155-053-25CDD5	Glacial Clay aquifer	148
481841097490301	Local number, 156-056-22DDD	Fordville aquifer	149
482408097443201	Local number, 157-055-21DBC	Dakota aquifer	151
482449098095801	Local number, 157-058-18DDD	Pierre Shale aquifer	152

WARD COUNTY

481058101120403	Local number, 154-082-03CDC3	Sundre Buried Channel aquifer	153
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WELLS COUNTY

472329099194401	Local number, 145-068-10BCC	Pipestem Creek aquifer	155
474419099371201	Local number, 149-070-09DAA1	New Rockford aquifer	156

WILLIAMS COUNTY

480010103490902	Local number, 152-103-11ADD2	Trenton aquifer	157
475930103523001	Local number, 152-103-16BAC	Trenton aquifer	158
475904103531801	Local number, 152-103-17DBD	Trenton aquifer	159
475850103552301	Local number, 152-103-18CCC	Trenton aquifer	160
475750103551401	Local number, 152-103-30BBA	Trenton aquifer	161
475923103564001	Local number, 152-104-13BCB	Trenton aquifer	162
475843104001101	Local number, 152-104-21BAB	Trenton aquifer	163
475823103553302	Local number, 152-104-24ADD2	Trenton aquifer	164
480406103480001	Local number, 153-102-16DDD	Trenton aquifer	165
480129103511501	Local number, 153-102-31CDC	Trenton aquifer	166
481056103024201	Local number, 154-096-08AAA	Hofflund aquifer	167
483016103242801	Local number, 158-099-13DDD	Ray aquifer	168
483127103373102	Local number, 158-100-08DAA2	Little Muddy aquifer	169
483700103191501	Local number, 159-098-10AAD	West Wildrose aquifer	171

RICHLAND COUNTY, MONTANA

475916104030201	Local number, 26-059-24CBC	Trenton aquifer	172
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GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

Page

MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475329098351401	Local number 151-062-15CCC	Warwick aquifer	173
475258098375001	Local number 151-062-19ADD1	Warwick aquifer	173
475339098391201	Local number 151-063-13ADD	Warwick aquifer	174
475236098455901	Local number 151-063-19DDCC	Warwick aquifer	174
475258098445802	Local number 151-063-20CAAA2	Warwick aquifer	175
475308098424801	Local number 151-063-22CBBB	Warwick aquifer	175
475224098443202	Local number 151-063-29AAC2	Warwick aquifer	176
475212098430701	Local number 151-063-29ADDB	Warwick aquifer	176
475510098515502	Local number 151-064-04CCC2	Tokio aquifer	177
475509098542502	Local number 151-064-06CCC2	Tokio aquifer	177
475658098571901	Local number 152-065-27DDD	Tokio aquifer	178
475827099061501	Local number 152-066-21AAD1	Spiritwood aquifer	178

EDDY COUNTY

474911098375601	Local number 150-062-07DDA	Warwick aquifer	179
474839098352401	Local number 150-062-16ADD	Warwick aquifer	179
474943098402001	Local number 150-063-12BBC	Warwick aquifer	180
474817098304001	Local number 150-063-16DDA	Warwick aquifer	180
475044098531301	Local number 150-064-05BBB	Tokio aquifer	181

NELSON COUNTY

474714098290201	Local number 150-061-29AAA	Warwick aquifer	181
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GROUND-WATER QUALITY

BENSON COUNTY

475329098351401	Local number 151-062-15CCC	Warwick aquifer	182
475258098375001	Local number 151-062-19ADD1	Warwick aquifer	182
475236098455901	Local number 151-063-19DDCC	Warwick aquifer	182
475308098424801	Local number 151-063-22CBBB	Warwick aquifer	182
475212098430701	Local number 151-063-29ADDB	Warwick aquifer	182
475510098515502	Local number 151-064-04CCC2	Tokio aquifer	182
475509098542502	Local number 151-064-06CCC2	Tokio aquifer	182
475658098571901	Local number 152-065-27DDD	Warwick aquifer	182
475827099061501	Local number 152-066-21AAD1	Spiritwood aquifer	182
475601099264701	Local number 151-069-01BBB	Maddock aquifer	184
475515099292101	Local number 151-069-03CCC	Maddock aquifer	184
480958099154801	Local number 154-067-15BBB	Spiritwood aquifer	184

EDDY COUNTY

474911098375601	Local number 150-062-07DDA	Warwick aquifer	182
474839098352401	Local number 150-062-16ADD	Warwick aquifer	182
474817098304001	Local number 150-063-16DDA	Warwick aquifer	182

BOTTINEAU COUNTY

483333101135402	Local number 159-082-35BBB2	Glenburn aquifer	184
-----------------	-----------------------------	------------------------	-----

BURLEIGH COUNTY

470556100142501	Local number 142-075-19CCB	Wing Channel aquifer	184
-----------------	----------------------------	----------------------------	-----

DICKEY COUNTY

460830098224701	Local number 131-062-24DDD1	Nortonville aquifer	184
460830098224702	Local number 131-062-24DDD2	Ellendale aquifer	184

GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

Page

GROUND-WATER QUALITY--Continued

EMMONS COUNTY

462539100061101	Local number 134-075-15BBB	Foxhills aquifer.....	184
-----------------	----------------------------	-----------------------	-----

GRAND FORKS COUNTY

475646097372201	Local number 152-054-31BBB	Elk Valley aquifer.....	184
-----------------	----------------------------	-------------------------	-----

KIDDER COUNTY

470638099324301	Local number 142-070-16DDD	Long Lake aquifer	184
-----------------	----------------------------	-------------------------	-----

LOGAN COUNTY

463240099483801	Local number 136-073-35DDD1	Napoleon aquifer	184
-----------------	-----------------------------	------------------------	-----

463240099483802	Local number 136-073-35DDD2	Napoleon aquifer	184
-----------------	-----------------------------	------------------------	-----

McHENRY COUNTY

480722100444202	Local number 154-078-31BAA2	Foxhills aquifer.....	184
-----------------	-----------------------------	-----------------------	-----

481948100305901	Local number 156-077-13CCB1	Denbeigh aquifer	184
-----------------	-----------------------------	------------------------	-----

481948100305902	Local number 156-077-13CCB2	Denbeigh aquifer	184
-----------------	-----------------------------	------------------------	-----

McINTOSH COUNTY

455807099450701	Local number 129-072-30BBB	Zeeland aquifer.....	184
-----------------	----------------------------	----------------------	-----

460411099200701	Local number 130-069-21BBB1	Spring Creek aquifer	184
-----------------	-----------------------------	----------------------------	-----

460411099200702	Local number 130-069-21BBB2	Spring Creek aquifer	184
-----------------	-----------------------------	----------------------------	-----

461446099312801	Local number 132-071-14DDD1	Wishek aquifer.....	184
-----------------	-----------------------------	---------------------	-----

461446099312802	Local number 132-071-14DDD2	Wishek aquifer.....	184
-----------------	-----------------------------	---------------------	-----

MOUNTRAIL COUNTY

480120101571901	Local number 152-088-04BBBD1	Sentinel Butte aquifer.....	184
-----------------	------------------------------	-----------------------------	-----

480120101571902	Local number 152-088-04BBBD2	Sentinel Butte aquifer.....	184
-----------------	------------------------------	-----------------------------	-----

NELSON COUNTY

474714098290201	Local number 150-061-29AAA	Warwick aquifer	182
-----------------	----------------------------	-----------------------	-----

PIERCE COUNTY

482033099594901	Local number 156-073-12CCC	Foxhills aquifer.....	184
-----------------	----------------------------	-----------------------	-----

483054100071901	Local number 158-073-17BBB	Lacustrine aquifer.....	184
-----------------	----------------------------	-------------------------	-----

RAMSEY COUNTY

480449099002402	Local number 153-065-09DDD2	Spiritwood aquifer.....	184
-----------------	-----------------------------	-------------------------	-----

480817099013201	Local number 154-065-21CCC	Spiritwood aquifer.....	184
-----------------	----------------------------	-------------------------	-----

481929098392601	Local number 156-062-20BBB	Pierre aquifer	184
-----------------	----------------------------	----------------------	-----

RENVILLE COUNTY

484500101294901	Local number 161-084-24DDD	Foxhills aquifer.....	184
-----------------	----------------------------	-----------------------	-----

ROLETTE COUNTY

485707100053701	Local number 163-073-11CCC1	Foxhills aquifer.....	184
-----------------	-----------------------------	-----------------------	-----

485707100053702	Local number 163-073-11CCC2	Hell Creek aquifer	184
-----------------	-----------------------------	--------------------------	-----

SHERIDAN COUNTY

472638100065901	Local number 146-074-21CCC	Foxhills aquifer.....	184
-----------------	----------------------------	-----------------------	-----

474817100063801	Local number 150-074-14CCC	Martin aquifer.....	184
-----------------	----------------------------	---------------------	-----

WELLS COUNTY

474419099371201	Local number 149-070-09DAA1	New Rockford aquifer	184
-----------------	-----------------------------	----------------------------	-----

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with many other agencies, obtains a large amount of data pertaining to the water resources of North Dakota 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 U.S. Geological Survey, the data will be published annually in this report series entitled "Water Resources Data - North Dakota."

This report includes records on ground water in North Dakota. Specifically, it contains water-level records for 159 wells and water-quality records for 46 wells. Locations of the ground-water wells are shown in figure 1. Additional ground-water information for North Dakota is contained in the files, data bases, and other published reports of the U.S. Geological Survey.

This series of annual reports for North Dakota began with the 1961 water year 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. For the 1975-95 water years, 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. Beginning with the 1996 water year, ground-water levels and ground-water quality data will be published in a separate volume for North Dakota.

Prior to introduction of this series and for several water years concurrent with it, water resources data for North Dakota 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 5 and 6." For the 1961-70 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941-70 water years were published annually under the title "Quality of Surface Waters of the United States," and ground-water levels for the 1935-74 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers are in libraries of the principal cities of the United States and may be purchased from U.S. Geological Survey, Branch of Information Services, Box 25286, Denver, CO 80225-0286.

Publications similar to this report are published annually by the U.S. Geological Survey for all States. These official U.S. Geological 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 ND-97-2." For archiving and general distribution, the reports for the 1971-74 water years

also are identified as water-data reports. These water-data reports are for sale in paper copy or may be purchased on microfiche from the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including the 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 telephoning (701) 250-7406.

COOPERATION

Organizations that assisted in the collection of ground-water data in this report through joint funding agreements with the U.S. Geological Survey are:

North Dakota State Water Commission
U.S. Army Corps of Engineers
Spirit Lake Sioux Nation

SUMMARY OF HYDROLOGIC CONDITIONS

The geography and geology of North Dakota are sufficiently complex that a summary of ground-water conditions over the entire State is difficult. Descriptions of conditions in specific aquifers apply only to that geographic area and cannot be considered to be the same for other geographic areas.

Ground-water levels fluctuate in response to a variety of stresses and changes in stress. Short- and long-term climatic conditions can lead to changes in natural recharge and discharge. Superimposed on the natural fluctuations in water levels are changes caused by increasing or decreasing ground-water withdrawals and, in some areas, changes caused by recharge from surface irrigation. A persistent climatologic pattern that has caused above-average precipitation and below-average temperatures (wet conditions) generally has prevailed in North Dakota since the winter of 1992-93.

EXPLANATION OF THE RECORDS

The ground-water records published in this report are for the 1997 water year that began October 1, 1996, and ended September 30, 1997. A calendar of the water year is provided on the inside of the front cover. The records contain ground-water level and ground-water quality data. 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.

Well Identification Numbers

Each well in this report is assigned a unique identification number. This number applies specifically to a given well and to no other. The number usually is assigned when a well is first established and is retained for that well indefinitely. The system used by the U.S. Geological Survey to assign

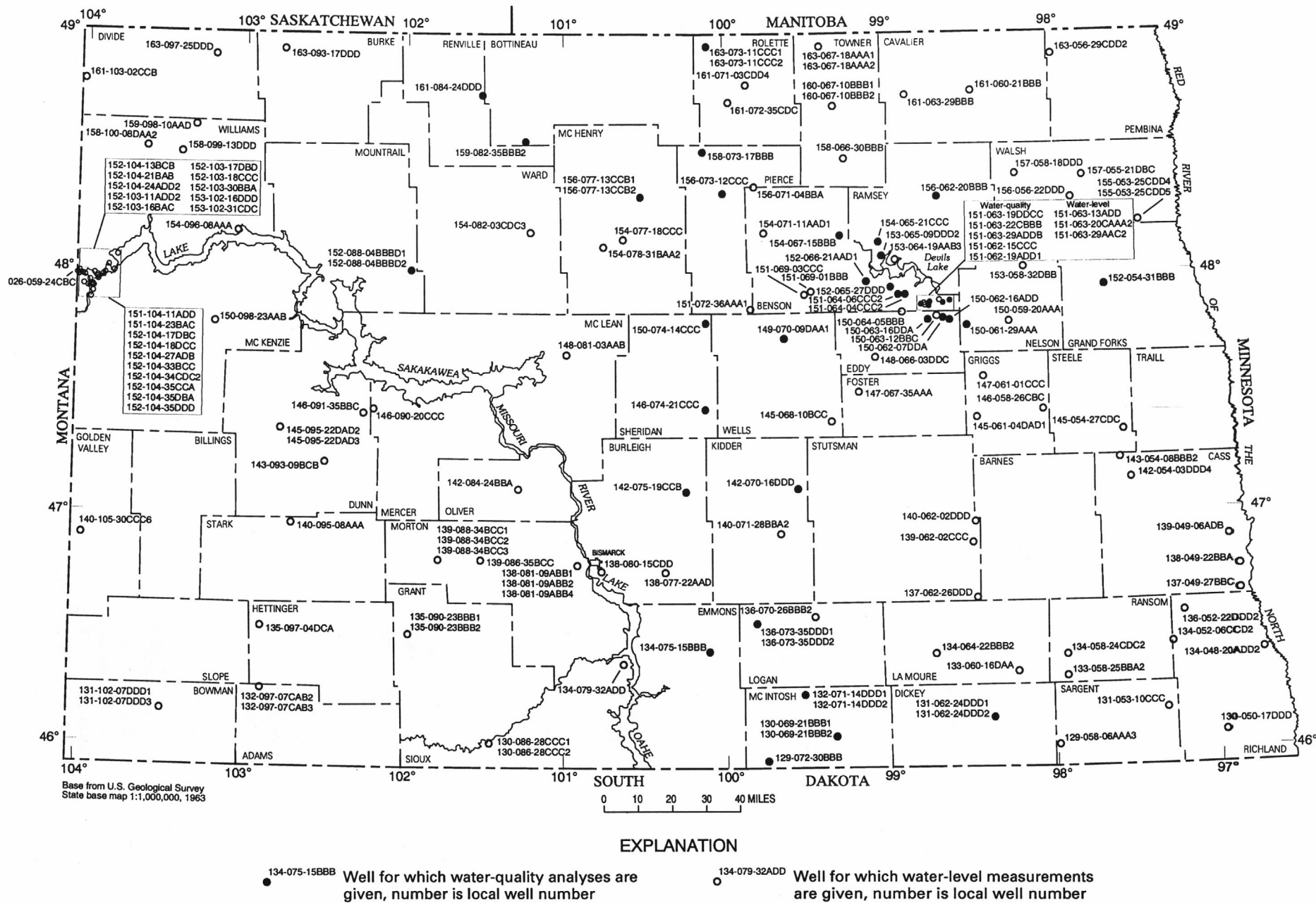


Figure 1. Location of ground-water observation wells.

identification numbers for ground-water well sites is based on geographic location.

Latitude-Longitude System

The identification numbers for wells are assigned according to the grid system of latitude and longitude (fig. 2). 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 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.

Local Well Numbers

In order to compare data for wells in other publications in North Dakota, such as the county ground-water studies, the wells in this report also are numbered according to a system based on the location in the public-land classification of the U.S. Bureau of Land Management. The system is illustrated in figure 3. The first number denotes the township north of a base line, the second number denotes the range west of the fifth principal meridian, and the third numeral denotes the section in which the well is located. The letters A, B, C, and D designate, respectively, the northeast, northwest, southwest, and southeast quarter section, quarter-quarter section, and quarter-quarter-quarter section (10-acre tract). For example, well 139-049-15ADC is in the SW¹/₄SE¹/₄NE¹/₄ sec.15, T.139 N., R.049 W. Consecutive terminal numbers are added if more than one well is recorded within a 10-acre tract.

Records of Ground-Water Levels

Water-level data from a network of observation wells are given in this report. These data are intended to provide a representation of the sampling and historical record of water-level changes in some of the important aquifers. Locations of the observation wells in this network in North Dakota are shown in figure 1.

Data Collection and Computation

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

Water-level records are obtained from direct measurements with a steel tape or from the graph or punched tape of a water-stage recorder. The water-level measurements in this report are given in feet with reference to

land-surface datum. Land-surface datum is a datum plane that is approximately at land surface at each well. The elevation of the land-surface datum is given in the well description. The height of the measuring point above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (EOM).

Data Presentation

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

Records of water-level data are published in the sections "Ground-Water Levels" and "Miscellaneous Ground-Water Levels". Data for ground-water levels are listed alphabetically by county in each section. The prime identification number for a given well is the 15-digit number derived from the latitude-longitude location. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well.

Availability of Data

All water-level measurements and recorder data are stored in computer files as well as office files and are available in a tabular listing similar to those published in this report. Data in this report are for the 12-month water year ending September 30. Information about reports and other data on ground-water levels in North Dakota may be obtained from the District office at the address given on the back of the title page.

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. Changes in quality of ground water ordinarily occur slowly; therefore, for 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.

Onsite 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

WATER RESOURCES DATA - NORTH DAKOTA, 1997

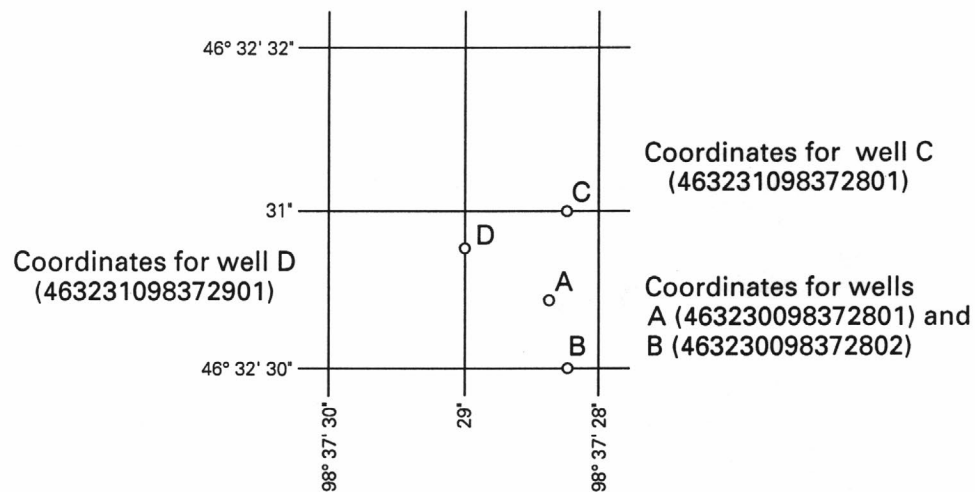


Figure 2. System for numbering wells (latitude and longitude).

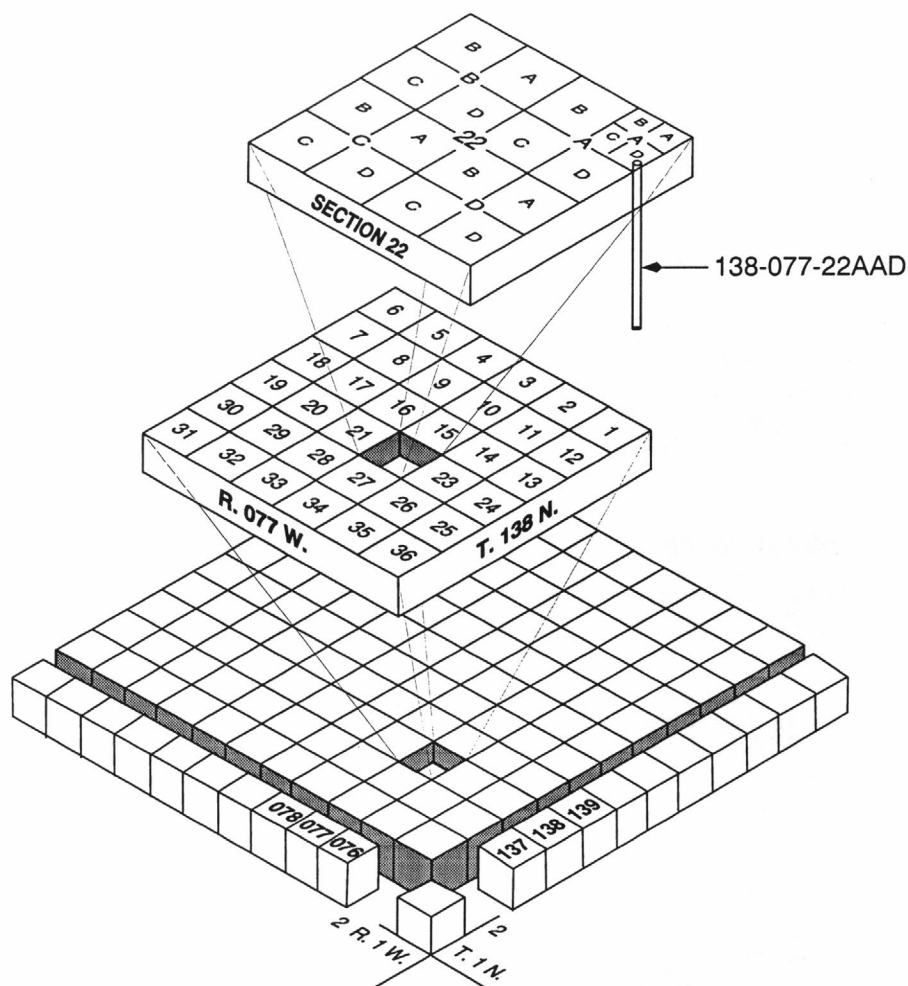


Figure 3. System for numbering wells (township and range).

temperature, specific conductance, and pH 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 detailed in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. These references are listed in the "Publications on Techniques of Water-Resources Investigations" section of this report. These methods are consistent with ASTM standards and generally follow ISO standards.

Chemical-quality data published in this report are considered to be the most representative values available for the wells 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.

Data Collection and Computation

Ground-water quality data published in this report were obtained by analysis of samples collected when routine maintenance was performed on wells in specific areas. Routine well maintenance is scheduled for about one third of the well network each year and a smaller subset of wells is sampled. Consequently, a number of chemical analyses are presented for some counties but none are presented for others. Ground-water quality data for special projects also may be included in this report. 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 TWRI publications referred to in the "Onsite Measurements and Sample Collection" section in this data report. In addition, the TWRI Book 1, Chapter D2, describes guidelines for the collection and field analysis of ground-water samples for selected unstable constituents. 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. These methods are consistent with ASTM standards and generally follow ISO standards. 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 casing.

Data Presentation

Records of ground-water quality are published in the section "Ground-Water Quality". Data for ground-water quality are listed alphabetically by county. The prime identification number for a given well is the 15-digit number derived from the latitude-longitude location. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well. No descriptive statements are given for ground-water-quality records; however, the well number, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water.

Availability of Data

All ground-water quality data are stored in computer files as well as office files and are available in a tabular listing similar to those published in this report. Data in this report are for the 12-month water year ending September 30. Information about reports and other data on ground-water quality in North Dakota may be obtained from the District office at the address given on the back of the title page.

ACCESS TO USGS WATER DATA

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

<http://www.water.usgs.gov>

Some water-quality and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on magnetic tape or 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division District Offices (See address on the back of the title page.)

DEFINITION OF TERMS

Terms related to 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.

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.

Dissolved refers to that material in a representative water sample which passes through a 0.45 micrometer membrane

filter. This is a convenient operational definition used by Federal agencies that collect water data. Determination 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 0.493 to reflect the change.

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).

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

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

Microsiemens per centimeter at 25 degrees Celsius (US/CM, $\mu\text{S/cm}$) is a unit for reporting specific electrical conductance.

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.

Parameter Code is a 5-digit number used in the U.S. Geological Survey's data system, National Water Information System (NWIS), to uniquely identify a specific constituent. The codes used in NWIS are the same as those used in the U.S. Environmental Protection Agency's data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

pH indicates the degree of acidity or alkalinity of water and is expressed in pH units. The pH value of a solution is the negative logarithm of the concentration of hydrogen ions, in moles per liter. A pH of 7.0 indicates that the water is neither acid nor alkaline. pH readings progressively less than 7.0 denote increasing acidity and those progressively greater than 7.0 denote increasingly alkalinity. The pH of most natural surface waters ranges between 6 and 8.

Sea level refers to the National Geodetic Vertical Datum of 1929--a geodetic datum derived from a general adjustment of the first-order level nets of the United States and Canada, formerly called Sea Level Datum of 1929.

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 degrees Celsius. 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 well to well, and it may vary in the same source with changes in the composition of the water.

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.)

Water year in Geological Survey reports dealing with surface- ground-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, 1997, is called "water year 1997."

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, Branch of Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

- 1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.
- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L.M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W. S. Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.
- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W. E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.
- 3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
- 3-A7. *Stage measurement at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F. A. Kilpatrick and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.
- 3-A10. *Discharge ratings at gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. *Measurement of discharge by the moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. *Fluorometric procedures for dye tracing*, Revised, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 34 pages.
- 3-A13. *Computation of continuous records of streamflow*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. *Use of flumes in measuring discharge*, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. *Measurement of discharge using tracers*, by F. A. Kilpatrick and E. D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.
- 3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.
- 3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F. A. Kilpatrick, R. E. Rathbun, Nobuhiro Yotsukura, G. W. Parker, and L. L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.
- 3-A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 31 pages.

- 3-A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A20. 1993. 38 pages.
- 3-A21. *Stream-gaging cableways*, by C. Russell Wagner: USGS--TWRI Book 3, Chapter A21. 1995. 56 pages.
- 3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. *Introduction to ground-water hydraulics, a programmed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B4. *Regression modeling of ground-water flow*, by R. L. Cooley and R. L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 pages.
- 3-B4. *Supplement 1. Regression modeling of ground-water flow - Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems*, by R. L. Cooley: USGS--TWRI Book 3, Chapter B4. 1993. 8 pages.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction*, by O. L. Franke, T. E. Reilly, and G. D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.
- 3-B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow*, by E. J. Wexler: USGS--TWRI Book 3, Chapter B7. 1992. 190 pages.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.
- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. J. Fishman and L. C. Friedman, editors: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R. L. Wershaw, M. J. Fishman, R. R. Grabbe, and L. E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 pages.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L. J. Britton and P. E. Greeson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M. G. McDonald and A. W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.
- 6-A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model*, by S. A. Leake and D. E. Prudic: USGS--TWRI Book 6, Chapter A2. 1991. 68 pages.
- 6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L. J. Torak: USGS--TWRI Book 6, Chapter A3. 1993. 136 pages.

- 6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R. L. Cooley: USGS--TWRI Book 6, Chapter A4. 1992. 108 pages.
- 6-A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details*, by L. J. Torak: USGS--TWRI Book 6, Chapter A5, 1993. 243 pages.
- 6-A6. A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction, by Eric D. Swain and Eliezer J. Wexler. 1995. 125 pages.
- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
- 8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.
- 9-A7. *National Field Manual for the Collection of Water-Quality Data: Biological Indicators*, by D. N. Myers and F. D. Wilde: USGS--TWRI Book 9, Chapter A7. 1997. 49 pages.

WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

ADAMS COUNTY

461614102515202. Local number, 132-097-07CAB2.

LOCATION.--Lat 46°16'14", long 102°51'52", Hydrologic Unit 10130205. Owner: North Dakota State Water Commission.

AQUIFER.--Ludlow-Hell Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 590 ft, cased with 578 ft of 2-in diameter steel pipe.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,665 ft. Measuring point: Top of casing 3.60 ft above land-surface datum.

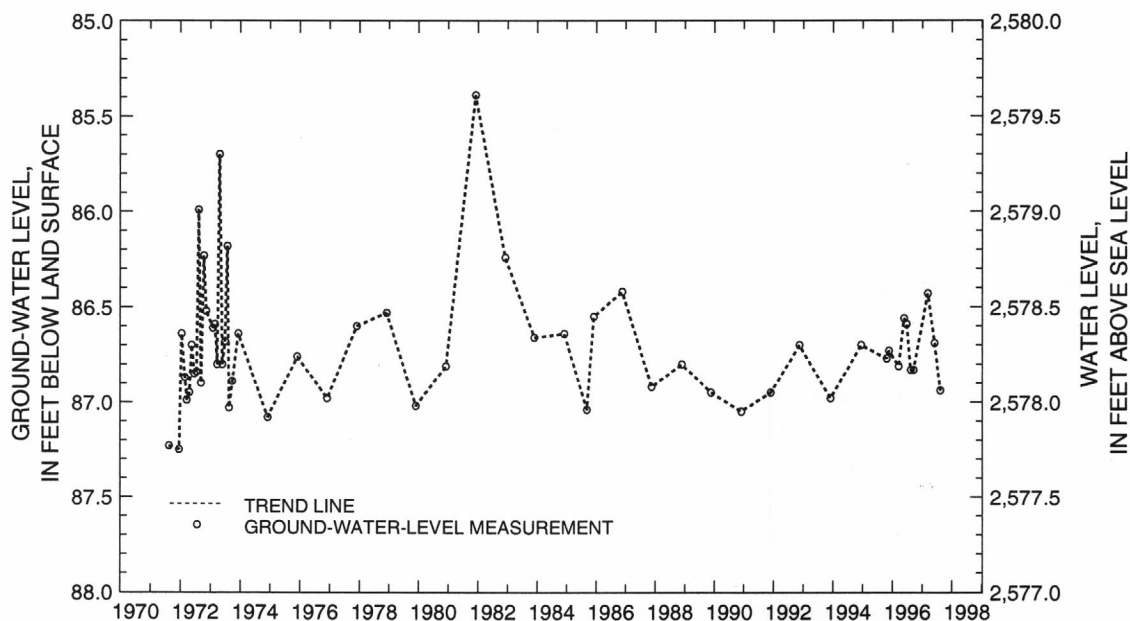
PERIOD OF RECORD.--August 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 85.39 ft below land-surface datum, October 1, 1981; lowest water level measured, 87.25 ft below land-surface datum, December 14, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Mar. 11	86.43	June 3	86.69	Aug. 13	86.94

132-097-07CAB2



GROUND-WATER LEVELS

ADAMS COUNTY

461614102515203. Local number, 132-097-07CAB3.

LOCATION.--Lat 46°16'14", long 102°51'52", Hydrologic Unit 10130205. Owner: North Dakota State Water Commission.

AQUIFER.--Ludlow.

WELL CHARACTERISTICS.--Drilled observation well, depth 229 ft, cased with 217 ft of 1.25-in diameter plastic pipe.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,665 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

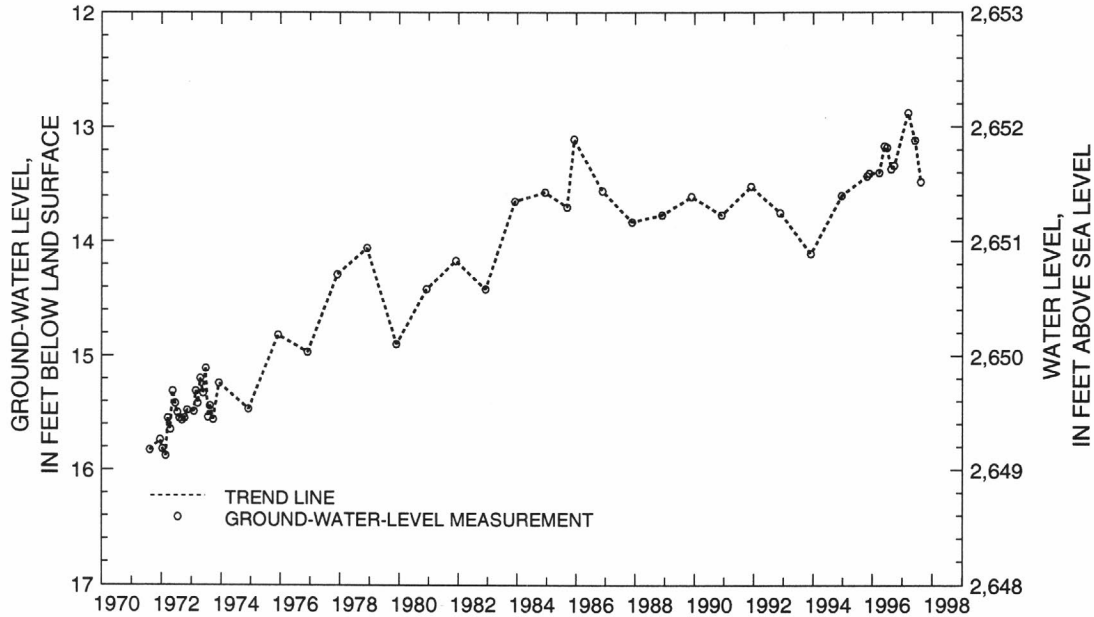
PERIOD OF RECORD.--August 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.88 ft below land-surface datum, March 11, 1997; lowest water level measured, 15.88 ft below land-surface datum, February 22, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Mar. 11	12.88	June 3	13.12	Aug. 13	13.48

132-097-07CAB3



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

BENSON COUNTY

475224098443202. Local number, 151-063-29AAC2.

LOCATION.--Lat 47°52'24", long 98°44'32", Hydrologic Unit 09020201. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 67 ft, cased with 67 ft of 6-in diameter steel pipe, slotted 57 to 67 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder August 1951 to current year. Only intermittent low and EOM water levels obtained from strip chart recorders are available from the District office for August 1951 to June 1974. From June 1974 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,479.6 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1951 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 15.29 ft below land-surface datum, November 5, 1957; lowest daily water level, 27.03 ft below land-surface datum, November 11, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

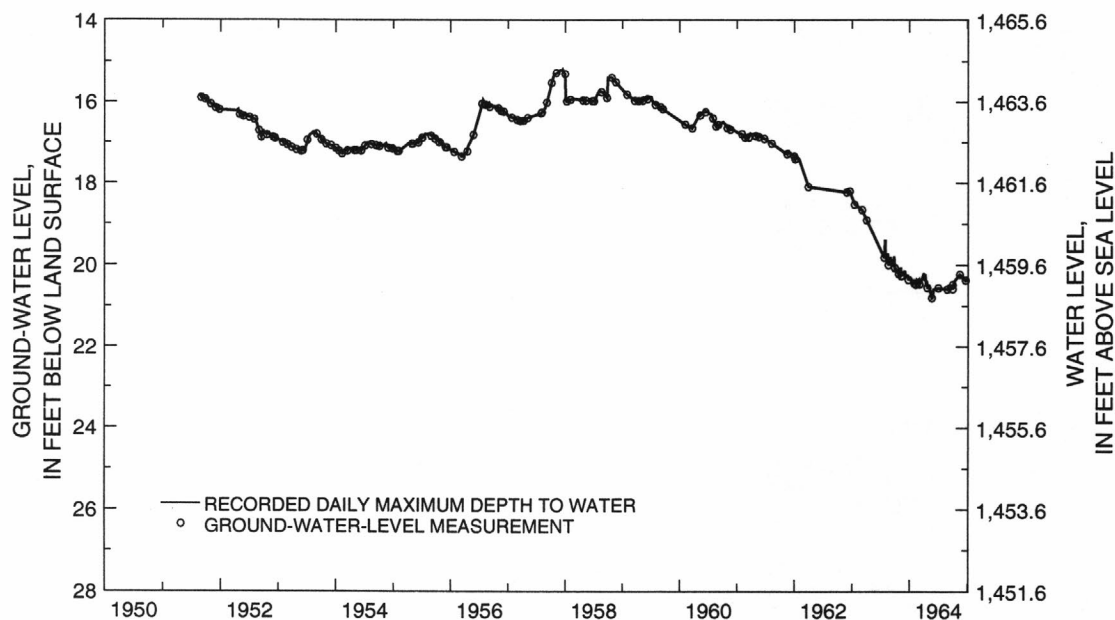
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	23.22	23.16	22.96	23.20	23.36	23.49	23.24	22.32	22.08	22.25	22.35	22.58
10	23.23	23.15	23.00	23.22	23.42	23.49	22.86	22.22	22.41	22.15	22.55	22.67
15	23.19	23.09	23.14	23.14	23.40	23.50	22.86	22.17	22.62	22.12	22.65	22.61
20	22.99	23.08	23.07	23.28	23.42	23.49	22.78	21.96	22.45	22.16	22.60	22.61
25	23.34	23.07	23.05	23.27	23.49	23.55	22.54	21.88	22.34	22.41	22.68	22.58
EOM	23.11	23.04	23.07	23.21	23.33	23.50	22.29	21.87	22.29	22.27	22.63	22.62
MAX	23.35	23.28	23.21	23.33	23.49	23.58	23.38	22.32	22.67	22.48	22.76	22.67

WATER YEAR 1997

HIGHEST WATER LEVEL 21.60 MAY 28-30

LOWEST WATER LEVEL 23.58 MARCH 29

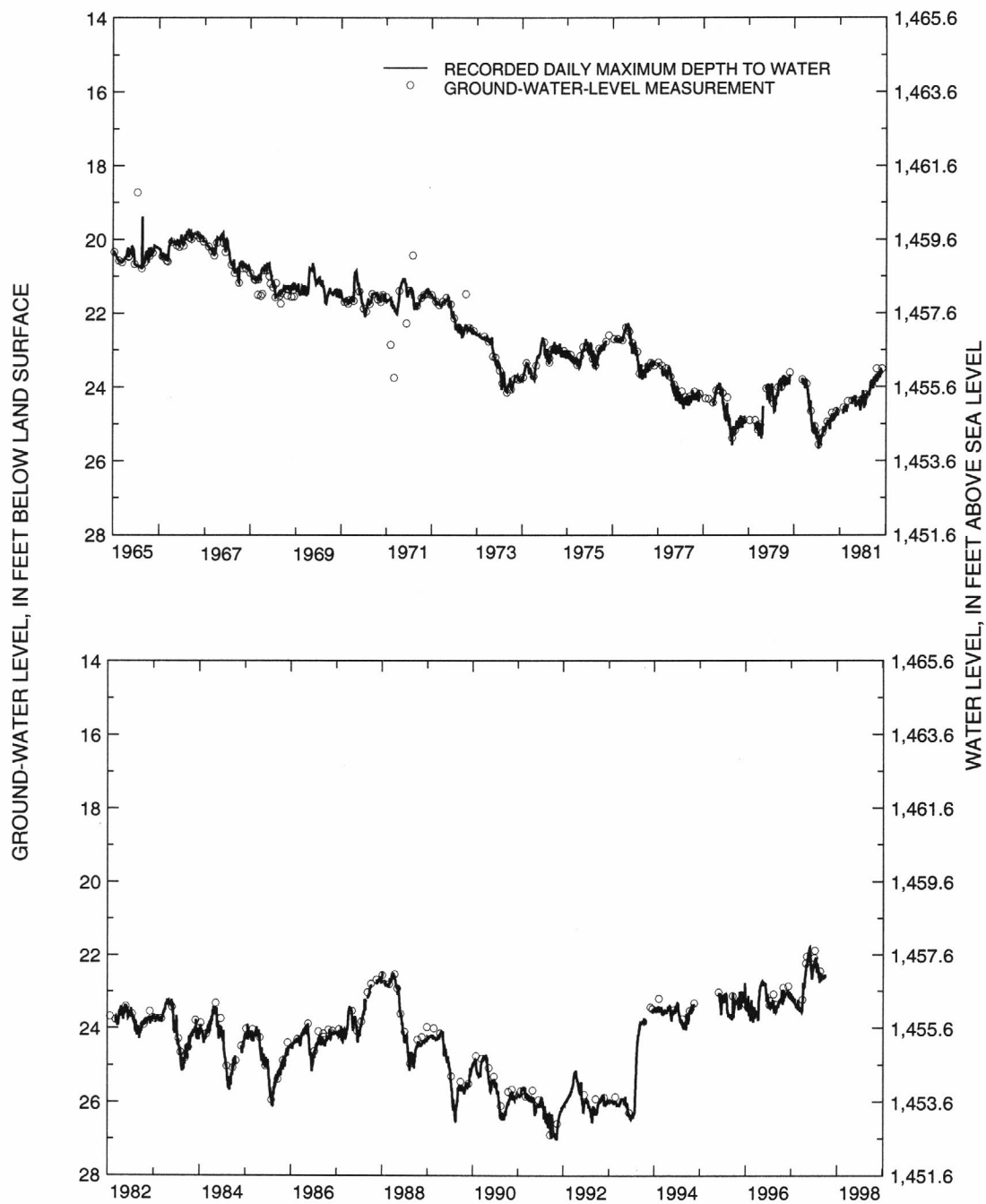
151-063-29AAC2



GROUND-WATER LEVELS

BENSON COUNTY

151-063-29AAC2--Continued



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

BENSON COUNTY

475601099264701. Local number, 151-069-01BBB.

LOCATION.--Lat 47°56'01", long 99°26'47", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--Maddock.

WELL CHARACTERISTICS.--Drilled observation well, depth 180 ft, cased with 97 ft of 1.25-in diameter plastic pipe, screen set 97 to 103 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,550 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

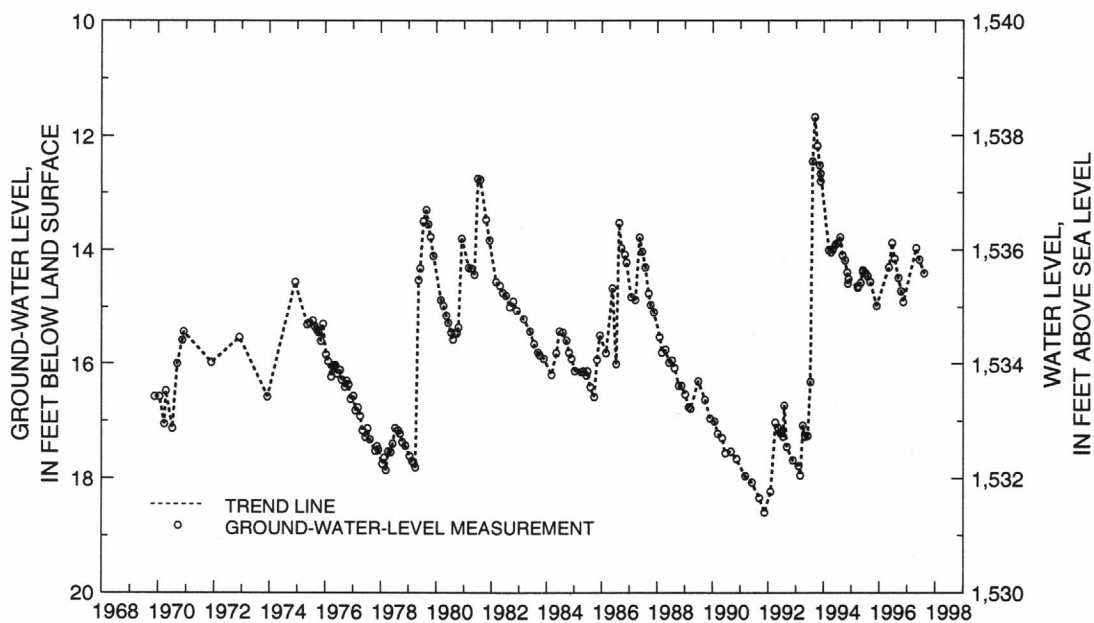
PERIOD OF RECORD.--November 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.68 ft below land-surface datum, September 6, 1993; lowest water level measured, 18.60 ft below land-surface datum, November 15, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 16	14.72	May 1	13.97	June 10	14.17	Aug. 14	14.41
Nov. 14	14.91						

151-069-01BBB



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

15

GROUND-WATER LEVELS

BENSON COUNTY

475515099292101. Local number, 151-069-03CCC.

LOCATION.--Lat 47°55'15", long 99°29'21", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--Maddock.

WELL CHARACTERISTICS.--Drilled observation well, depth 180 ft, cased with 137 ft of 1.25-in diameter plastic pipe, screen set 137 to 143 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,560 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

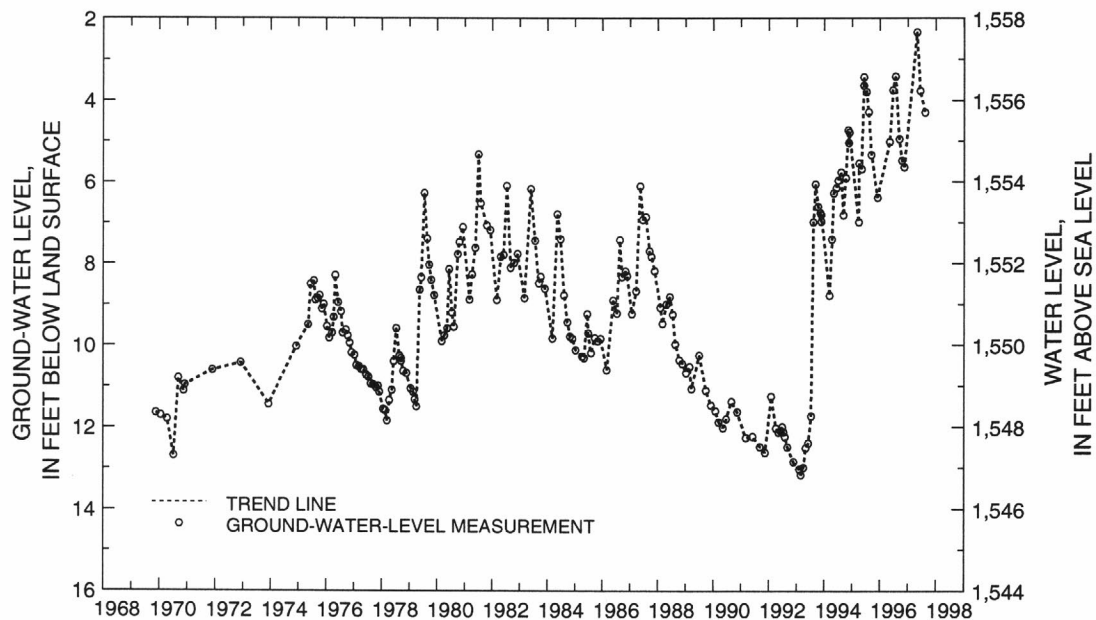
PERIOD OF RECORD.--November 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.33 ft below land-surface datum, May 1, 1997; lowest water level measured, 13.16 ft below land-surface datum, March 1, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 16	5.48	May 1	2.33	June 10	3.77	Aug. 14	4.30
Nov. 14	5.64						

151-069-03CCC



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

BENSON COUNTY

480958099154801. Local number, 154-067-15BBB.

LOCATION.--Lat 48°09'58", long 99°15'48", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 180 ft, cased with 147 ft of 1.25-in diameter plastic pipe, screen set 147 to 153 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,475 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

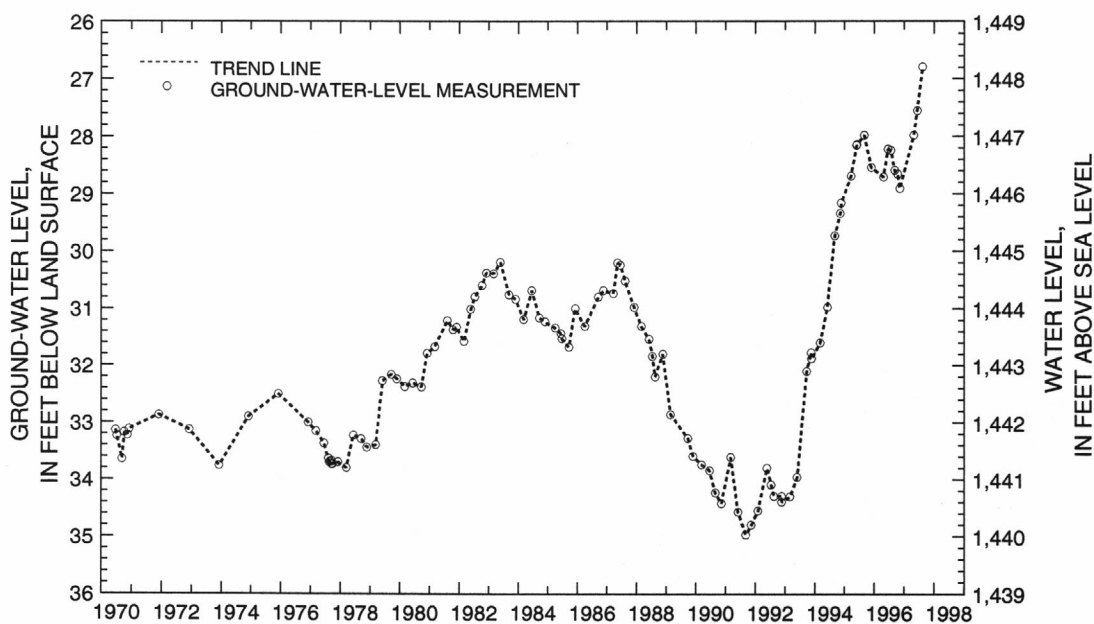
PERIOD OF RECORD.--June 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.79 ft below land-surface datum, August 15, 1997; lowest water level measured, 34.97 ft below land-surface datum, September 10, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	28.66	May 1	27.98	June 11	27.55	Aug. 15	26.79
Nov. 12	28.91						

154-067-15BBB



GROUND-WATER LEVELS

BENSON COUNTY

481041099442701. Local number, 154-071-11AAD1.

LOCATION.--Lat 48°10'41", long 99°44'27", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 100 ft, cased with 42 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 42 to 45 ft below land-surface datum.

INSTRUMENTATION.--Measured quarterly using a steel tape.

DATUM.--Altitude of land-surface datum is 1,590 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

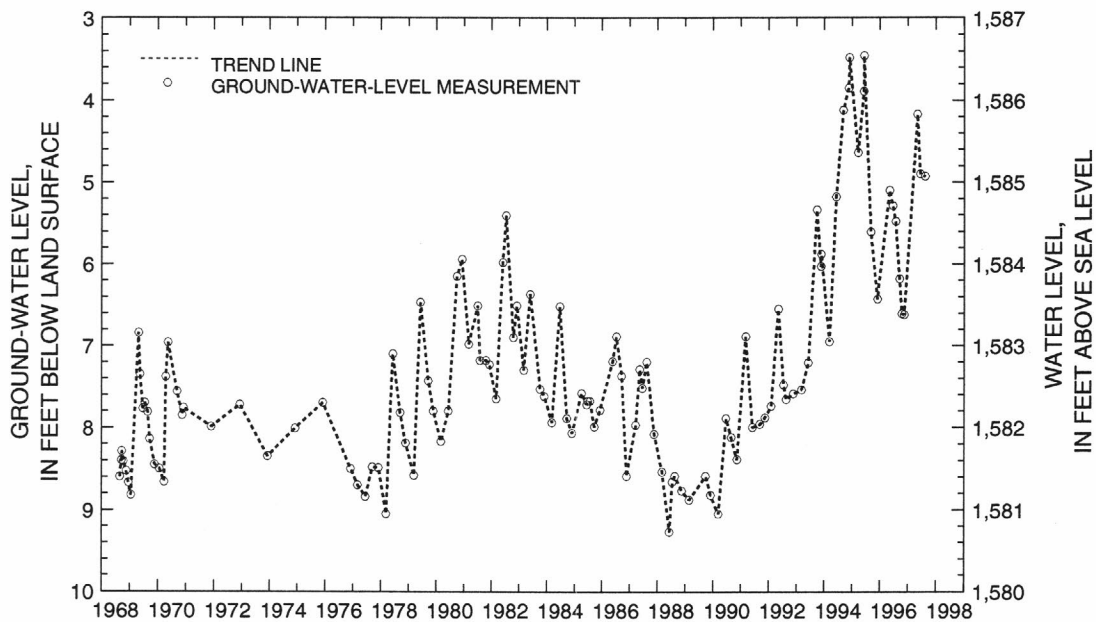
PERIOD OF RECORD.--August 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.46 ft below land-surface datum, June 4, 1995; lowest water level measured, 9.27 ft below land-surface datum, June 8, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	6.61	May 7	4.17	June 11	4.90	Aug. 15	4.93
Nov. 13	6.62						

154-071-11AAD1



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

BENSON COUNTY

482212099475801. Local number, 156-071-04BBA.

LOCATION.--Lat 48°22'12", long 99°47'58", Hydrologic Unit 09010004. Owner: North Dakota State Water Commission.

AQUIFER.--Pleasant Lake.

WELL CHARACTERISTICS.--Drilled observation well, depth 140 ft, cased with 58 ft of 4-in diameter plastic pipe, slotted 18 to 58 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder September 1968 to current year. Only intermittent low and EOM water levels obtained from strip chart recorders are available from the District office for September 1968 to January 1975. From January 1975 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,604 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 7.95 ft below land-surface datum, July 15-16, 1997; lowest daily water level, 13.39 ft below land-surface datum, March 9, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

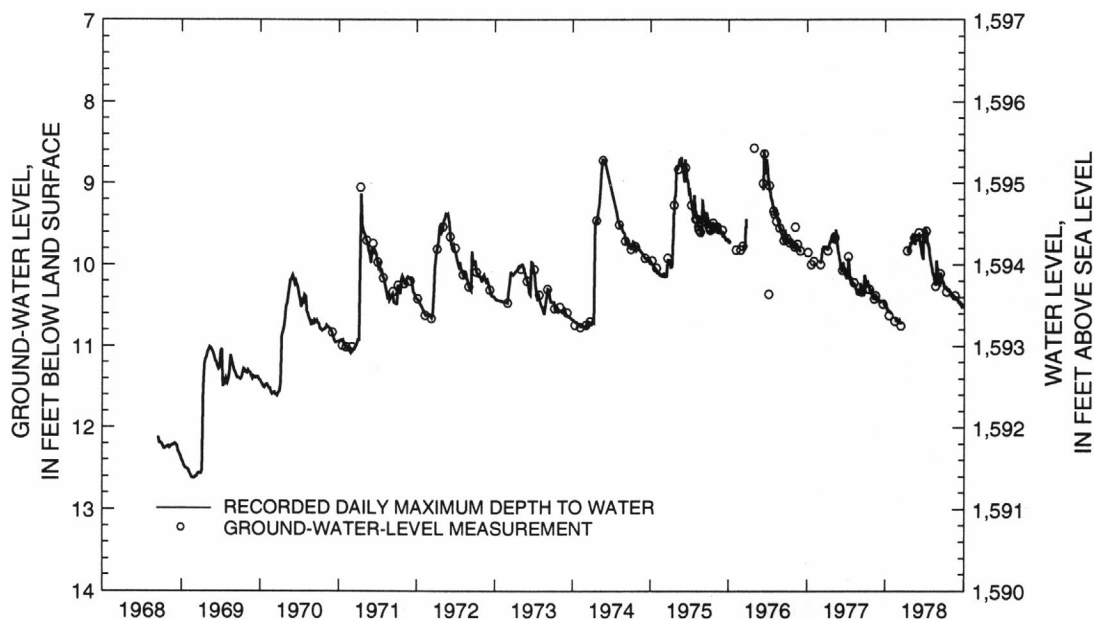
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.58	9.69	9.84	9.95	10.03	10.07	8.92	8.55	8.87	8.86	8.48	8.87
10	9.63	9.70	9.85	9.96	10.03	10.08	9.00	8.46	8.97	8.79	8.61	8.91
15	9.64	9.78	9.89	9.98	10.05	10.09	8.82	8.56	9.03	7.96	8.62	8.96
20	9.67	9.82	9.88	9.99	10.04	10.07	8.62	8.62	8.89	8.11	8.71	8.92
25	9.68	9.84	9.92	10.01	10.01	9.69	8.55	8.66	8.81	8.18	8.79	8.96
EOM	9.66	9.81	9.94	9.98	10.02	9.16	8.49	8.74	8.93	8.34	8.79	9.02
MAX	9.68	9.84	9.94	10.02	10.06	10.10	9.09	8.74	9.05	8.93	8.82	9.02

WATER YEAR 1997

HIGHEST WATER LEVEL 7.95 JULY 15-16

LOWEST WATER LEVEL 10.10 MARCH 17-18

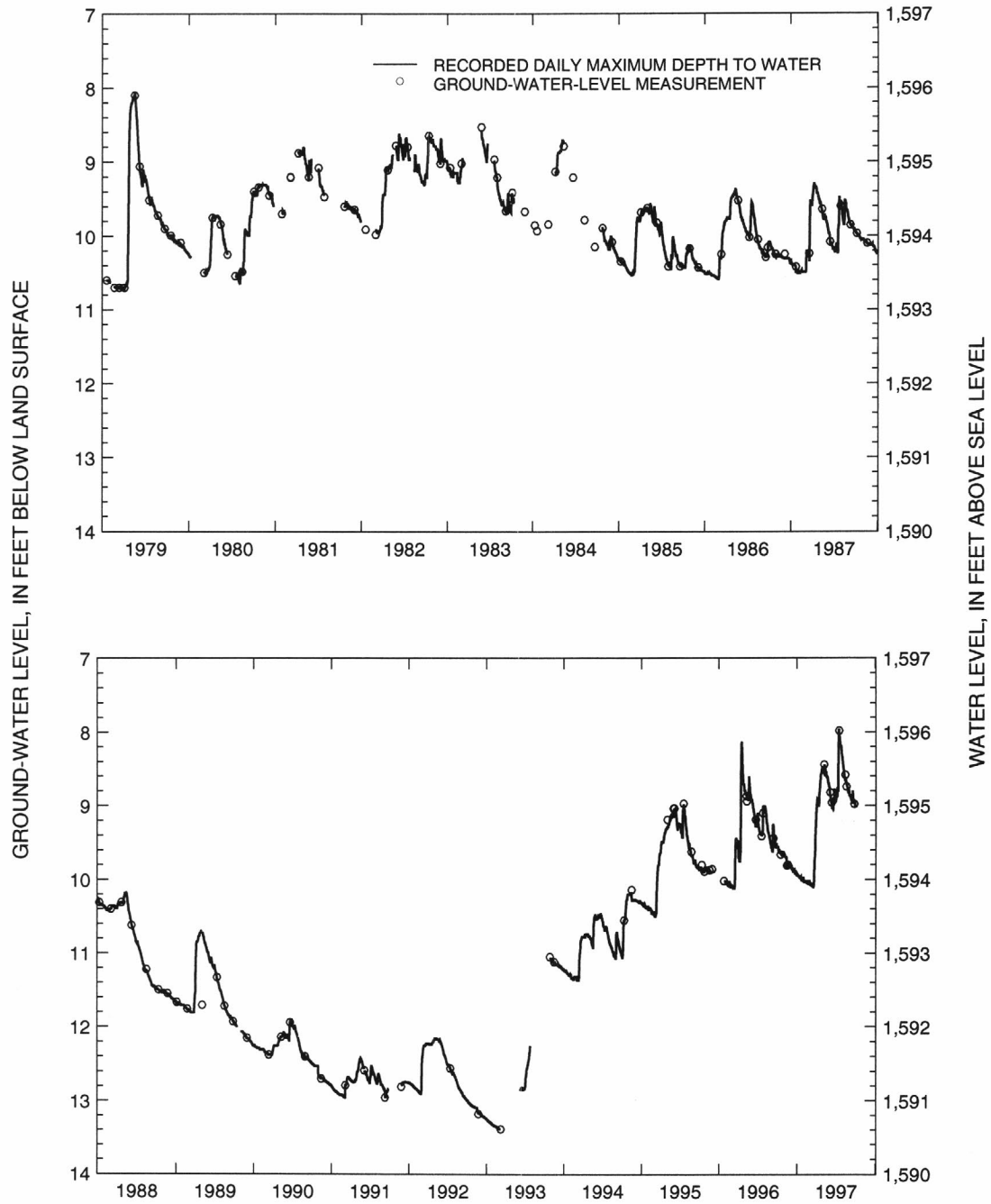
156-071-04BBA



GROUND-WATER LEVELS

BENSON COUNTY

156-071-04BBA--Continued



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

BOTTINEAU COUNTY

483333101135402. Local number, 159-082-35BBB2.

LOCATION.--Lat 48°33'33", long 101°13'54", Hydrologic Unit 09010005. Owner: North Dakota State Water Commission.

AQUIFER.--Glenburn.

WELL CHARACTERISTICS.--Drilled observation well, depth 181 ft, cased with 178 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 178 to 181 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,560 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

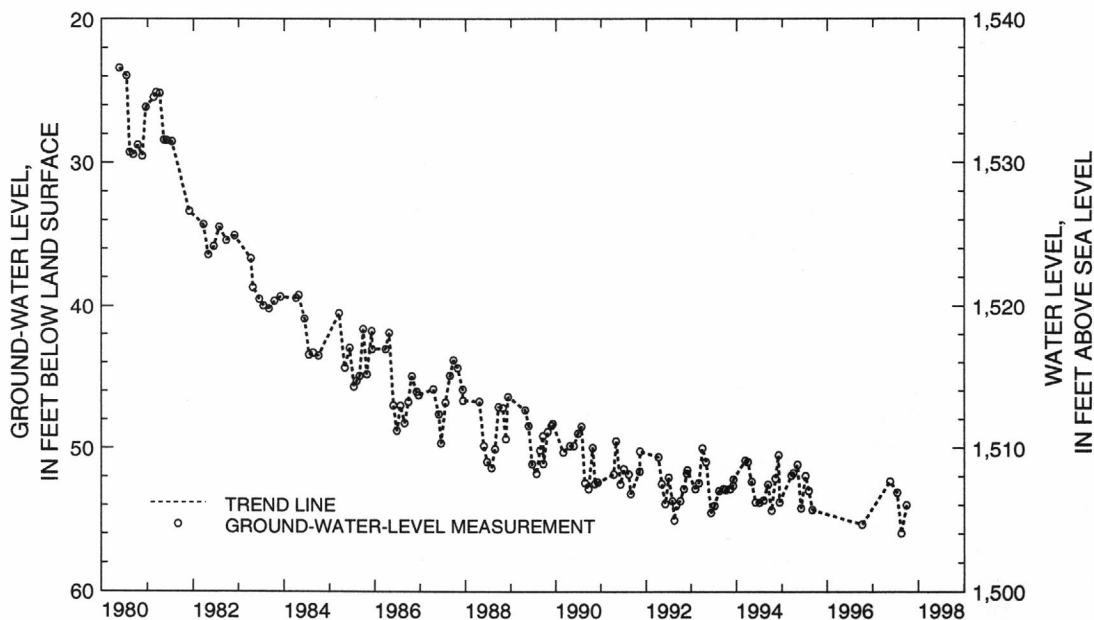
PERIOD OF RECORD.--May 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.39 ft below land-surface datum, May 21, 1980; lowest water level measured, 55.96 ft below land-surface datum, Aug. 19, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 9	55.35	July 15	53.10	Aug. 19	55.96	Sept. 30	54.00
May 20	52.32						

159-082-35BBB2



GROUND-WATER LEVELS

BOWMAN COUNTY

461039103282801. Local number, 131-102-07DDD1.

LOCATION.--Lat 46°10'39", long 103°28'28", Hydrologic Unit 10130301. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek-Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 963 ft, cased with 951 ft of 2-in diameter steel pipe.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,945 ft. Measuring point: Top of casing 3.20 ft above land-surface datum.

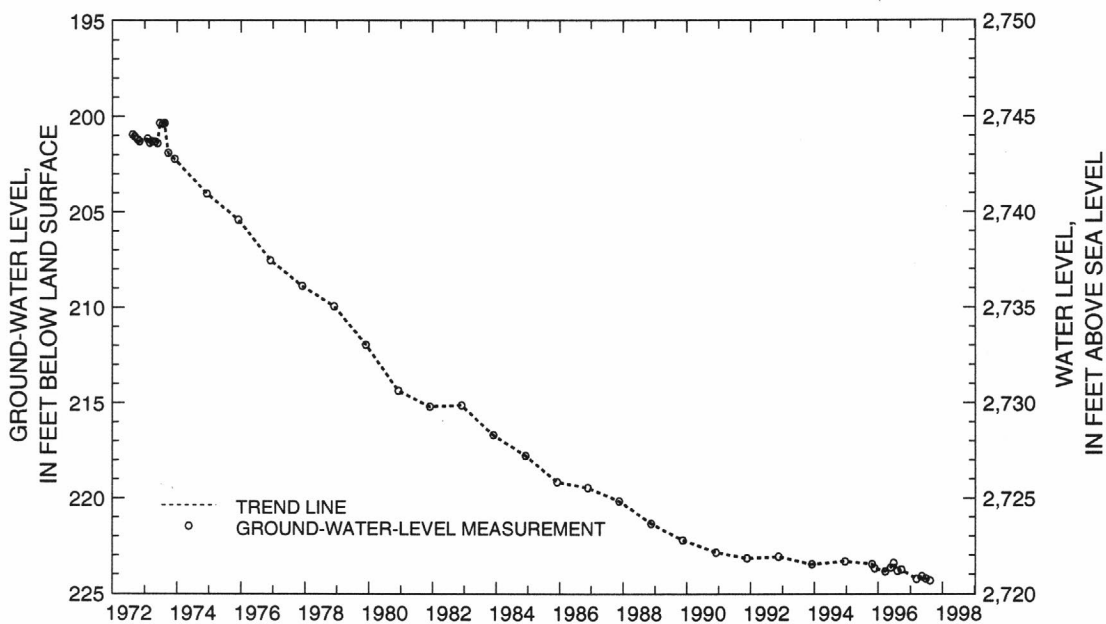
PERIOD OF RECORD.--August 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 200.35 ft below land-surface datum, June 21, 1973 and August 13, 1973; lowest water level measured, 224.33 ft below land-surface datum, August 13, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Mar. 11	224.24	May 14	224.11	June 24	224.23	Aug. 13	224.33

131-102-07DDD1



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

BOWMAN COUNTY

461039103282803. Local number, 131-102-07DDD3.

LOCATION.--Lat 46°10'39", long 103°28'28", Hydrologic Unit 10130301. Owner: North Dakota State Water Commission.

AQUIFER.--Tongue River-Ludlow.

WELL CHARACTERISTICS.--Drilled observation well, depth 138 ft, cased with 132 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 132 to 138 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,945 ft. Measuring point: Top of casing 2.50 ft above land-surface datum.

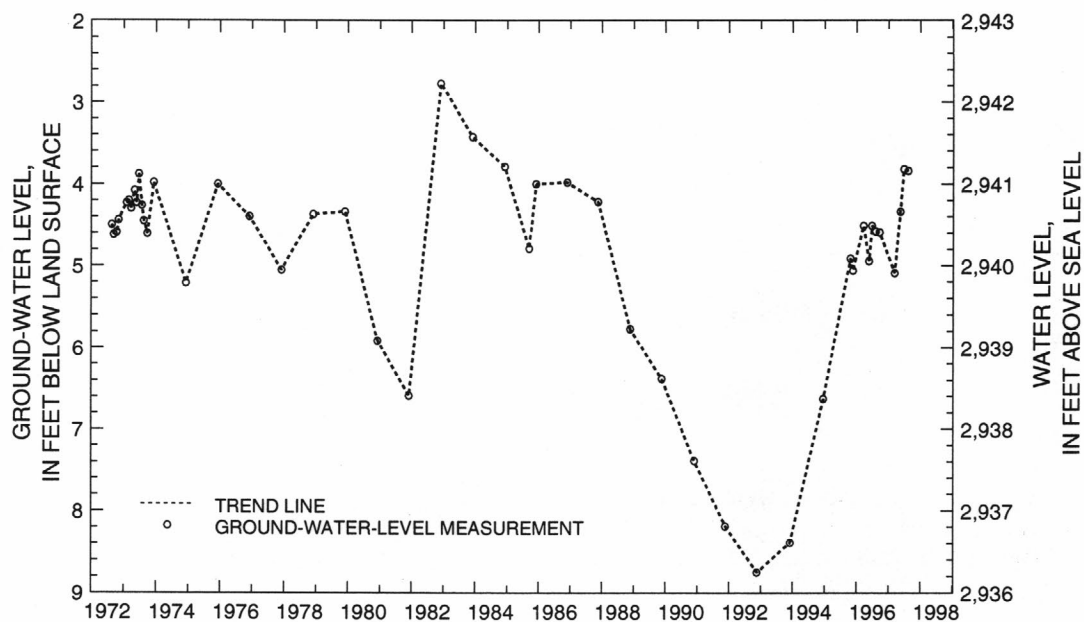
PERIOD OF RECORD.--August 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.77 ft below land-surface datum, December 1, 1982; lowest water level measured, 8.75 ft below land-surface datum, November 17, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Mar. 11	5.09	May 14	4.34	June 24	3.82	Aug. 13	3.84

131-102-07DDD3



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

23

GROUND-WATER LEVELS

BURKE COUNTY

485618102455401. Local number, 163-093-17DDD.

LOCATION.--Lat 48°56'18", long 102°45'54", Hydrologic Unit 09010001. Owner: North Dakota State Water Commission.

AQUIFER.--Columbus.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 76 ft of 1.25-in diameter plastic pipe, slotted 56 to 76 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,917 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

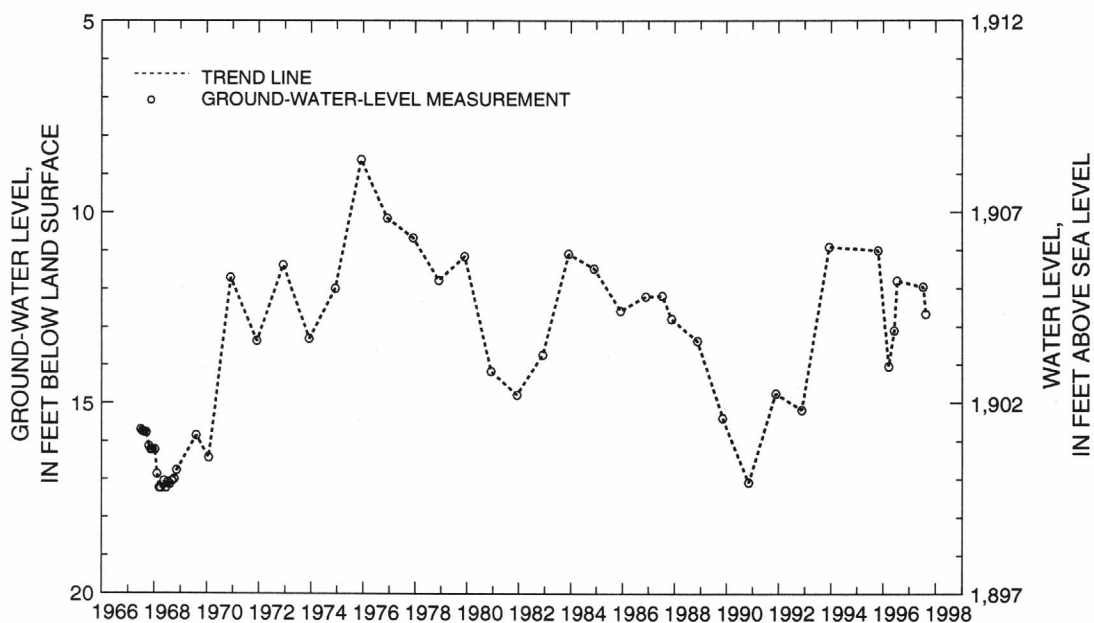
PERIOD OF RECORD.--June 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.62 ft below land-surface datum, December 3, 1975; lowest water level measured, 17.24 ft below land-surface datum, April 1, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 1	No access	Nov. 19	No access	July 15	11.96	Aug. 19	12.67

163-093-17DDD



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

BURLEIGH COUNTY

464540100222101. Local number, 138-077-22AAD.

LOCATION.--Lat 46°45'40", long 100°22'21", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--McKenzie.

WELL CHARACTERISTICS.--Drilled observation well, depth 126 ft, cased with 116 ft of 4.5-in diameter steel pipe, slotted 86 to 116 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder September 1961 to current year. Only intermittent low and EOM water levels obtained from strip chart recorders are available from the District office for September 1961 to October 1973. From October 1973 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,720 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

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

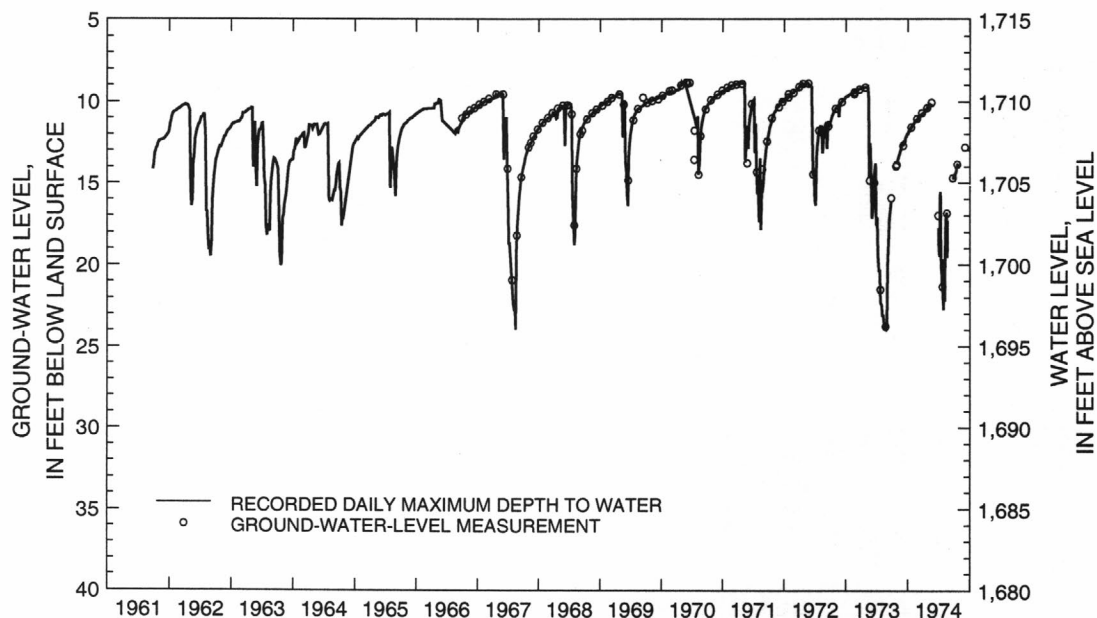
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 5.96 ft below land-surface datum, May 19-21, 1997; lowest daily water level, 32.88 ft below land-surface datum, August 22-23, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.56	7.17	7.81	7.54	7.42	7.31	6.89	6.75	6.71	8.60	9.12	9.94
10	7.50	7.12	7.75	7.50	7.42	7.30	6.71	6.80	7.20	8.44	9.15	9.58
15	7.44	7.05	7.73	7.49	7.38	7.29	6.71	6.85	7.90	8.33	9.15	9.34
20	7.38	6.99	7.69	7.48	7.35	7.25	6.72	5.96	8.21	8.56	9.15	9.12
25	7.30	7.91	7.66	7.45	7.35	7.19	6.68	5.97	8.56	8.68	9.15	8.92
EOM	7.18	7.83	7.62	7.39	7.32	7.11	6.66	6.19	9.20	8.92	10.48	8.92
MAX	7.59	7.94	7.83	7.60	7.42	7.31	7.07	6.88	9.20	9.08	10.48	10.37

WATER YEAR 1997 HIGHEST WATER LEVEL 5.96 MAY 19-21 LOWEST WATER LEVEL 10.48 AUGUST 31

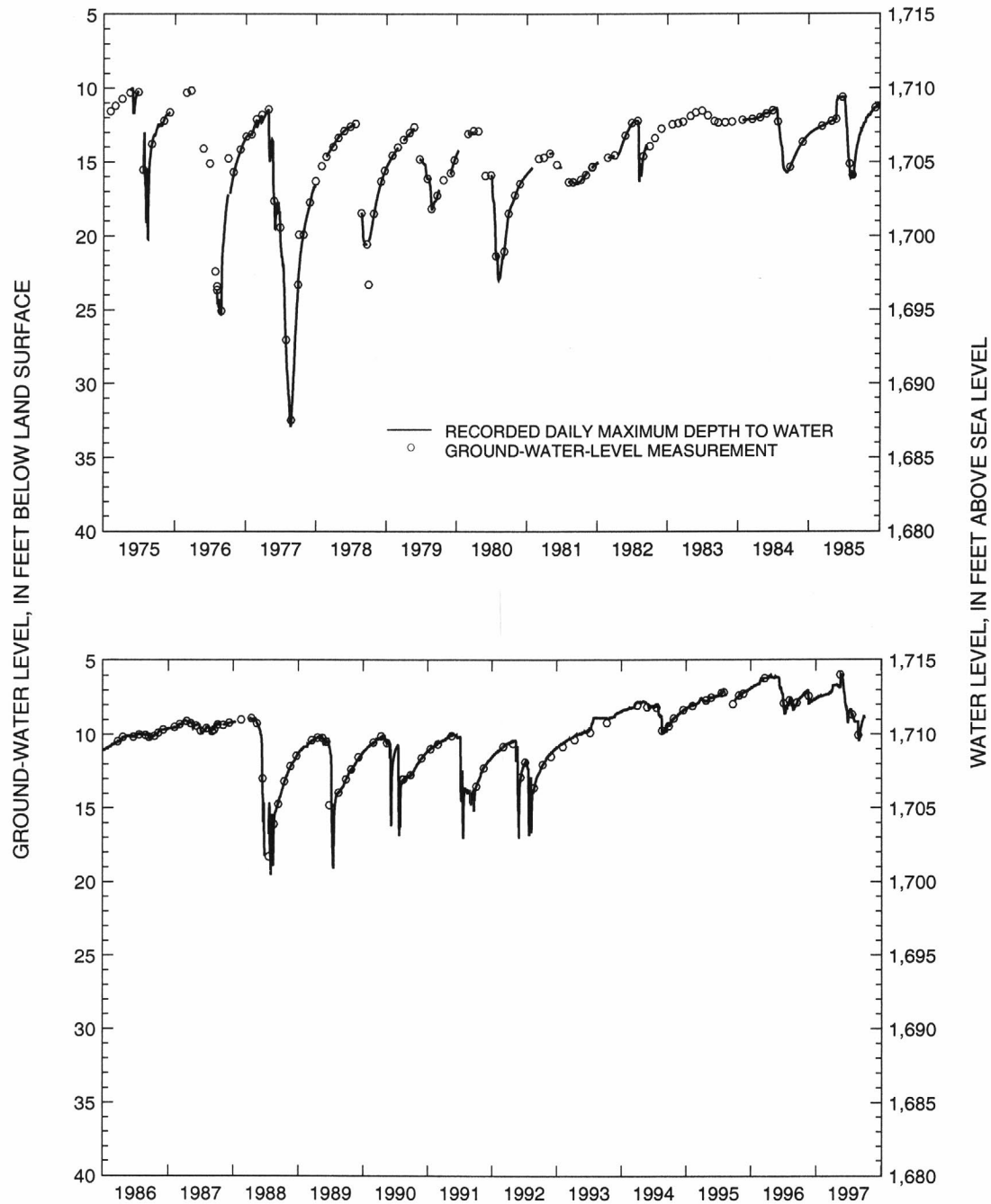
138-077-22AAD



GROUND-WATER LEVELS

BURLEIGH COUNTY

138-077-22AAD--Continued



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

BURLEIGH COUNTY

464556100454901. Local number, 138-080-15CDD.

LOCATION.--Lat 46°45'56", long 100°45'49", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Bismarck.

WELL CHARACTERISTICS.--Drilled observation well, depth 168 ft, cased with 140 ft of 4-in diameter steel pipe, slotted 110 to 140 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder October 1961 to current year. Only intermittent low and EOM water levels obtained from strip chart recorders are available from the District office for October 1961 to October 1973. From October 1973 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,658.4 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

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

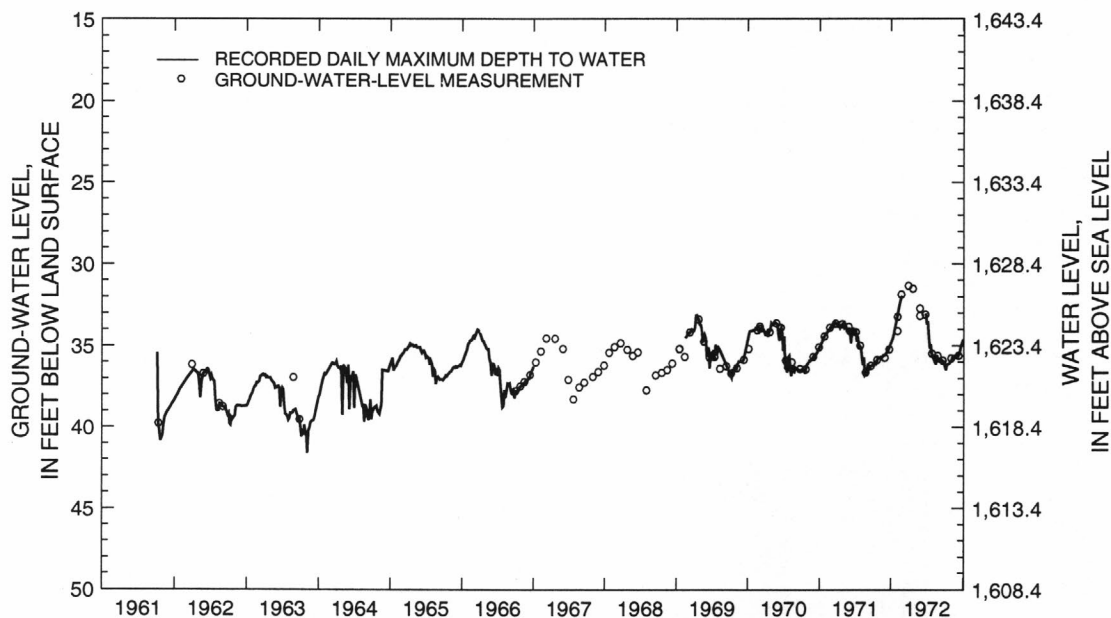
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 18.38 ft below land-surface datum, April 4 and 8, 1988; lowest daily water level, 42.52 ft below land-surface datum, August 5, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	33.31	33.35	33.27	32.87	32.40	32.50	30.42	30.25	32.13	32.54	32.53	32.91
10	33.68	33.28	33.27	32.68	32.41	32.50	30.54	30.68	32.25	32.45	32.67	32.91
15	33.83	33.28	33.39	32.61	32.41	32.42	---	30.95	32.33	32.45	32.73	32.91
20	33.83	33.27	33.42	32.49	32.42	32.38	30.18	31.23	32.60	32.51	32.75	32.71
25	33.65	33.27	33.40	32.40	32.53	31.65	30.05	31.49	32.65	32.49	32.82	32.65
EOM	33.44	33.27	33.09	32.40	32.53	30.54	30.10	31.85	32.76	32.50	32.89	32.57
MAX	33.88	33.44	33.42	33.01	32.53	32.53	---	31.85	32.76	32.76	32.89	32.91

WATER YEAR 1997 HIGHEST WATER LEVEL 30.05 APRIL 23-28 LOWEST WATER LEVEL 33.88 OCTOBER 16-18

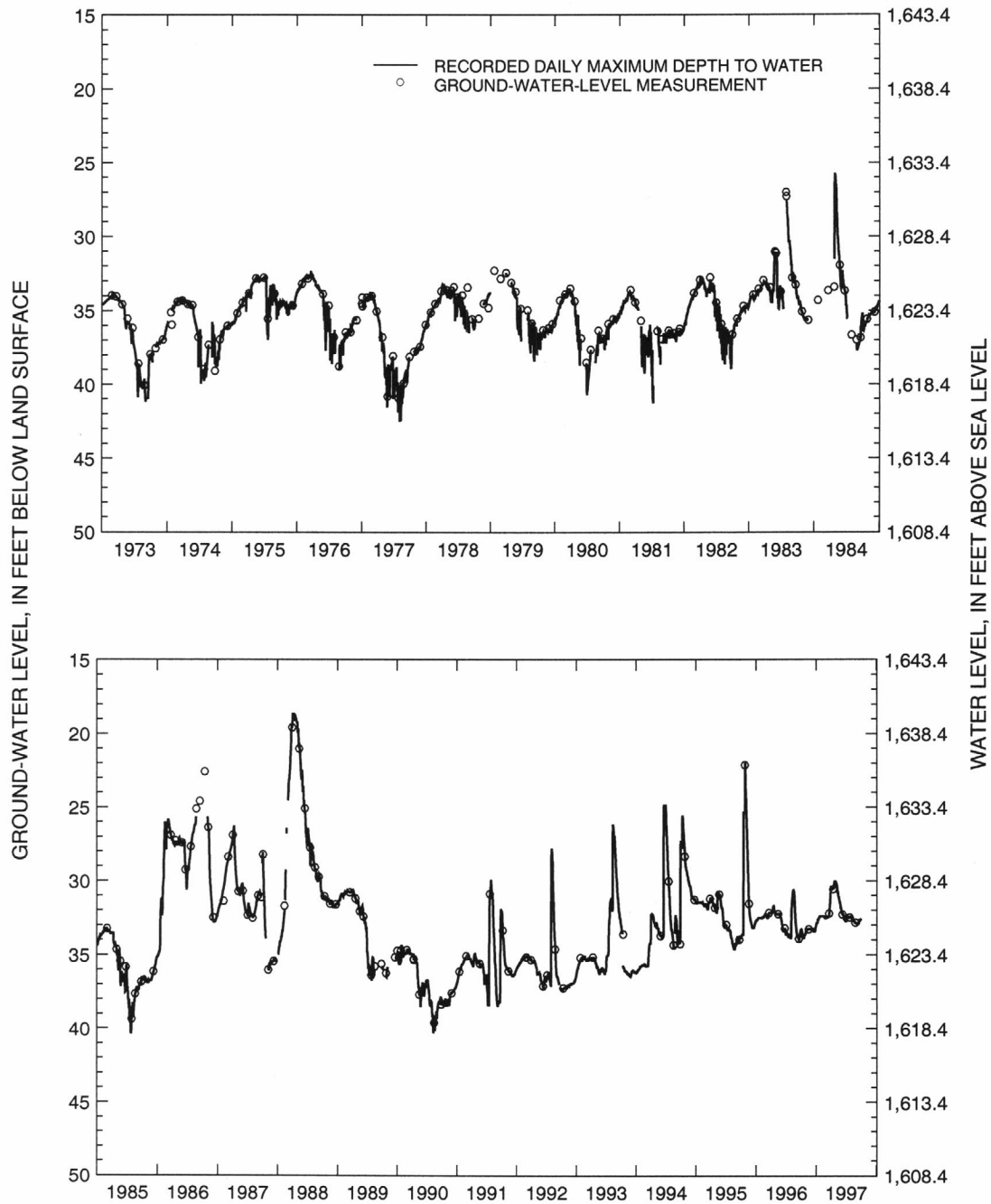
138-080-15CDD



GROUND-WATER LEVELS

BURLEIGH COUNTY

138-080-15CDD--Continued



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

BURLEIGH COUNTY

470556100142501. Local number, 142-075-19CCB.

LOCATION.--Lat 47°05'56", long 100°14'25", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Wing Channel.

WELL CHARACTERISTICS.--Drilled observation well, depth 210 ft, cased with 197 ft of 1.25-in diameter plastic pipe, slotted 190 to 197 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,890.1 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

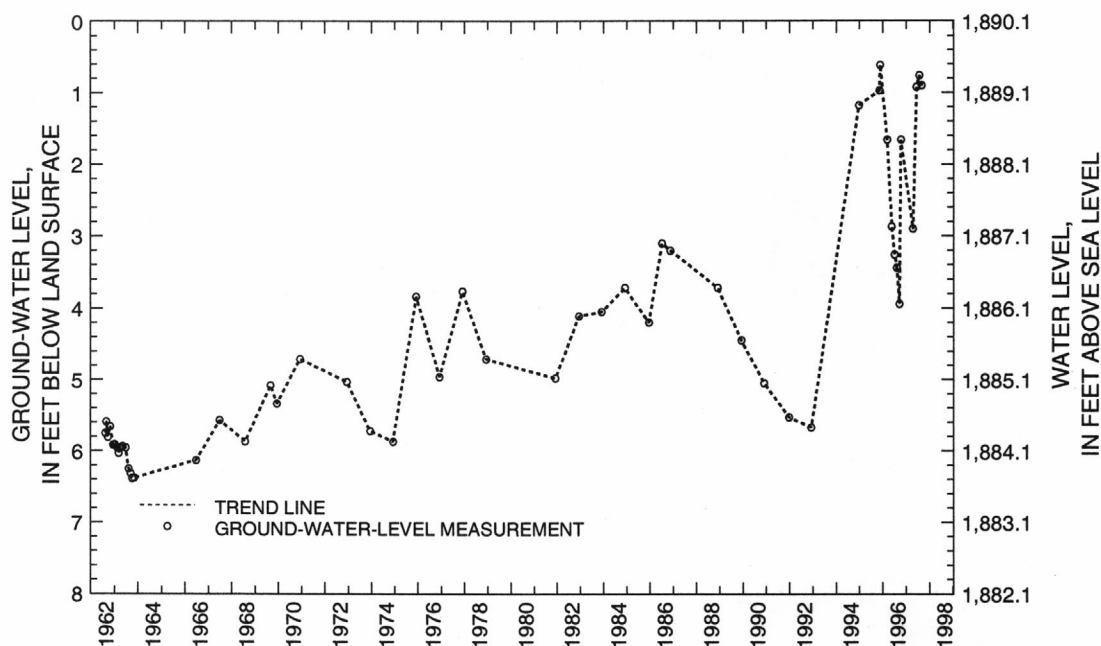
PERIOD OF RECORD.--August 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.61 ft below land-surface datum, November 20, 1995; lowest water level measured, 6.39 ft below land-surface datum, October 2, 1963.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 7	1.66	June 10	0.92	July 23	0.76	Aug. 29	0.90
Apr. 6	2.90						

142-075-19CCB



GROUND-WATER LEVELS

CASS COUNTY

463926096513801. Local number, 137-049-27BBC.

LOCATION.--Lat 46°39'26", long 96°51'38", Hydrologic Unit 09020105. Owner: North Dakota State Water Commission.

AQUIFER.--West Fargo.

WELL CHARACTERISTICS.--Drilled observation well, depth 378 ft, cased with 249 ft of 12-in diameter steel pipe, screen set 249 to 300 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From October 1979 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 915 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

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

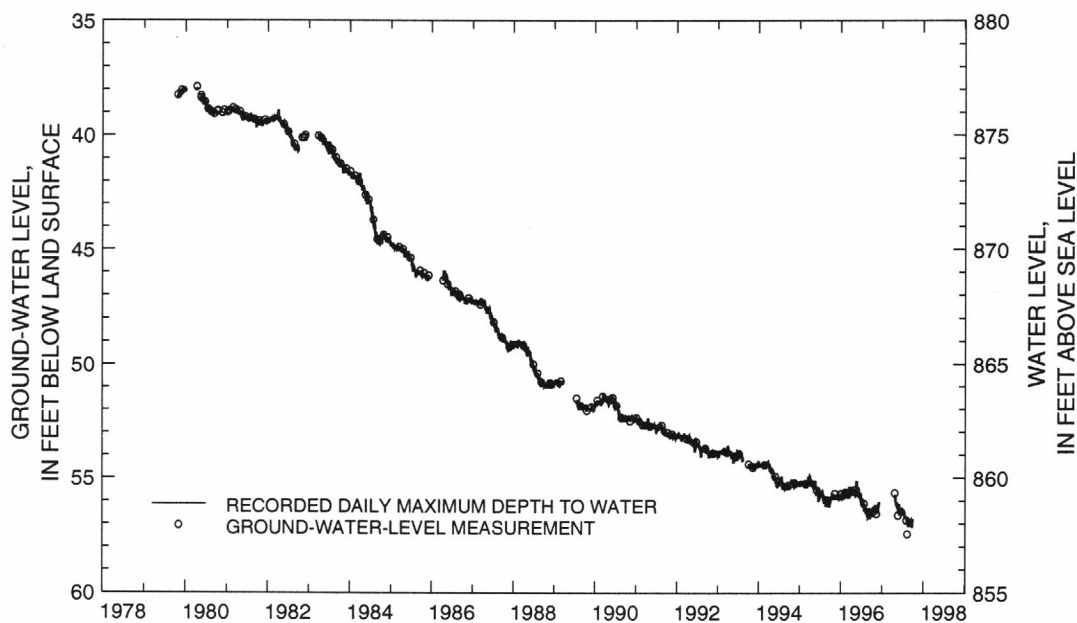
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 37.82 ft below land-surface datum, December 6, 1979; lowest daily water level, 57.13 ft below land-surface datum, September 23, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	56.22	56.15	---	---	---	---	56.05	56.29	56.48	---	56.94
10	56.51	56.38	---	---	---	---	---	56.18	56.60	56.48	56.80	56.88
15	56.35	56.43	---	---	---	---	---	56.27	56.36	56.47	56.78	56.88
20	56.27	56.27	---	---	---	---	---	56.22	56.36	56.56	56.98	56.96
25	56.30	56.33	---	---	---	---	55.82	56.28	56.50	56.63	56.99	57.02
EOM	56.24	56.10	---	---	---	---	55.84	56.29	56.44	---	56.97	56.87
MAX	---	56.55	---	---	---	---	---	56.35	56.60	---	---	57.13

WATER YEAR 1997 HIGHEST WATER LEVEL 55.65 APRIL 24 LOWEST WATER LEVEL 57.13 SEPTEMBER 23

137-049-27BBC



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

CASS COUNTY

464537096512901. Local number, 138-049-22BBA.

LOCATION.--Lat 46°45'37", long 96°51'29", Hydrologic Unit 09020104. Owner: North Dakota State Water Commission.

AQUIFER.--West Fargo.

WELL CHARACTERISTICS.--Drilled observation well, depth 310 ft, cased with 245 ft of 6-in diameter plastic pipe, No. 18 slot screen set 245 to 250 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From March 1983 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 910 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

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

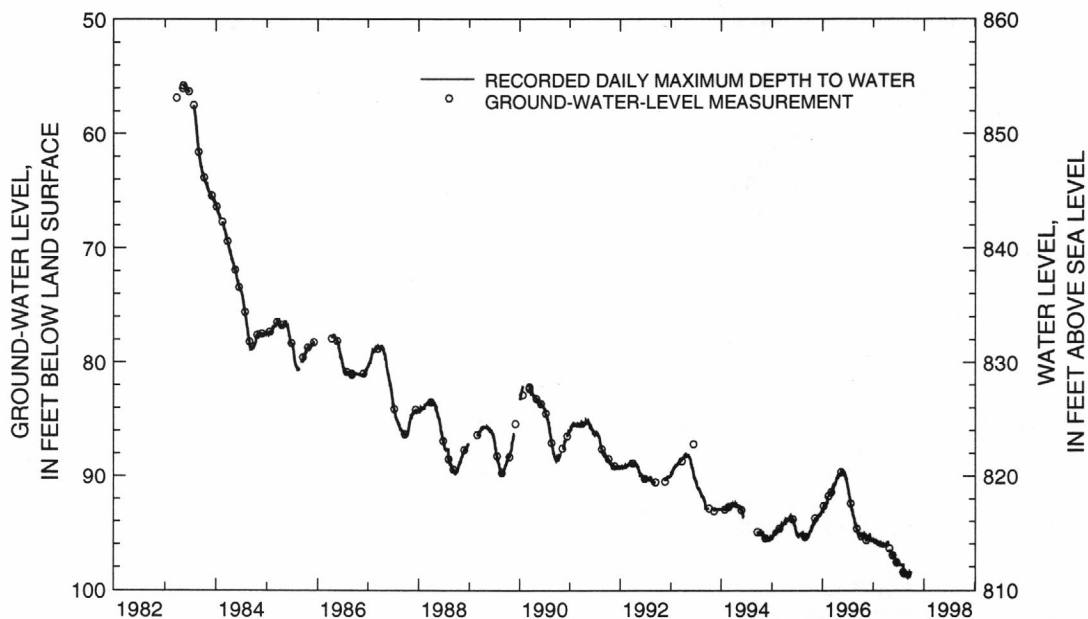
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 55.67 ft below land-surface datum, May 12, 1983; lowest daily water level, 98.89 ft below land-surface datum, September 3, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	95.24	95.12	95.38	95.61	95.94	96.05	96.04	96.63	97.18	97.78	97.83	98.68
10	95.31	95.41	95.34	95.65	95.99	95.99	96.12	96.84	97.50	97.81	98.48	98.68
15	95.12	95.52	95.60	95.71	96.03	96.20	96.20	96.86	97.42	97.81	98.35	98.65
20	95.03	95.39	95.59	95.71	95.92	96.13	95.83	97.04	97.47	97.83	98.56	98.78
25	95.11	95.55	95.73	95.89	96.16	96.10	---	96.98	97.64	97.83	98.58	98.59
EOM	95.13	95.26	95.72	95.67	95.93	96.09	96.50	97.14	97.77	97.83	98.62	98.55
MAX	95.38	95.66	95.73	95.97	96.23	96.24	---	97.14	97.78	97.83	98.64	98.89

WATER YEAR 1997 HIGHEST WATER LEVEL 94.87 OCTOBER 29 LOWEST WATER LEVEL 98.89 SEPTEMBER 3

138-049-22BBA



GROUND-WATER LEVELS

CASS COUNTY

465312096543301. Local number, 139-049-06ADB.

LOCATION.--Lat 46°53'12", long 96°54'33", Hydrologic Unit 09020204. Owner: North Dakota State Water Commission.

AQUIFER.--West Fargo.

WELL CHARACTERISTICS.--Drilled observation well, depth 230 ft, cased with 220 ft of 8-in diameter steel pipe, screen set 220 to 230 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder January 1938 to current year. Only intermittent low and EOM water levels obtained from strip chart recorders are available from the District office.

DATUM.--Altitude of land-surface datum is 891 ft. Measuring point: Top of casing 0.40 ft above land-surface datum.

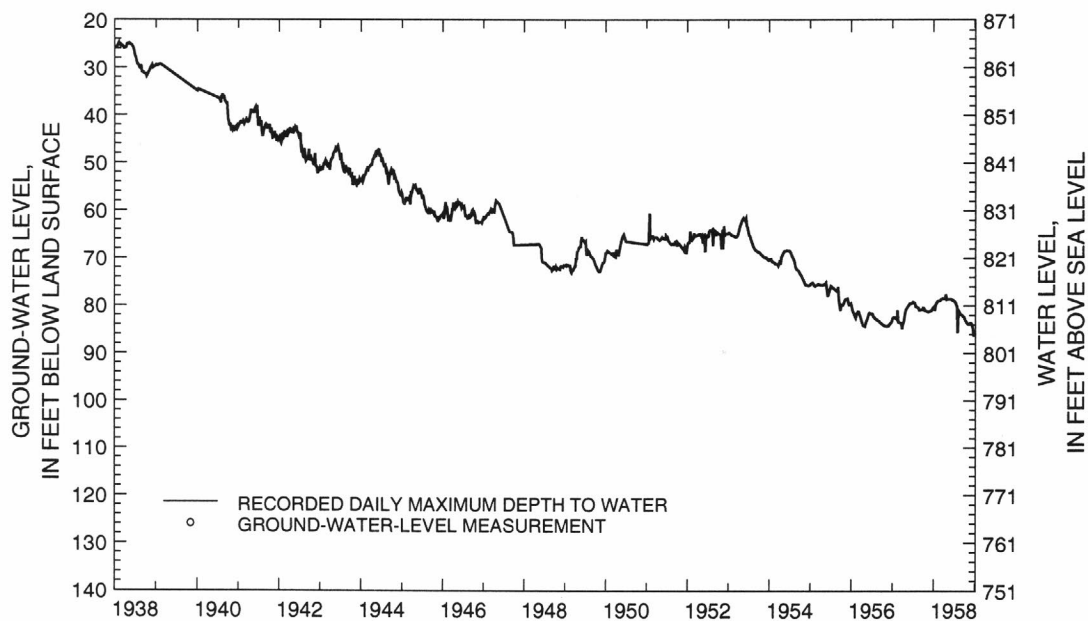
PERIOD OF RECORD.--December 1937 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 24.77 ft below land-surface datum, February 5, 1938; lowest daily water level, 129.10 ft below land-surface datum, March 15, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 7	128.73	Mar. 25	128.85	May 9	128.50	June 18	128.45
Nov. 6	128.54	Mar. 31	128.30	May 10	128.60	June 20	128.48
Feb. 20	128.61	Apr. 5	128.31	May 15	128.50	June 25	128.50
Feb. 25	128.89	Apr. 10	128.28	May 20	128.22	June 30	128.65
Feb. 28	128.85	Apr. 15	128.48	May 25	128.60	July 5	128.60
Mar. 5	128.81	Apr. 20	128.58	May 31	128.79	July 10	128.72
Mar. 10	128.91	Apr. 25	128.60	June 5	128.78	July 15	128.72
Mar. 15	129.10	Apr. 30	128.38	June 10	128.90	Aug. 6	128.88
Mar. 20	129.05	May 5	128.40	June 15	128.86	Aug. 12	128.59

139-049-06ADB

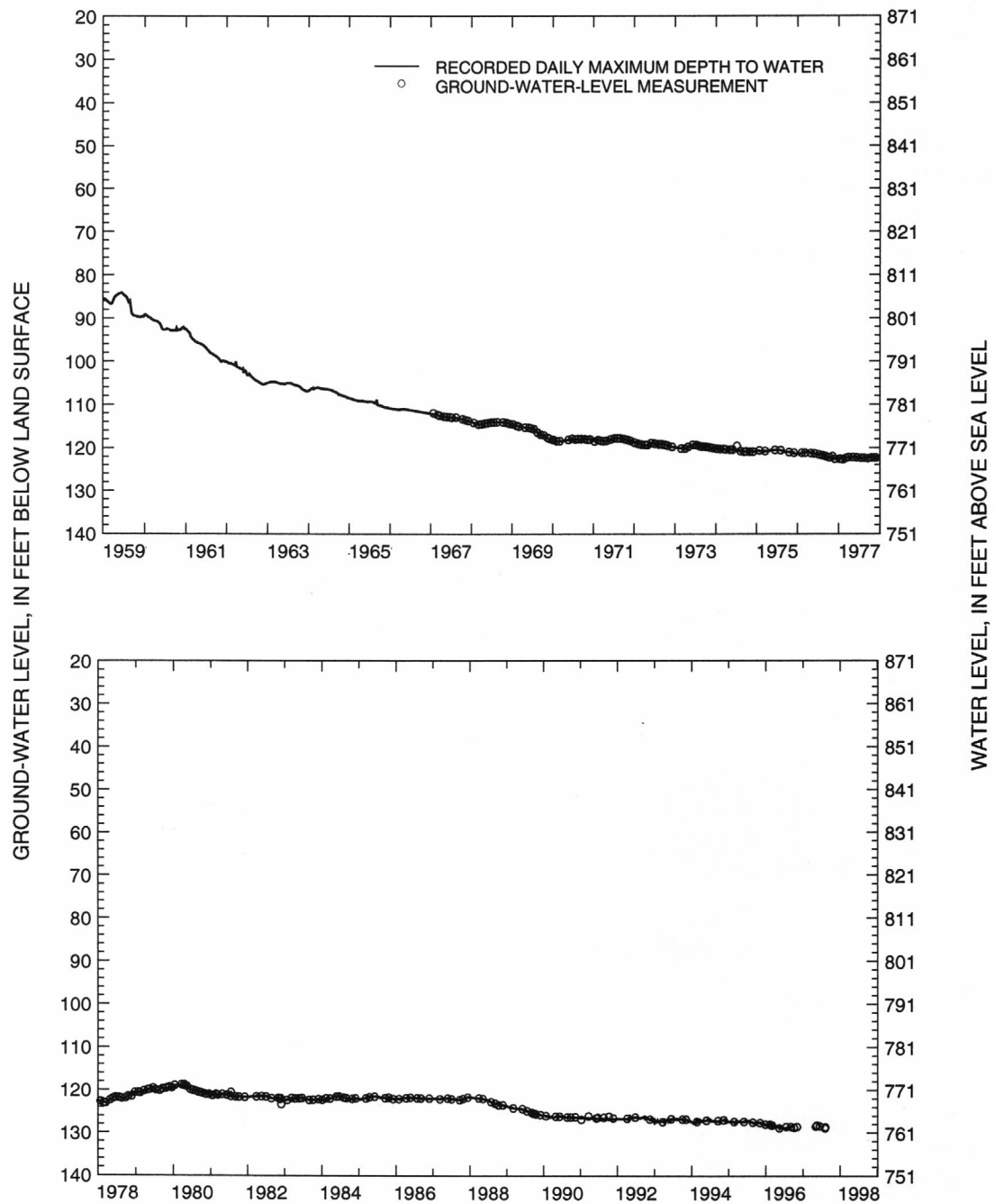


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

CASS COUNTY

139-049-06ADB--Continued



GROUND-WATER LEVELS

CASS COUNTY

470818097294104. Local number, 142-054-03DDD4.

LOCATION.--Lat 47°08'18", long 97°29'41", Hydrologic Unit 09020107. Owner: North Dakota State Water Commission.

AQUIFER.--Page.

WELL CHARACTERISTICS.--Drilled observation well, depth 182 ft, cased with 158 ft of 6-in diameter plastic pipe, No. 12 slot screen set 158 to 168 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From October 1982 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,230 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

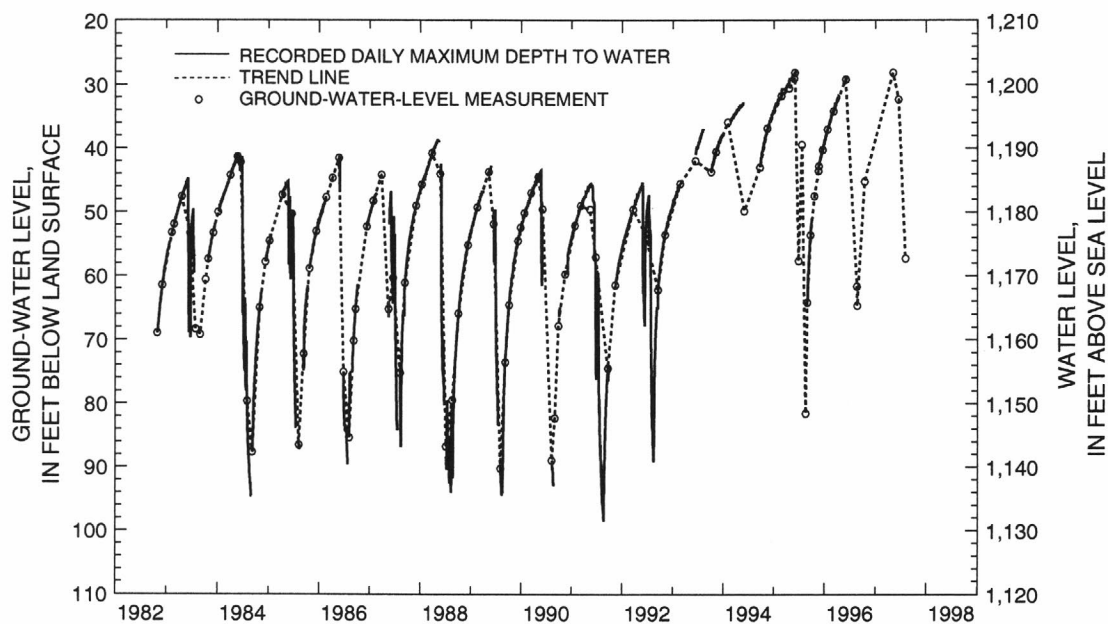
PERIOD OF RECORD.--October 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 27.84 ft below land-surface datum, June 13-14, 1995; lowest daily water level, 98.52 ft below land-surface datum, August 23, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	45.20	May 8	28.15	June 18	32.33	Aug. 6	57.28

142-054-03DDD4



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

CASS COUNTY

471326097332902. Local number, 143-054-08BBB2.

LOCATION.--Lat 47°13'26", long 97°33'29", Hydrologic Unit 09020107. Owner: North Dakota State Water Commission.

AQUIFER.--Page.

WELL CHARACTERISTICS.--Drilled observation well, depth 92 ft, cased with 81 ft of 5-in diameter plastic pipe, No. 15 slot screen set 81 to 86 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From September 1982 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,168 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 14.61 ft below land-surface datum, July 27-28, 1995; lowest daily water level, 34.08 ft below land-surface datum, August 18, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

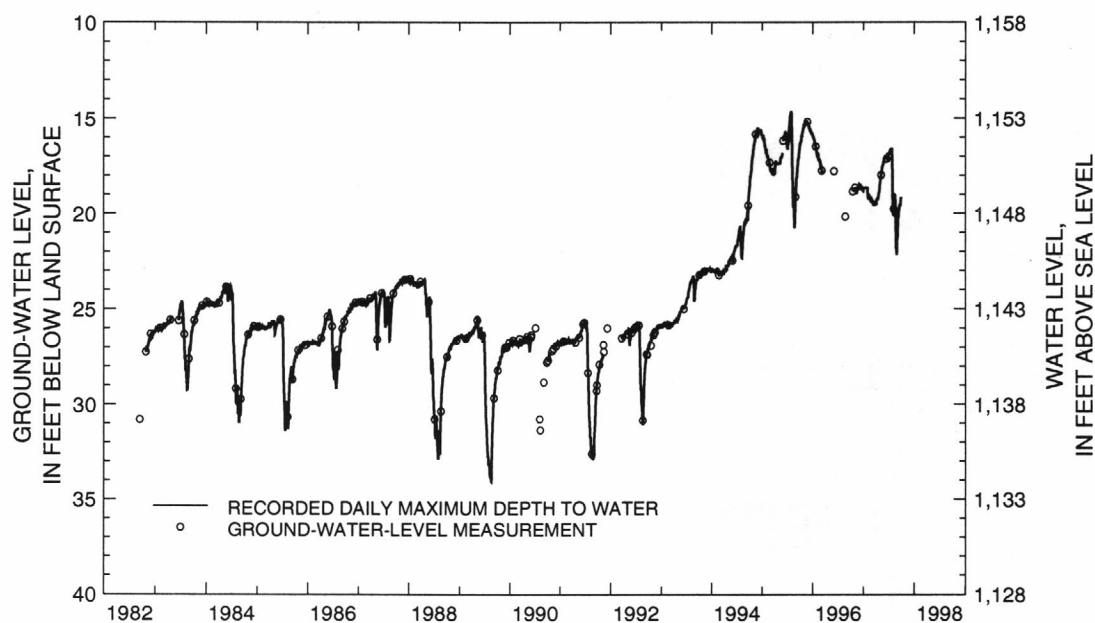
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	18.70	18.58	18.66	19.19	19.35	19.43	18.16	17.05	16.88	20.04	20.79
10	---	18.80	18.54	18.66	19.23	19.39	19.27	17.95	17.04	16.81	19.07	20.15
15	---	18.87	18.69	18.66	19.23	19.55	19.16	17.63	16.98	16.63	19.03	19.82
20	18.74	18.66	18.67	18.66	19.19	19.54	19.05	17.50	17.07	16.66	19.62	19.59
25	---	18.71	18.77	18.66	19.43	19.50	18.87	17.32	16.98	16.70	21.75	19.44
EOM	---	18.53	18.80	18.66	19.27	19.53	18.42	17.18	16.97	19.27	21.78	19.23
MAX	---	18.92	18.80	18.77	19.43	19.57	19.52	18.40	17.14	19.27	---	21.52

WATER YEAR 1997

HIGHEST WATER LEVEL 16.61 JULY 14

LOWEST WATER LEVEL 22.18 AUGUST 28-29

143-054-08BBB2



GROUND-WATER LEVELS

CAVALIER COUNTY

484534098254401. Local number, 161-060-21BBB.

LOCATION.--Lat 48°45'34", long 98°25'44", Hydrologic Unit 09020313. Owner: North Dakota State Water Commission.

AQUIFER.--Pierre Shale.

WELL CHARACTERISTICS.--Drilled observation well, depth 40 ft, cased with 10 ft of 4-in diameter steel pipe, open ended.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,603 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

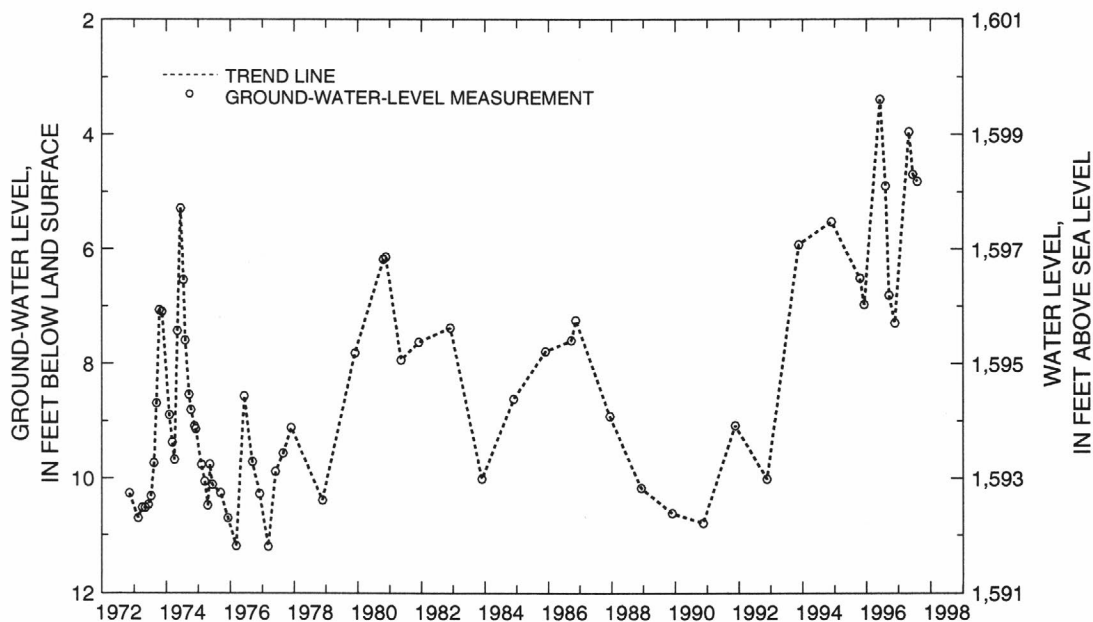
PERIOD OF RECORD.--November 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.39 ft below land-surface datum, June 6, 1996; lowest water level measured, 11.20 ft below land-surface datum, March 9, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 21	7.29	May 1	3.96	June 17	4.70	Aug. 5	4.82

161-060-21BBB



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

CAVALIER COUNTY

484444098504301. Local number, 161-063-29BBB.

LOCATION.--Lat 48°44'44", long 98°50'43", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Munich.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased with 133 ft of 1.25-in diameter plastic pipe, slotted 113 to 133 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,619 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

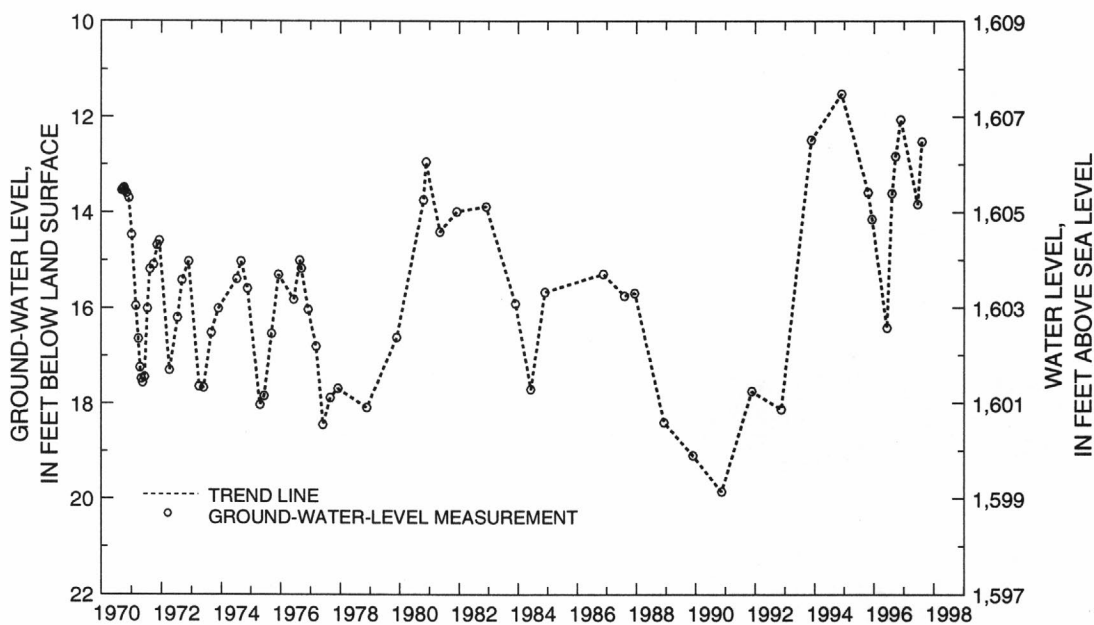
PERIOD OF RECORD.--September 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.52 ft below land-surface datum, November 28, 1994; lowest water level measured, 19.86 ft below land-surface datum, November 15, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 21	12.06	June 17	13.83	Aug. 5	12.52

161-063-29BBB



GROUND-WATER LEVELS

DICKY COUNTY

460830098224701. Local number, 131-062-24DDD1.

LOCATION.--Lat 46°08'30", long 98°22'47", Hydrologic Unit 10160004. Owner: North Dakota State Water Commission.

AQUIFER.--Nortonville.

WELL CHARACTERISTICS.--Drilled observation well, depth 300 ft, cased with 190 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 190 to 196 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,410 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

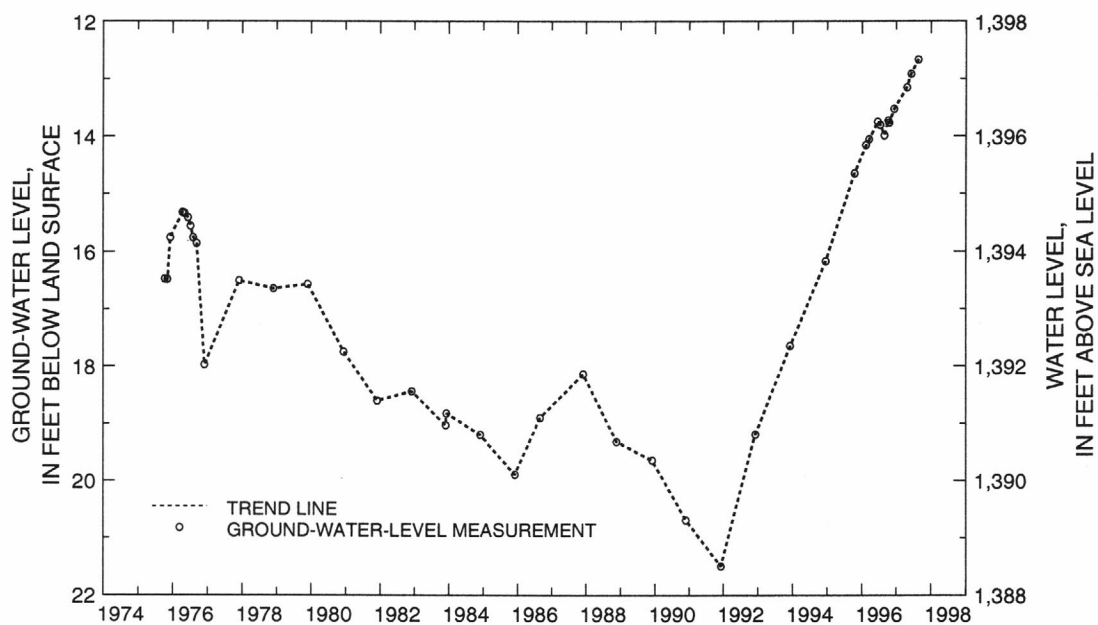
PERIOD OF RECORD.--October 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.66 ft below land-surface datum, Aug. 21, 1997; lowest water level measured, 21.50 ft below land-surface datum, December 3, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 8	13.73	Dec. 10	13.52	June 4	12.91	Aug. 21	12.66
Oct. 18	13.77	Apr. 23	13.15				

131-062-24DDD1



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

DICKY COUNTY

460830098224702. Local number, 131-062-24DDD2.

LOCATION.--Lat 46°08'30", long 98°22'47", Hydrologic Unit 10160004. Owner: North Dakota State Water Commission.

AQUIFER.--Ellendale.

WELL CHARACTERISTICS.--Drilled observation well, depth 100 ft, cased with 78 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 78 to 81 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,410 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

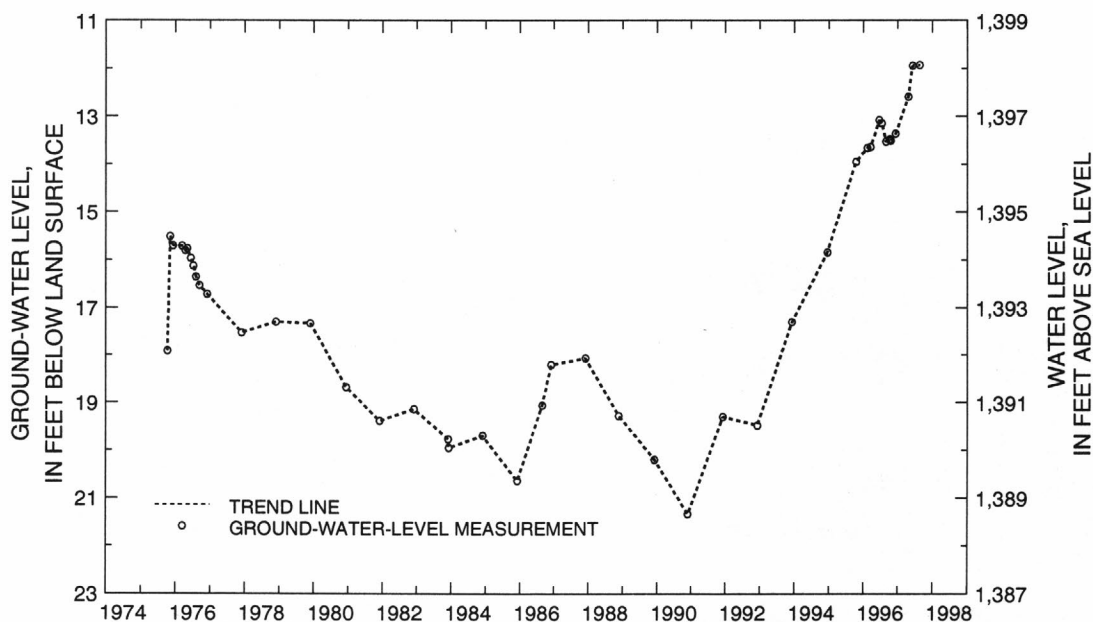
PERIOD OF RECORD.--October 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.93 ft below land-surface datum, Aug. 21, 1997; lowest water level measured, 21.34 ft below land-surface datum, November 27, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 8	13.48	Dec. 10	13.36	June 4	11.94	Aug. 21	11.93
Oct. 18	13.51	Apr. 23	12.59				

131-062-24DDD2



GROUND-WATER LEVELS

DIVIDE COUNTY

484746104015901. Local number, 161-103-02CCB.

LOCATION.--Lat 48°47'46", long 104°01'59", Hydrologic Unit 10060007. Owner: North Dakota State Water Commission.

AQUIFER.--Skjermo Lake.

WELL CHARACTERISTICS.--Drilled observation well, depth 200 ft, cased with 91 ft of 5-in diameter steel pipe, No. 18 slot screen set 91 to 96 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From June 1982 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 2,070 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

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

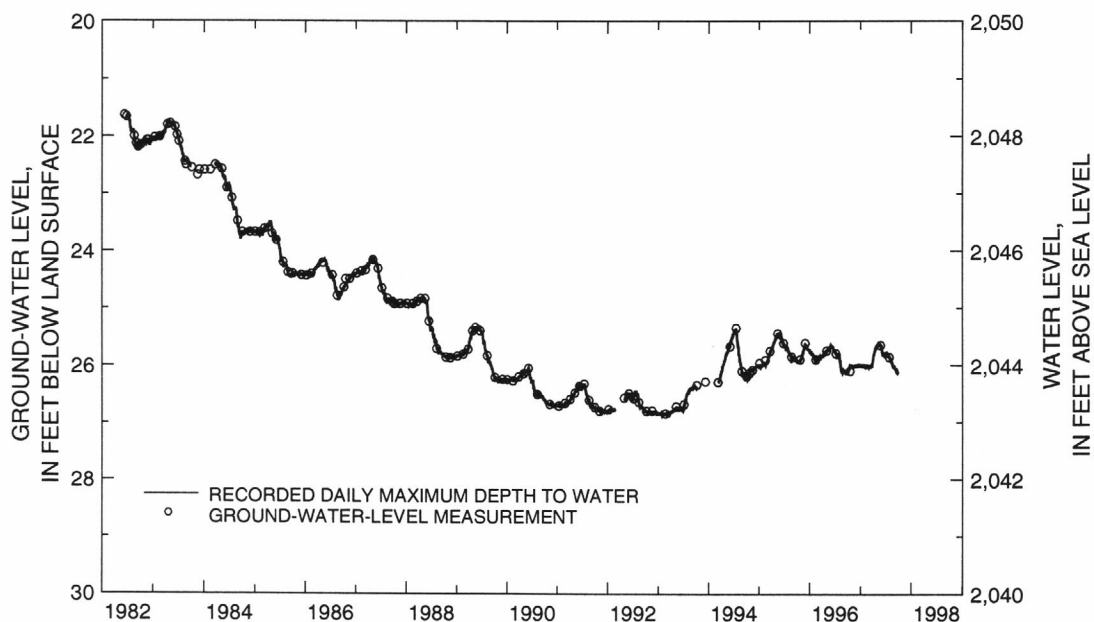
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 21.61 ft below land-surface datum, July 2 and 5, 1982; lowest daily water level, 26.87 ft below land-surface datum, March 3-6, 9-12, and 16-17, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	26.10	26.01	25.98	26.02	26.03	26.02	25.84	25.65	25.73	25.78	25.89	26.04
10	26.07	26.03	26.00	26.00	26.03	26.03	25.79	25.63	25.80	25.77	25.91	26.04
15	26.02	26.00	26.02	26.03	26.00	26.02	25.76	25.63	25.81	25.78	25.95	26.09
20	26.00	26.01	25.97	25.99	26.01	26.00	25.70	25.65	25.79	25.84	25.99	26.14
25	26.02	26.02	26.00	26.02	26.00	26.01	25.69	25.64	25.80	25.84	26.03	26.12
EOM	26.01	26.00	26.00	26.00	26.02	25.91	25.66	25.66	25.84	25.85	26.01	26.14
MAX	26.15	26.03	26.03	26.03	26.05	26.03	25.90	25.66	25.85	25.87	26.03	26.14

WATER YEAR 1997 HIGHEST WATER LEVEL 25.58 MAY 12-13 LOWEST WATER LEVEL 26.15 OCTOBER 2

161-103-02CCB



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

DIVIDE COUNTY

485438103121001. Local number, 163-097-25DDD.

LOCATION.--Lat 48°54'38", long 103°12'10", Hydrologic Unit 09010001. Owner: North Dakota State Water Commission.

AQUIFER.--Yellowstone.

WELL CHARACTERISTICS.--Drilled observation well, depth 440 ft, cased with 120 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 120 to 126 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,925 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

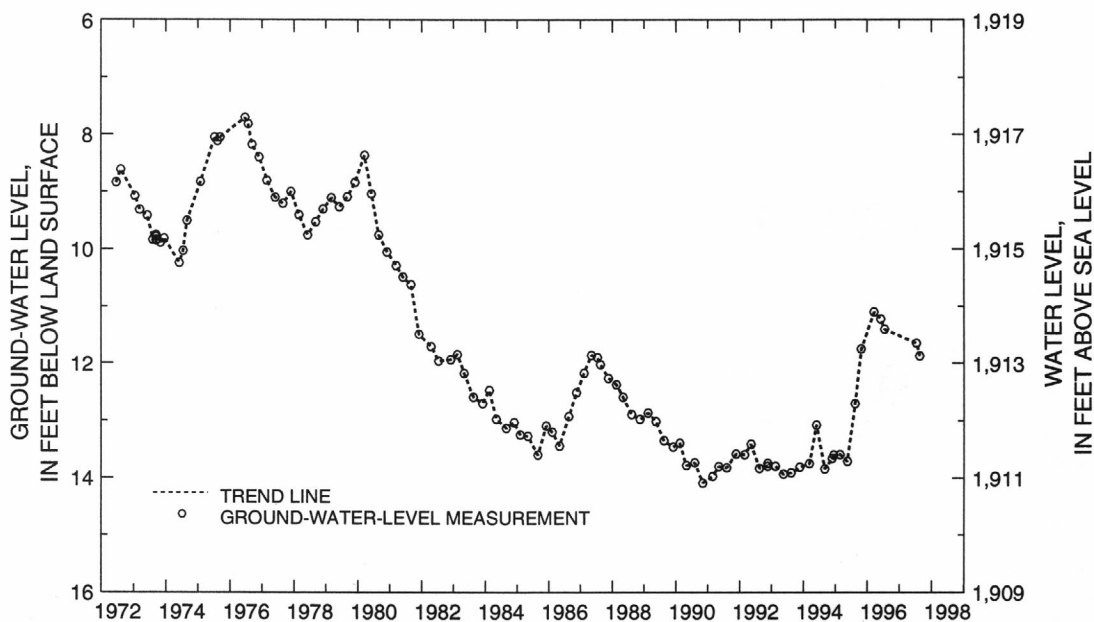
PERIOD OF RECORD.--June 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.71 ft below land-surface datum, June 22, 1976; lowest water level measured, 14.09 ft below land-surface datum, November 6, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 1	No access	Nov. 19	No access	July 15	11.65	Aug. 19	11.87

163-097-25DDD



GROUND-WATER LEVELS

DUNN COUNTY

471323102290101. Local number, 143-093-09BCB.

LOCATION.--Lat 47°13'23", long 102°29'01", Hydrologic Unit 10130201. Owner: North Dakota State Water Commission.

AQUIFER.--Sentinel Butte.

WELL CHARACTERISTICS.--Drilled observation well, depth 965 ft, cased with 378 ft of 2-in diameter steel pipe, No. 12 slot screen set 378 to 396 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,133 ft. Measuring point: Top of casing 2.10 ft above land-surface datum.

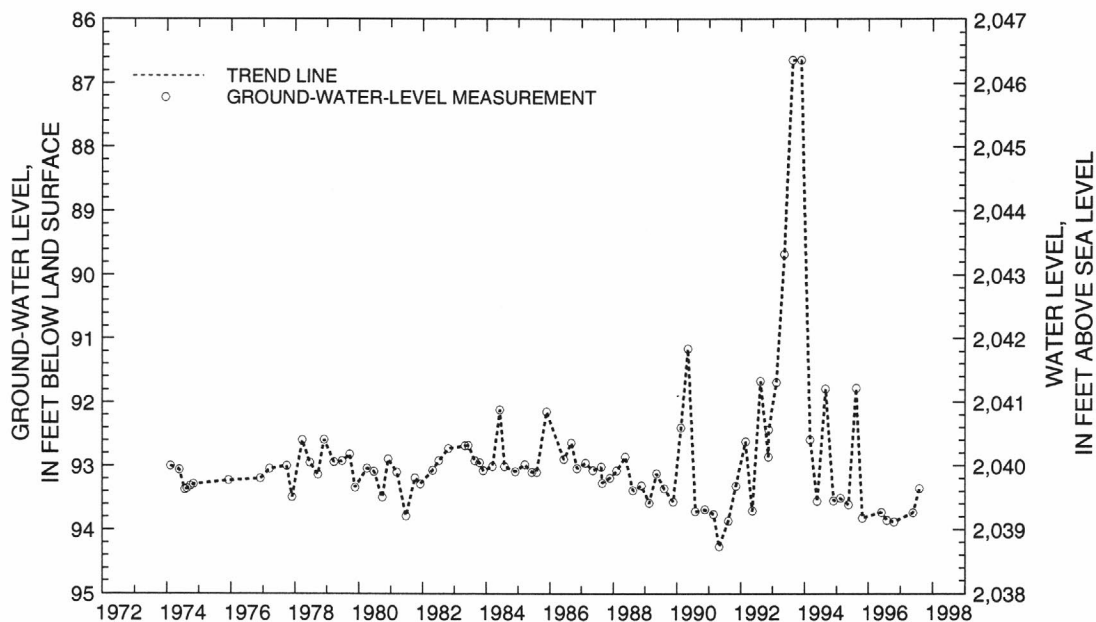
PERIOD OF RECORD.--February 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 86.64 ft below land-surface datum, August 14, 1993 and November 19, 1993; lowest water level measured, 94.27 ft below land-surface datum, April 30, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 21	93.88	May 22	93.74	Aug. 6	93.96

143-093-09BCB



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

DUNN COUNTY

472144102453402. Local number, 145-095-22DAD2.

LOCATION.--Lat 47°21'44", long 102°45'34", Hydrologic Unit 10130201. Owner: North Dakota State Water Commission.

AQUIFER.--Killdeer.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased with 1.57 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 157 to 160 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,237 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

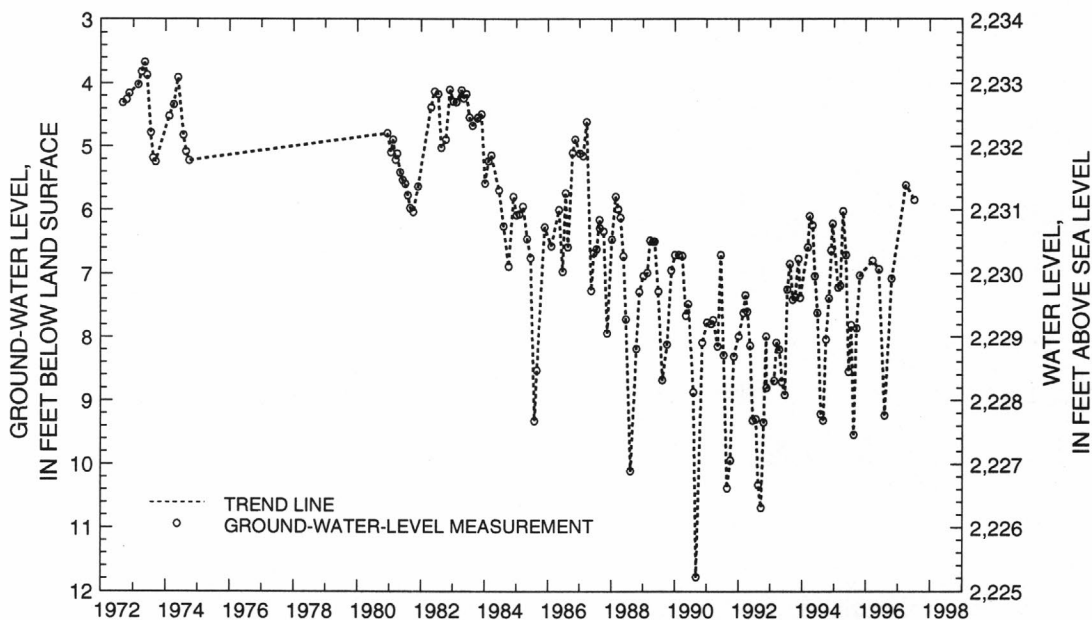
PERIOD OF RECORD.--September 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.67 ft below land-surface datum, May 9, 1973; lowest water level measured, 11.78 ft below land-surface datum, September 4, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 21	7.08	Apr. 2	5.61	July 7	5.84

145-095-22DAD2



GROUND-WATER LEVELS

DUNN COUNTY

472144102453403. Local number, 145-095-22DAD3.

LOCATION.--Lat 47°21'44", long 102°45'34", Hydrologic Unit 10130201. Owner: North Dakota State Water Commission.

AQUIFER.--Killdeer.

WELL CHARACTERISTICS.--Drilled observation well, depth 54 ft, cased with 49 ft of 4-in diameter plastic pipe, No. 18 slot screen set 49 to 54 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,237 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

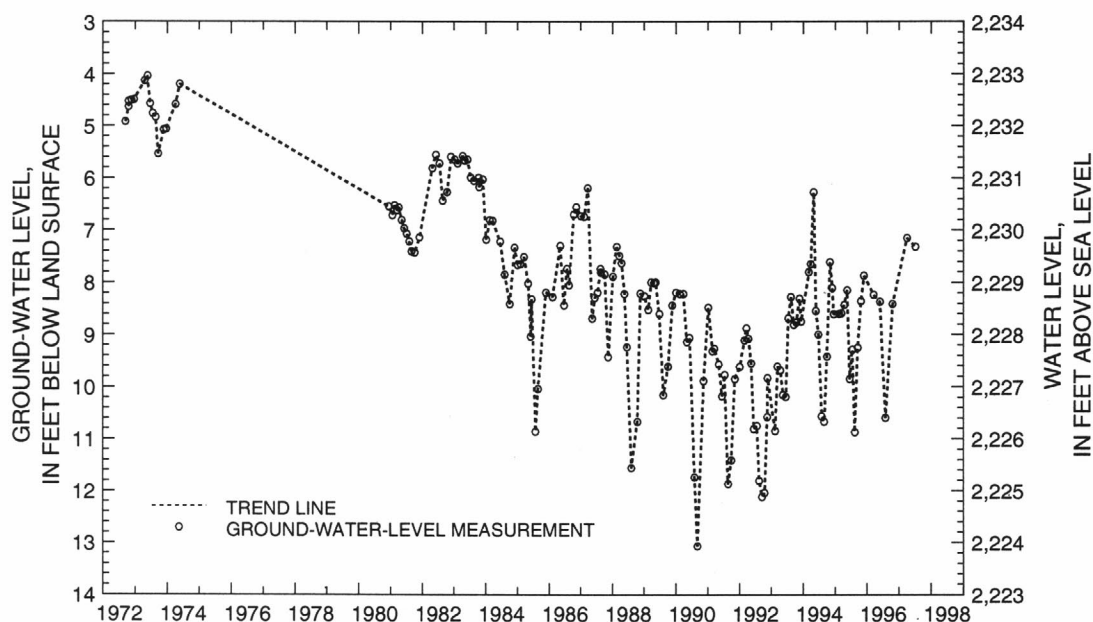
PERIOD OF RECORD.--September 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.04 ft below land-surface datum, May 20, 1973; lowest water level measured, 13.07 ft below land-surface datum, September 4, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 21	8.41	Apr. 2	7.15	July 7	7.32

145-095-22DAD3



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

DUNN COUNTY

472537102144801. Local number, 146-091-35BBC.

LOCATION.--Lat 47°25'37", long 102°14'48", Hydrologic Unit 10110205. Owner: North Dakota State Water Commission.

AQUIFER.--Goodman Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 320 ft, cased with 218 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 218 to 221 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,020 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

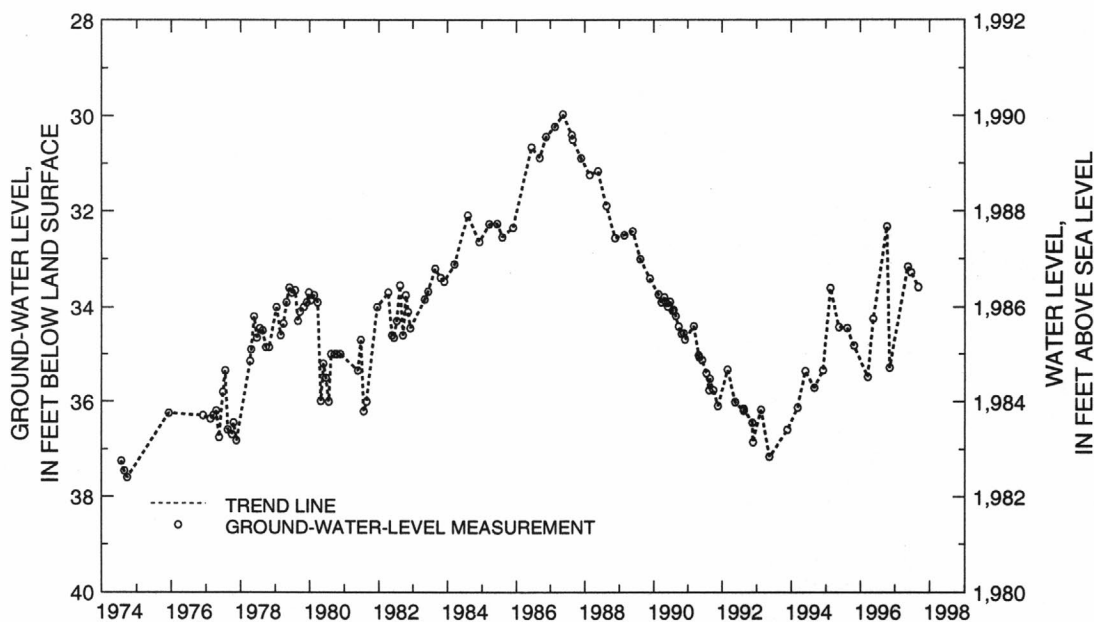
PERIOD OF RECORD.--July 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.97 ft below land-surface datum, May 14, 1987; lowest water level measured, 37.60 ft below land-surface datum, September 24, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 7	32.32	May 15	33.16	June 19	33.28	Sept. 3	33.59
Nov. 4	35.29						

146-091-35BBC



GROUND-WATER LEVELS

EDDY COUNTY

473934099032301. Local number, 148-066-03DDC.

LOCATION.--Lat 47°39'34", long 99°03'23", Hydrologic Unit 10160001. Owner: North Dakota State Water Commission.

AQUIFER.--New Rockford.

WELL CHARACTERISTICS.--Drilled observation well, depth 252 ft, cased with 218 ft of 1.25-in diameter plastic pipe, slotted 210 to 218 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,493 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

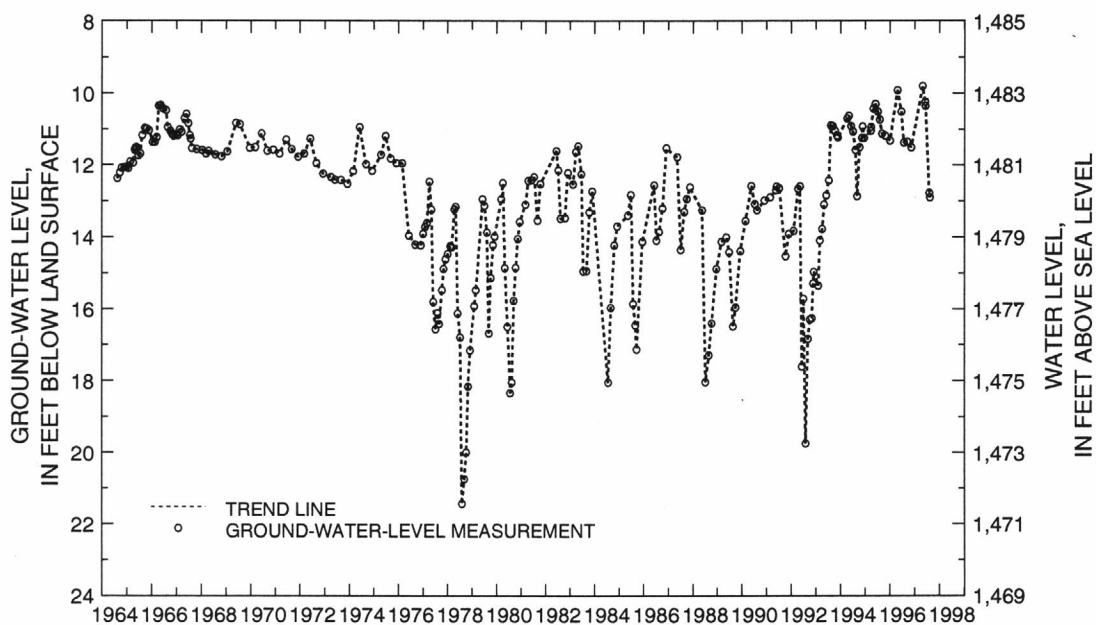
PERIOD OF RECORD.--August 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.80 ft below land-surface datum, April 30, 1997; lowest water level measured, 21.44 ft below land-surface datum, August 1, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 12	11.50	June 4	10.23	Aug. 5	12.78	Aug. 14	12.90
Apr. 30	9.80	June 10	10.35				

148-066-03DDC



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

EMMONS COUNTY

462539100061101. Local number, 134-075-15BBB.

LOCATION.--Lat 46°25'39", long 100°06'11", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 280 ft, cased with 97 ft of 1.25-in diameter plastic pipe, screen set 97 to 103 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,010 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

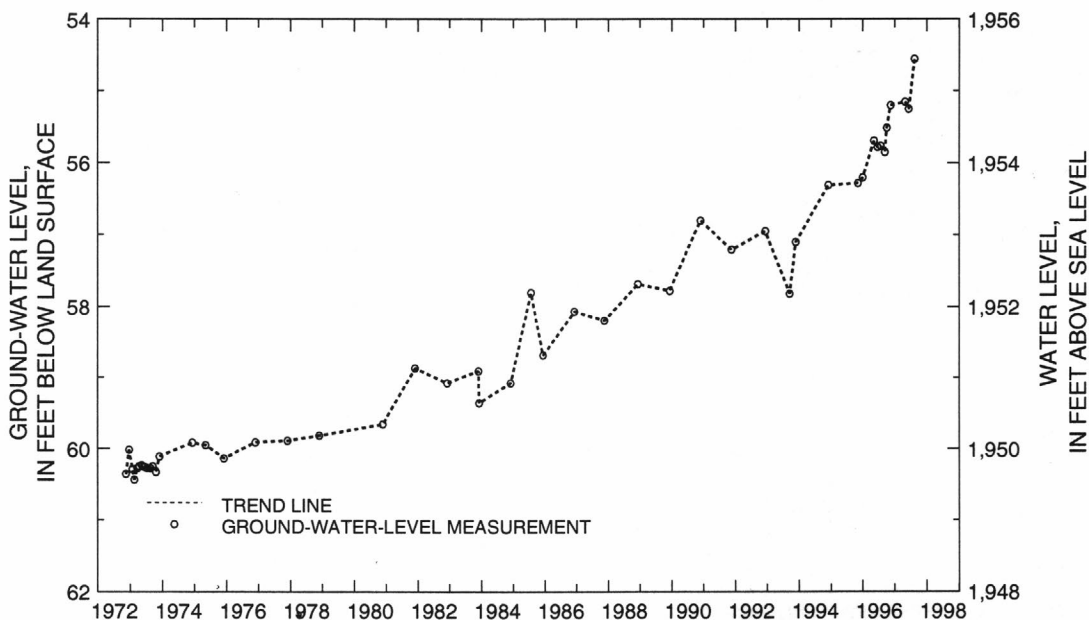
PERIOD OF RECORD.--November 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.55 ft below land-surface datum, Aug. 14, 1997; lowest water level measured, 60.44 ft below land-surface datum, February 15, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 1	55.51	Apr. 29	55.15	June 10	55.25	Aug. 14	54.55
Nov. 14	55.20						

134-075-15BBB



GROUND-WATER LEVELS

FOSTER COUNTY

473051099093601. Local number, 147-067-35AAA.

LOCATION.--Lat 47°30'51", long 99°09'36", Hydrologic Unit 10160001. Owner: North Dakota State Water Commission.

AQUIFER.--Carrington.

WELL CHARACTERISTICS.--Drilled observation well, depth 100 ft, cased with 77.7 ft of 8-in diameter plastic pipe, No. 18 slot screen set 77.7 to 87.7 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From July 1991 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,567.03 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1991 to current year.

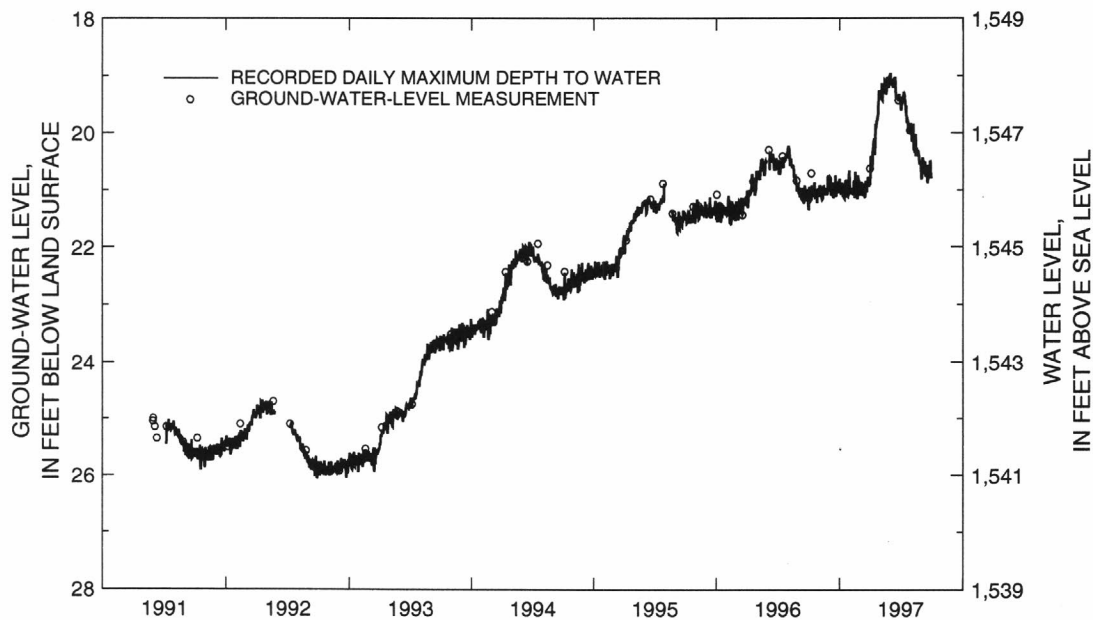
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 18.80 ft below land-surface datum, May 17, 1997; lowest daily water level, 26.06 ft below land-surface datum, September 27, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.02	20.98	20.79	21.06	21.04	21.05	20.43	19.35	19.08	19.47	20.09	20.44
10	21.16	21.13	20.91	21.03	21.04	21.03	20.33	19.19	19.17	19.34	20.31	20.65
15	20.94	20.92	21.12	21.14	21.12	20.94	20.37	19.30	19.03	19.45	20.03	20.75
20	20.96	20.99	20.75	20.94	21.02	20.87	19.88	19.33	19.35	19.83	20.36	20.88
25	21.08	21.05	20.95	21.10	20.75	20.94	19.68	19.10	19.43	19.88	20.41	20.61
EOM	21.10	20.86	20.98	20.83	20.83	20.80	19.40	19.03	19.43	19.84	20.60	20.80
MAX	21.35	21.17	21.14	21.15	21.16	21.14	20.91	19.43	19.43	20.00	20.60	20.88

WATER YEAR 1997 HIGHEST WATER LEVEL 18.80 MAY 17 LOWEST WATER LEVEL 21.35 OCTOBER 2

147-067-35AAA



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

GOLDEN VALLEY COUNTY

465421103590706. Local number, 140-105-30CCC6.

LOCATION.--Lat 46°54'21", long 103°59'07", Hydrologic Unit 10110204. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek-Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 1,140 ft, cased with 1,050 ft of 4-in diameter steel pipe, screen set 1,050 to 1,130 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,770 ft. Measuring point: Top of casing 1.50 ft above land-surface datum.

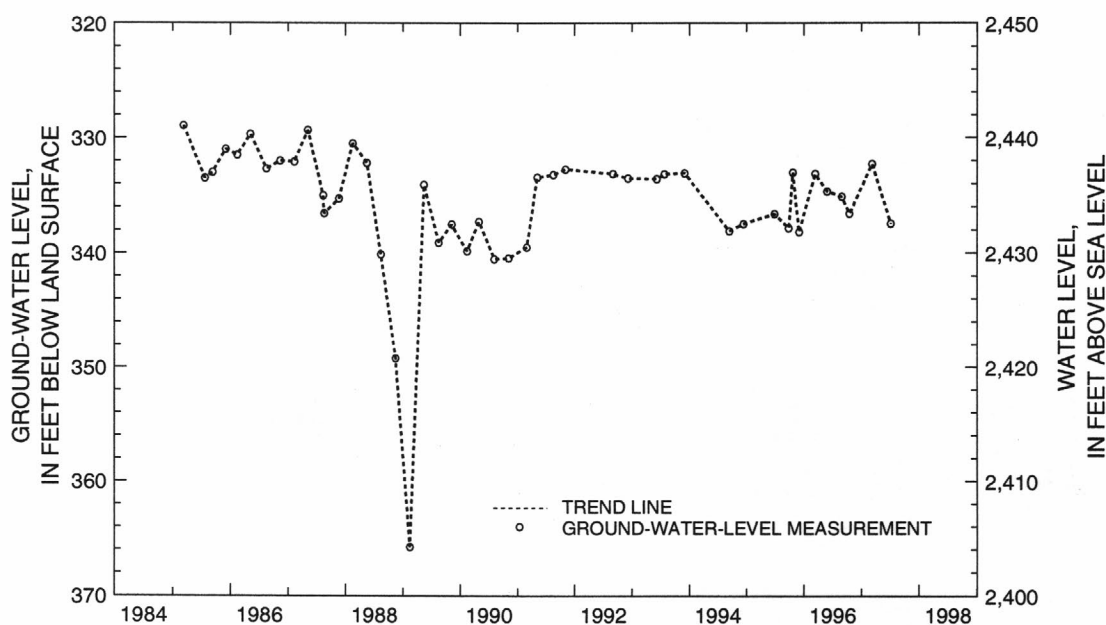
PERIOD OF RECORD.--March 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 328.95 ft below land-surface datum, March 11, 1985; lowest water level measured, 365.80 ft below land-surface datum, February 13, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 18	336.59	Mar. 10	332.29	July 7	337.45

140-105-30CCC6



GROUND-WATER LEVELS

GRAND FORKS COUNTY

475646097372201. Local number, 152-054-31BBB.

LOCATION.--Lat 47°56'46", long 97°37'22", Hydrologic Unit 09020307. Owner: North Dakota State Water Commission.

AQUIFER.--Elk Valley.

WELL CHARACTERISTICS.--Drilled observation well, depth 84 ft, cased with 60 ft of 4-in diameter plastic pipe, slotted 50 to 60 ft below land-surface datum.

INSTRUMENTATION.--Water-level data September 1965 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for June 1968 to September 1973. From October 1973 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,127 ft. Measuring point: Top of casing 1.70 ft above land-surface datum.

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

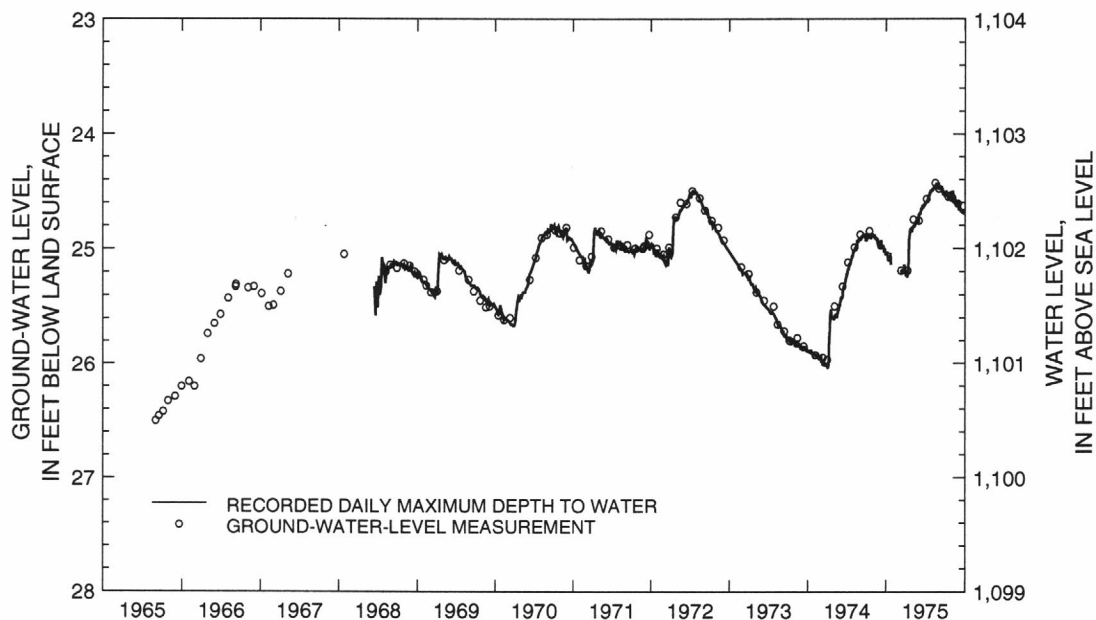
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 23.58 ft below land-surface datum, October 1, 4, and 5, 1987; lowest daily water level, 27.30 ft below land-surface datum, May 15-30, 1991 and June 2-10, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	24.64	24.69	24.79	24.86	24.43	24.12	23.96	24.11	24.65	25.76
10	---	---	24.65	24.70	24.80	24.87	24.46	24.12	23.95	24.08	24.76	25.85
15	---	---	24.68	24.72	24.81	24.89	24.43	24.08	23.93	23.97	24.89	25.87
20	---	24.65	24.68	24.73	24.82	24.90	24.32	24.06	24.01	23.87	25.18	25.81
25	---	24.65	24.69	24.75	24.82	24.93	24.23	24.03	24.06	24.10	25.37	25.69
EOM	---	24.63	24.70	24.73	24.81	24.67	24.17	23.98	24.10	24.39	25.71	25.61
MAX	---	---	24.70	24.77	24.84	24.93	24.59	24.16	24.10	24.39	25.71	25.87

WATER YEAR 1997 HIGHEST WATER LEVEL 23.86 JULY 23-24 LOWEST WATER LEVEL 25.87 SEPTEMBER 14-15

152-054-31BBB

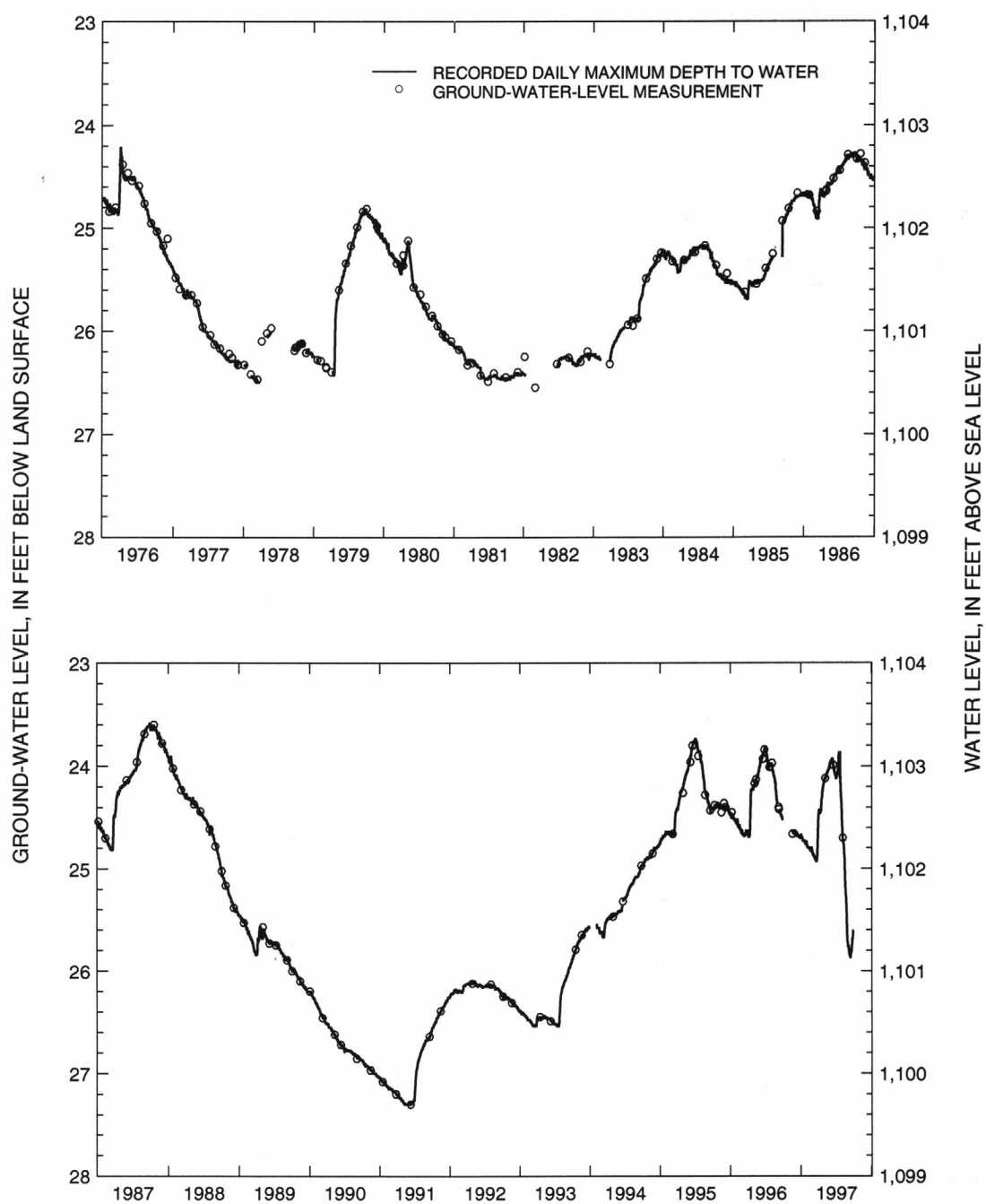


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

GRAND FORKS COUNTY

152-054-31BBB--Continued



GROUND-WATER LEVELS

GRANT COUNTY

463000101575101. Local number, 135-090-23BBB1.

LOCATION.--Lat 46°30'00", long 101°57'51", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 1,080 ft, cased with 1,029 ft of 2-in diameter steel pipe, No. 12 slot screen set 1,029 to 1,047 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,362 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

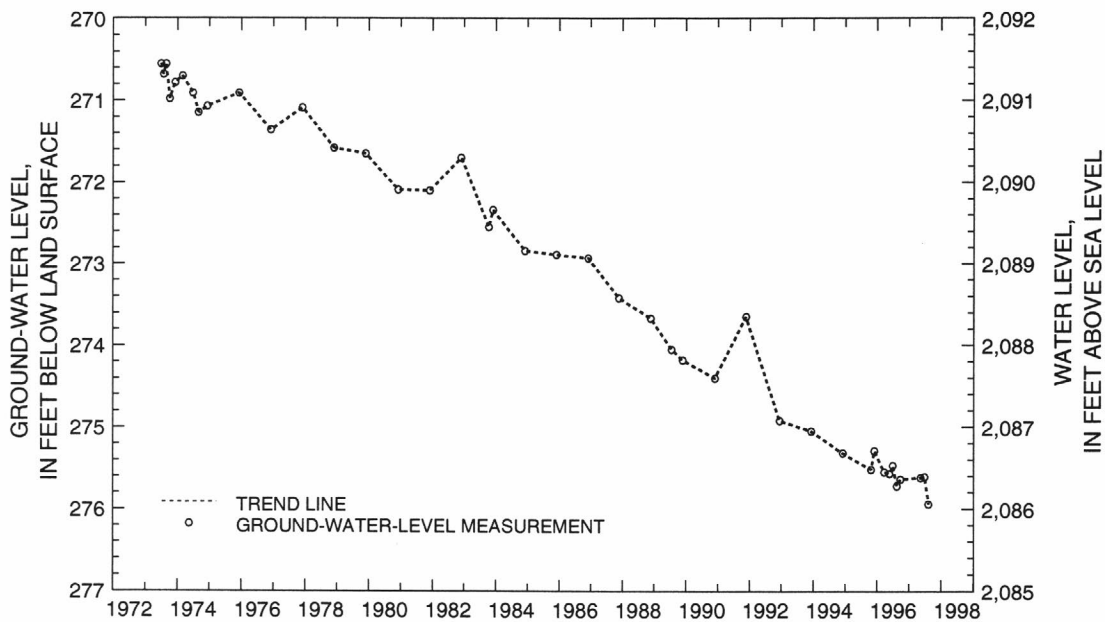
PERIOD OF RECORD.--June 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 270.55 ft below land-surface datum, June 27, 1973 and August 24, 1973; lowest water level measured, 275.94 ft below land-surface datum, August 11, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
May 12	275.62	June 26	275.61	Aug. 11	275.94

135-090-23BBB1



GROUND-WATER LEVELS

GRANT COUNTY

463000101575102. Local number, 135-090-23BBB2.

LOCATION.--Lat 46°30'00", long 101°57'51", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Tongue River.

WELL CHARACTERISTICS.--Drilled observation well, depth 300 ft, cased with 277 ft of 1.25-in diameter plastic pipe, screen set 277 to 283 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,366 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

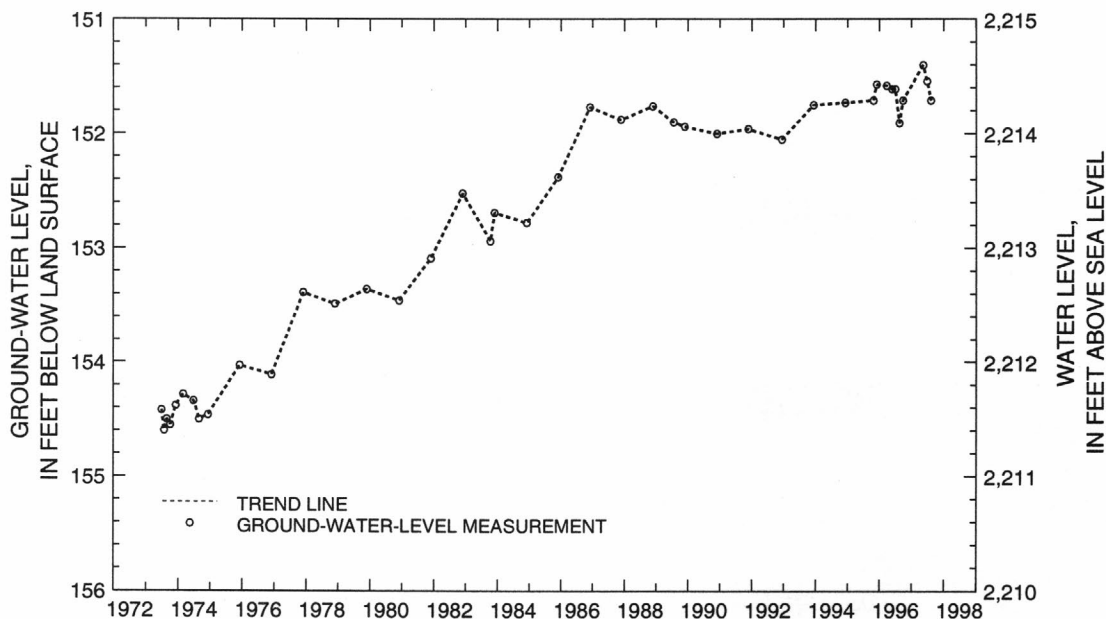
PERIOD OF RECORD.--June 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 151.40 ft below land-surface datum, May 12, 1997; lowest water level measured, 154.60 ft below land-surface datum, July 25, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
May 12	151.40	June 26	151.54	Aug. 11	151.71

135-090-23BBB2



GROUND-WATER LEVELS

GRIGGS COUNTY

472412098261201. Local number, 145-061-04DAD1.

LOCATION.--Lat 47°24'12", long 98°26'12", Hydrologic Unit 09020203. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased with 102 ft of 6-in diameter plastic pipe, No. 30 slot screen set 102 to 107 ft below land-surface datum.

INSTRUMENTATION.--Water-level data December 1970 to current year. From March 1974 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,470 ft. Measuring point: Top of casing 1.60 ft above land-surface datum.

PERIOD OF RECORD.--December 1970 to current year.

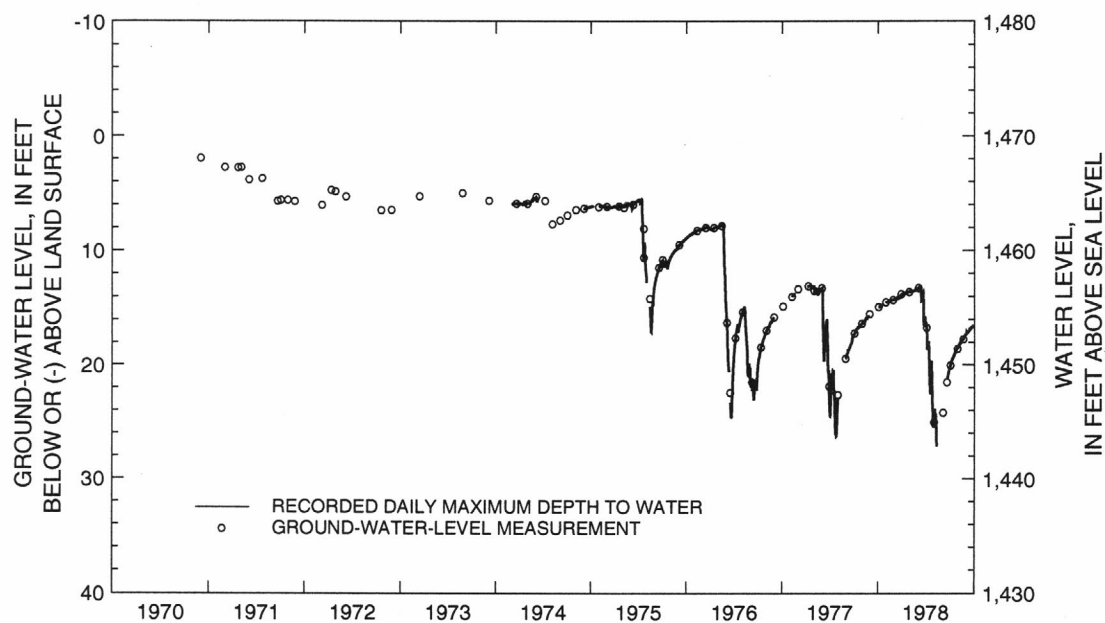
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, -0.73 ft below land-surface datum, December 4, 1995; lowest daily water level, 33.90 ft below land-surface datum, August 14, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	-.21	-.20	-.19	-.19	-.19	-.19	.00	.05	-.02	1.47	---
10	---	-.18	-.19	-.19	-.19	-.19	-.19	.39	.07	-.05	2.45	---
15	---	-.18	-.19	-.19	-.19	-.19	-.18	.28	.52	-.13	3.34	---
20	-.23	-.18	-.19	-.19	-.19	-.19	-.18	.26	.34	-.14	2.76	---
25	-.19	-.19	-.19	-.19	-.19	-.19	-.18	.21	.18	-.07	2.73	---
EOM	-.22	-.20	-.19	-.19	-.19	-.19	-.10	.17	.15	1.32	2.47	---
MAX	---	-.12	-.16	-.19	-.19	-.19	-.10	.40	.52	1.32	3.34	---

WATER YEAR 1997 HIGHEST WATER LEVEL -0.34 OCTOBER 29 LOWEST WATER LEVEL 3.34 AUGUST 14-15

145-061-04DAD1

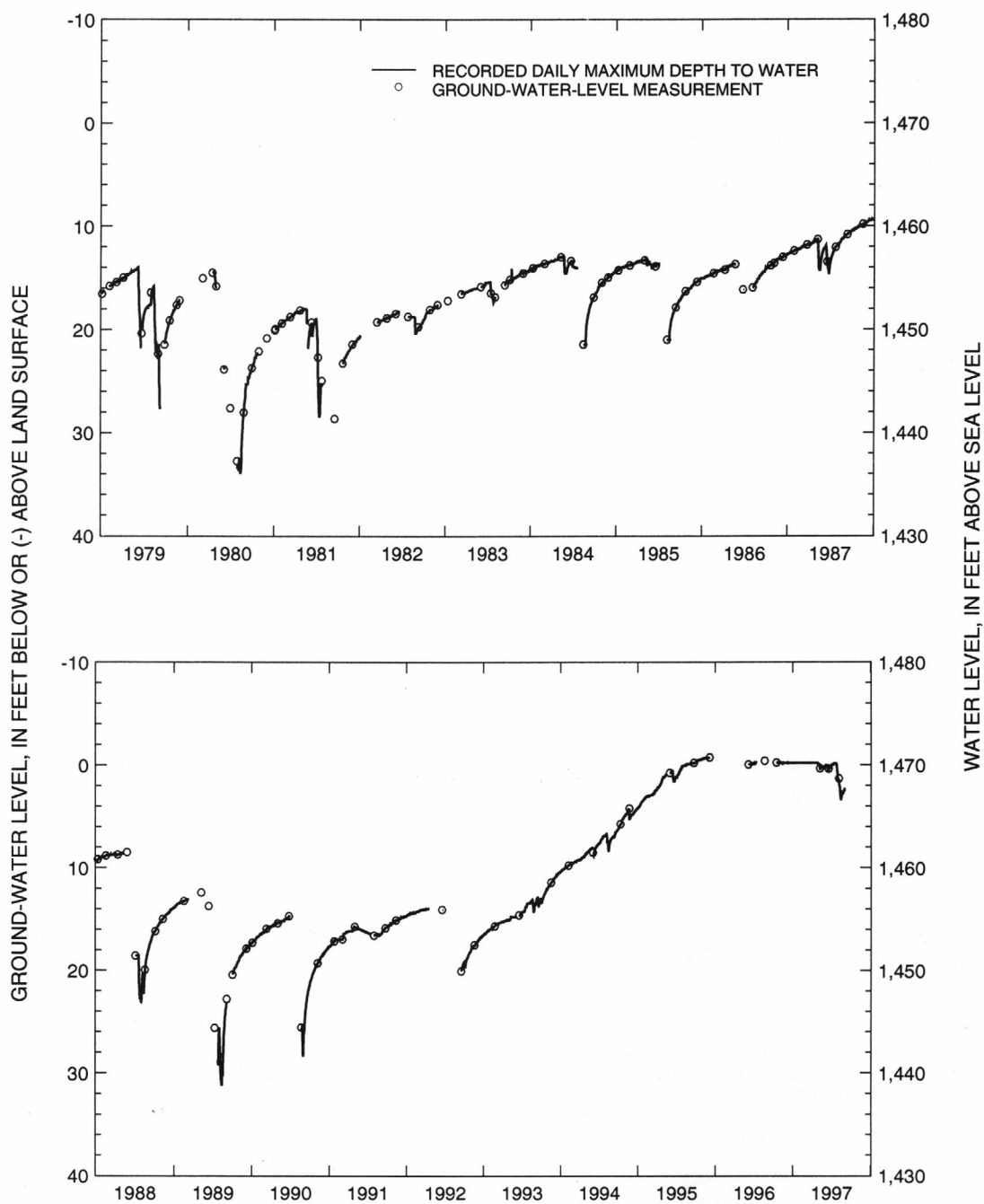


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

GRIGGS COUNTY

145-061-04DAD1--Continued



GROUND-WATER LEVELS

GRIGGS COUNTY

472555098013501. Local number, 146-058-26CBC.

LOCATION.--Lat 47°25'55", long 98°01'35", Hydrologic Unit 09020203. Owner: North Dakota State Water Commission.

AQUIFER.--McVille.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased from 0 to 38 ft with 6-in diameter plastic pipe and from 38 to 138 ft with 4-in diameter plastic pipe, screen set 138 to 143 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,290 ft. Measuring point: Top of casing 3.60 ft above land-surface datum.

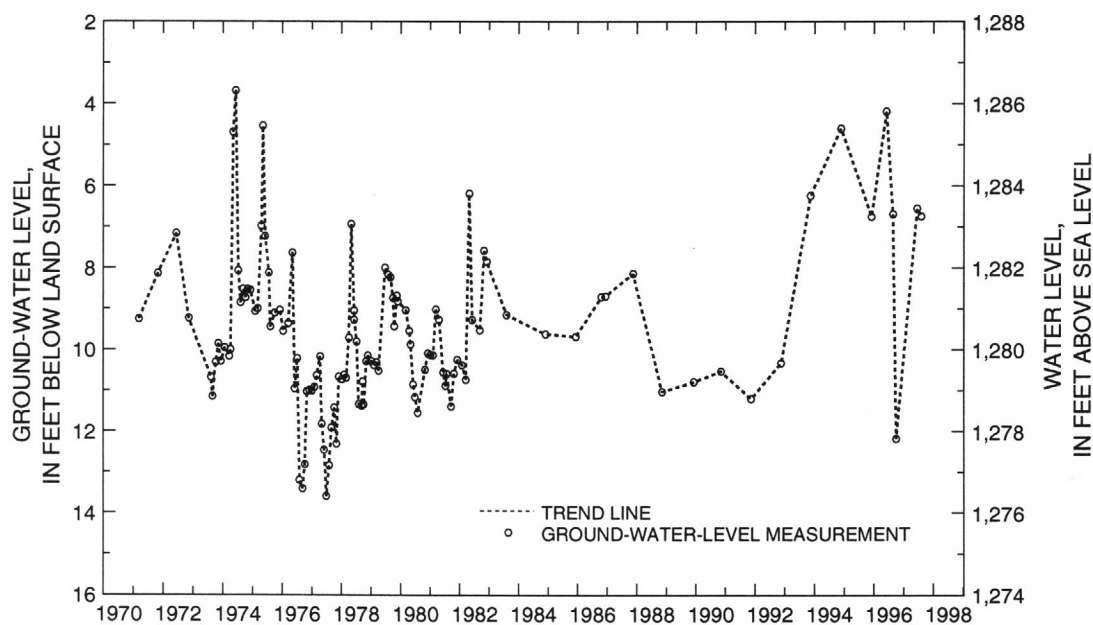
PERIOD OF RECORD.--March 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.68 ft below land-surface datum, June 6, 1974; lowest water level measured, 13.6 ft below land-surface datum, June 29, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 2	12.18	June 17	6.55	Aug. 5	6.74

146-058-26CBC



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

GRIGGS COUNTY

473425098232901. Local number, 147-061-01CCC.

LOCATION.--Lat 47°34'25", long 98°23'29", Hydrologic Unit 09020203. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 340 ft, cased with 237 ft of 1.25-in diameter plastic pipe, No. 25 slot screen set 237 to 240 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,525 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

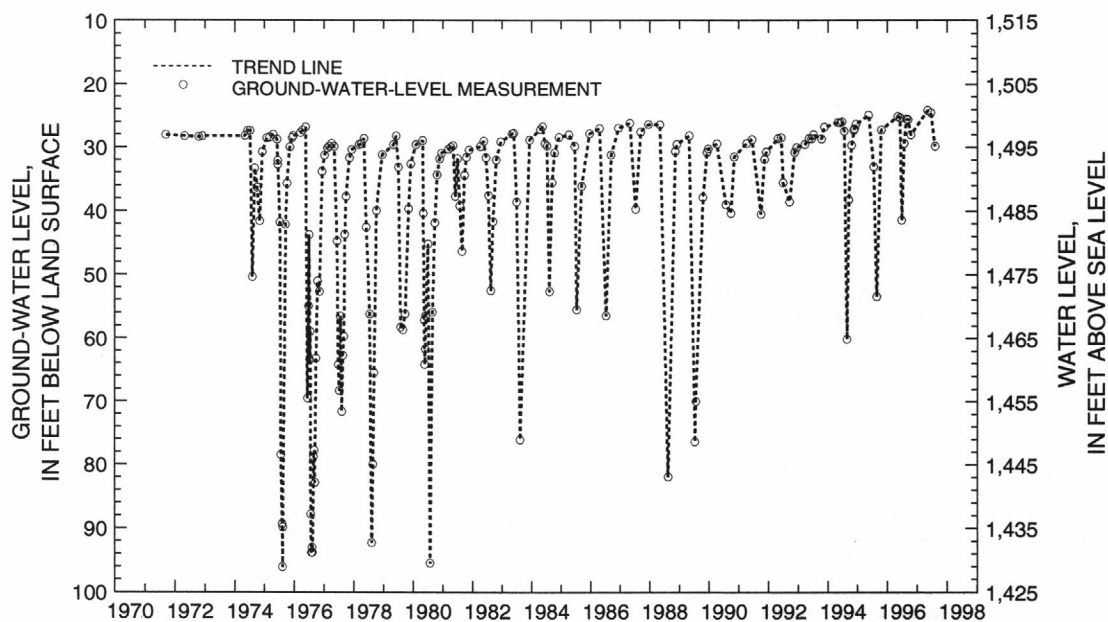
PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.17 ft below land-surface datum, May 8, 1997; lowest water level measured, 96.10 ft below land-surface datum, August 12, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	28.02	May 8	24.17	June 17	24.51	Aug. 5	29.82

147-061-01CCC



GROUND-WATER LEVELS

HETTINGER COUNTY

463153102521001. Local number, 135-097-04DCA.

LOCATION.--Lat 46°31'53", long 102°52'10", Hydrologic Unit 10130204. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 1,360 ft, cased with 1,320 ft of 4-in diameter steel pipe, open ended.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,567 ft. Measuring point: Top of casing 0.80 ft above land-surface datum.

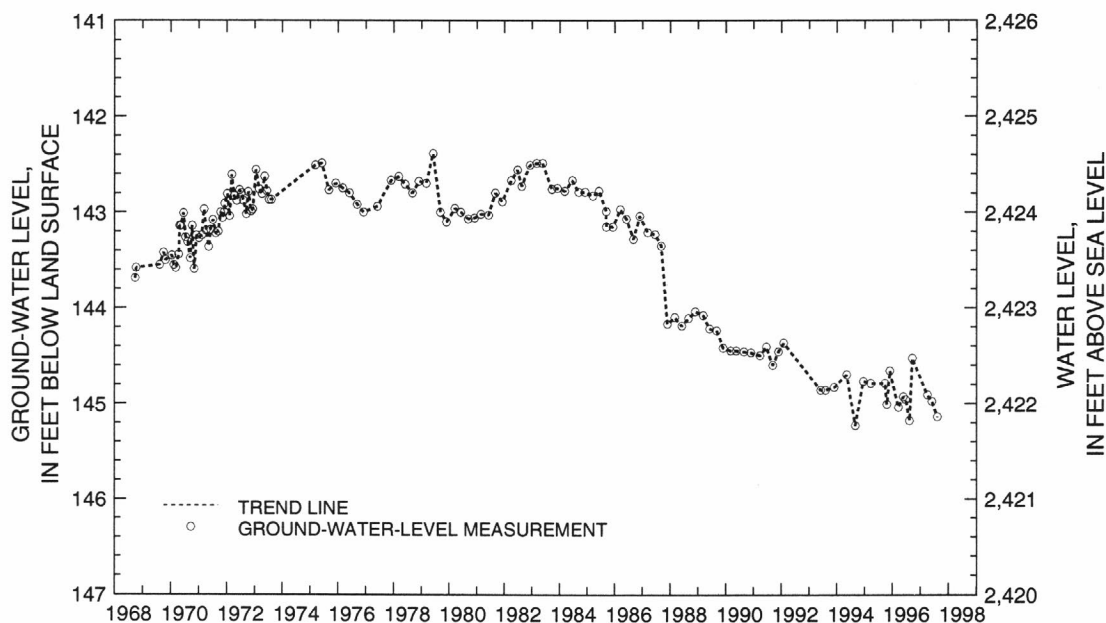
PERIOD OF RECORD.--September 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 142.39 ft below land-surface datum, June 4, 1979; lowest water level measured, 145.23 ft below land-surface datum, August 31, 1994.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr. 3	144.91	June 3	144.98	Aug. 12	145.14

135-097-04DCA



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

KIDDER COUNTY

465518099391602. Local number, 140-071-28BBA2.

LOCATION.--Lat 46°55'18", long 99°39'16", Hydrologic Unit 10130103. Owner: U.S. Geological Survey.

AQUIFER.--Long Lake.

WELL CHARACTERISTICS.--Drilled observation well, depth 90 ft, cased with 90 ft of 8-in diameter steel pipe, slotted 60 to 90 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From May 5, 1997, to current, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,760 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1955 to current year.

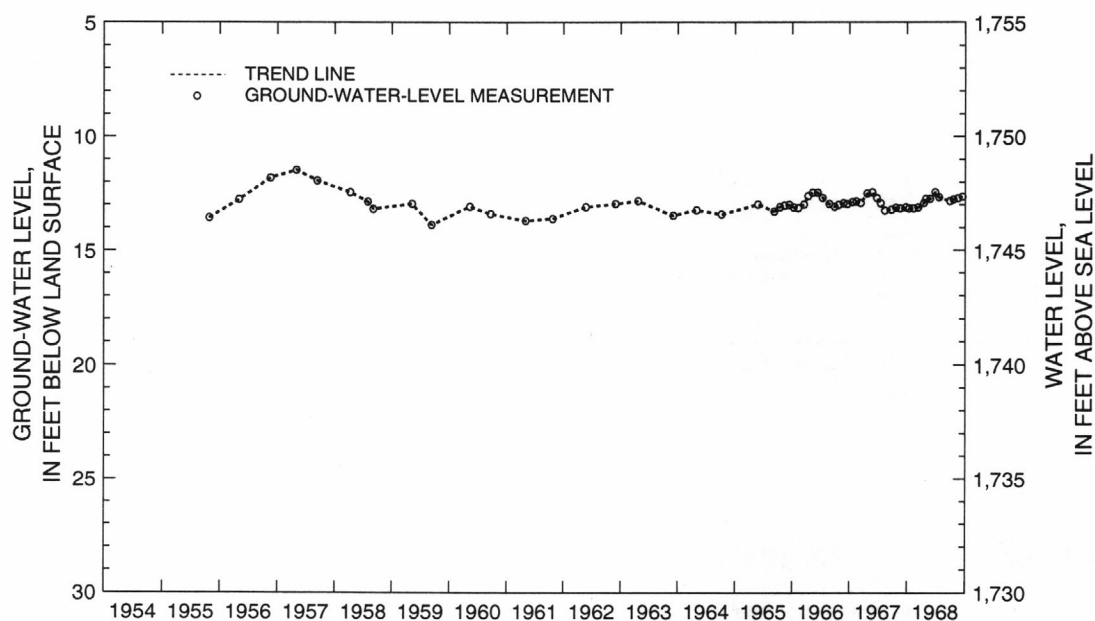
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.59 ft below land-surface datum, May 6, 1997; lowest water level measured, 25.97 ft below land-surface datum, July 30, 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.71	11.40	11.33	---	---	---	---	---	10.69	11.80	18.65	13.36
10	11.62	11.44	11.28	---	---	---	---	9.61	12.40	16.14	21.83	14.20
15	11.53	11.40	11.29	---	---	---	---	9.62	16.89	16.39	19.44	12.40
20	11.46	11.40	11.21	---	---	---	---	9.74	15.10	21.21	16.95	11.94
25	11.45	11.39	11.36	---	---	---	---	10.23	14.42	21.44	22.08	11.71
EOM	11.34	11.34	11.37	---	---	---	---	13.59	16.95	20.15	16.56	11.57
MAX	---	---	---	---	---	---	---	---	18.42	21.88	23.33	15.54

WATER YEAR 1997 HIGHEST WATER LEVEL 9.61 MAY 5 LOWEST WATER LEVEL 11.71 OCTOBER 5

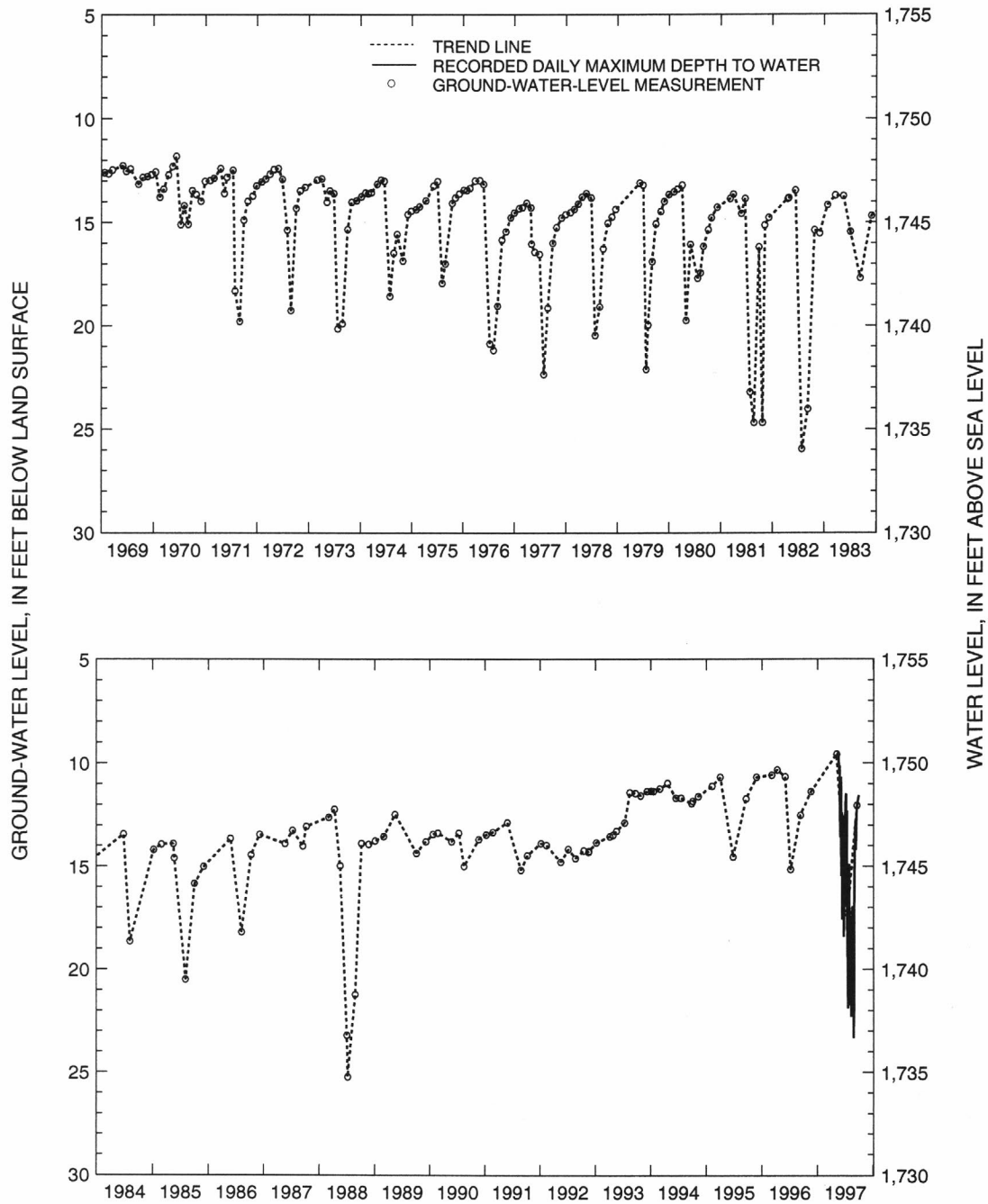
140-071-28BBA2



GROUND-WATER LEVELS

KIDDER COUNTY

140-071-28BBA2--Continued



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

KIDDER COUNTY

470638099324301. Local number, 142-070-16DDD.

LOCATION.--Lat 47°06'38", long 99°32'43", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Long Lake.

WELL CHARACTERISTICS.--Drilled observation well, depth 84 ft, cased with 70 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 70 to 73 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,810 ft. Measuring point: Top of casing 1.90 ft above land-surface datum.

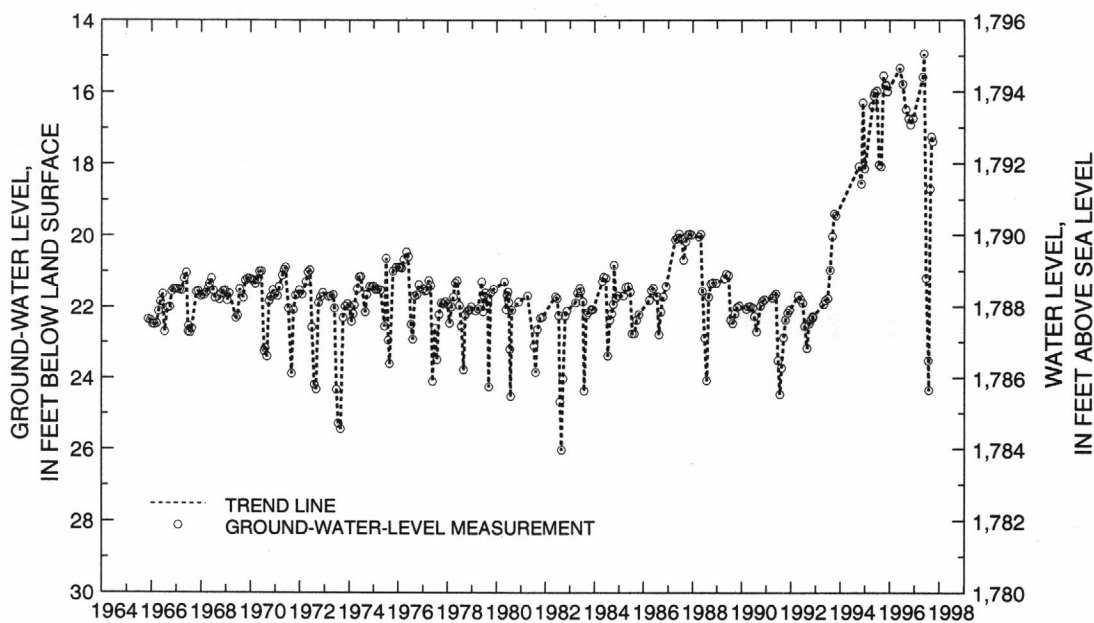
PERIOD OF RECORD.--November 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.94 ft below land-surface datum, May 23, 1997; lowest water level measured, 26.03 ft below land-surface datum, August 27, 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 7	16.75	May 3	15.59	July 24	23.51	Sept. 9	17.25
Oct. 31	16.92	May 23	14.94	July 29	24.35	Sept. 25	17.39
Dec. 11	16.74	June 20	21.20	Aug. 22	18.71		

142-070-16DDD



GROUND-WATER LEVELS

LaMOURE COUNTY

461958098132901. Local number, 133-060-16DAA.

LOCATION.--Lat 46°19'58", long 98°13'29", Hydrologic Unit 10160003. Owner: North Dakota State Water Commission.

AQUIFER.--LaMoure.

WELL CHARACTERISTICS.--Drilled observation well, depth 110 ft, cased with 58 ft of 6-in diameter plastic pipe, No. 25 slot screen set 58 to 63 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From November 1975 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,320 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--November 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 15.18 ft below land-surface datum, May 17-18, 1997; lowest daily water level, 26.84 ft below land-surface datum, August 20, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

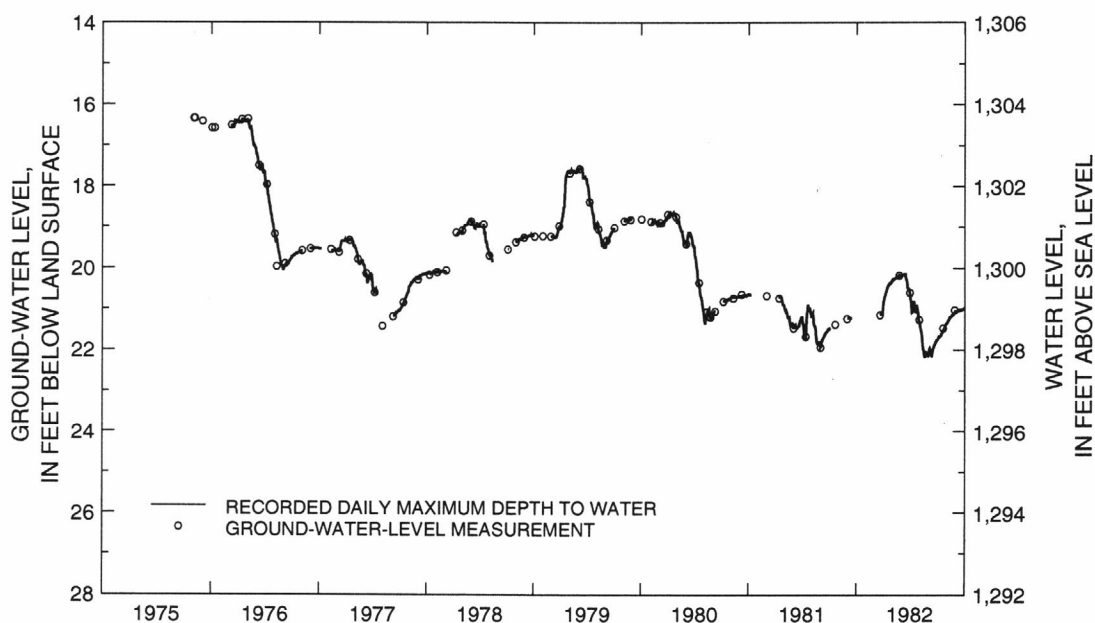
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	18.80	18.42	18.19	18.10	18.09	18.04	15.76	15.27	15.62	16.14	17.11	17.64
10	18.74	18.40	18.14	18.08	18.07	18.00	15.73	15.29	15.86	16.29	17.20	17.51
15	18.63	18.34	18.17	18.10	18.05	18.04	15.57	15.29	15.90	16.20	17.37	17.48
20	18.56	18.29	18.14	18.04	18.02	17.98	15.28	15.31	16.07	16.51	17.49	17.47
25	18.52	18.28	18.17	18.11	18.02	17.98	15.29	15.30	16.22	16.81	17.72	17.39
EOM	18.51	18.20	18.12	18.01	17.98	17.59	15.26	15.39	16.24	16.86	17.92	17.31
MAX	18.90	18.50	18.21	18.13	18.09	18.07	17.26	15.39	16.24	16.86	17.97	17.85

WATER YEAR 1997

HIGHEST WATER LEVEL 15.18 MAY 17-18

LOWEST WATER LEVEL 18.90 OCTOBER 2

133-060-16DAA

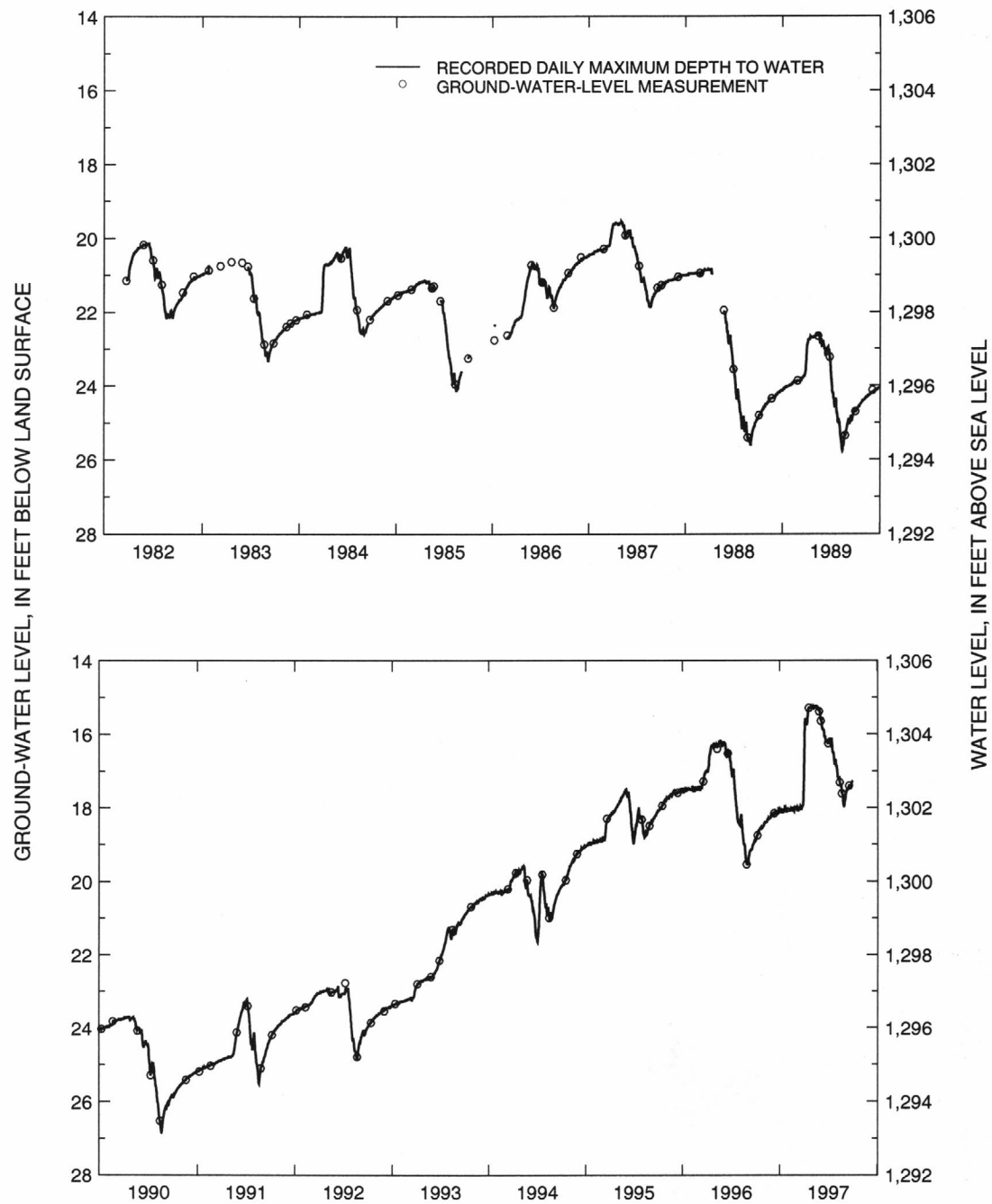


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

LaMOURE COUNTY

133-060-16DAA--Continued



GROUND-WATER LEVELS

LaMOURE COUNTY

462447098432602. Local number, 134-064-22BBB2.

LOCATION.--Lat 46°24'47", long 98°43'26", Hydrologic Unit 10160004. Owner: North Dakota State Water Commission.

AQUIFER.--Edgeley.

WELL CHARACTERISTICS.--Drilled observation well, depth 40 ft, cased with 27 ft of 4-in diameter plastic pipe, screen set 27 to 32 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From January 1975 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,550 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--January 1975 to current year.

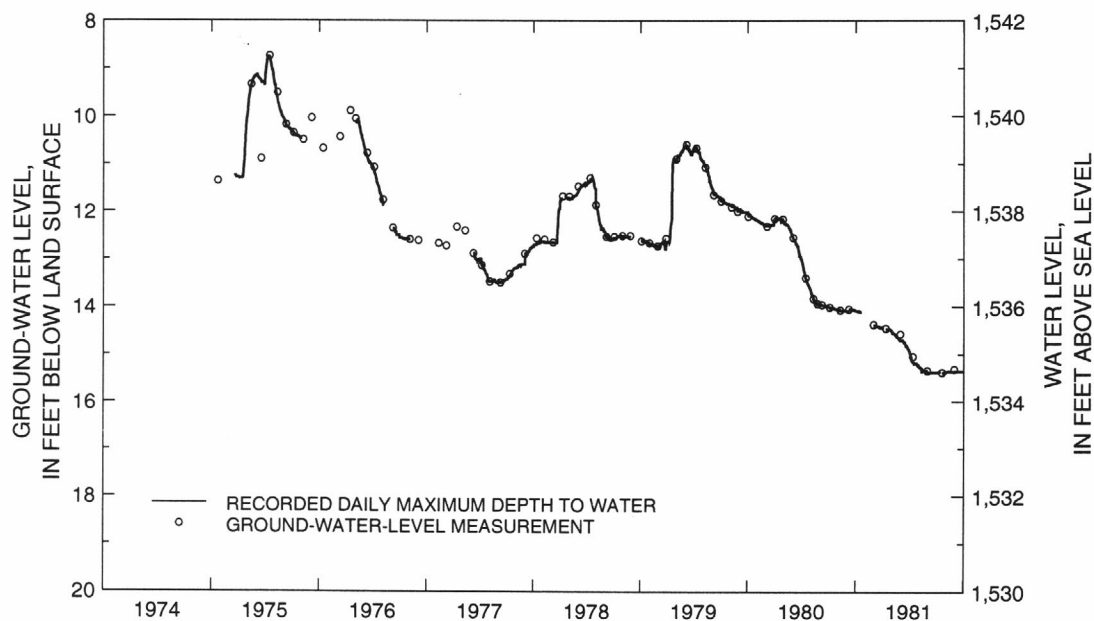
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 8.74 ft below land-surface datum, July 15, 1975; lowest daily water level, 19.44 ft below land-surface datum, October 11, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	13.84	13.87	13.92	13.89	13.83	13.77	12.38	11.26	11.19	11.63	12.07	12.36
10	13.85	13.87	13.91	13.86	13.81	13.74	12.28	11.26	11.23	11.65	12.11	12.39
15	13.85	13.92	13.96	13.86	13.80	13.77	12.17	11.24	11.25	11.70	12.13	12.38
20	13.89	13.92	13.91	13.80	13.77	13.72	11.74	11.26	11.35	11.83	12.21	12.42
25	13.89	13.98	13.94	13.86	13.76	13.47	11.51	11.20	11.48	11.89	12.32	12.41
EOM	13.87	13.92	13.90	13.75	13.73	12.78	11.30	11.19	11.55	11.95	12.40	12.45
MAX	13.89	13.99	13.96	13.90	13.83	13.79	12.69	11.28	11.55	11.95	12.40	12.45

WATER YEAR 1997 HIGHEST WATER LEVEL 11.17 MAY 13, 16-18 LOWEST WATER LEVEL 13.99 November 26-27

134-064-22BBB2

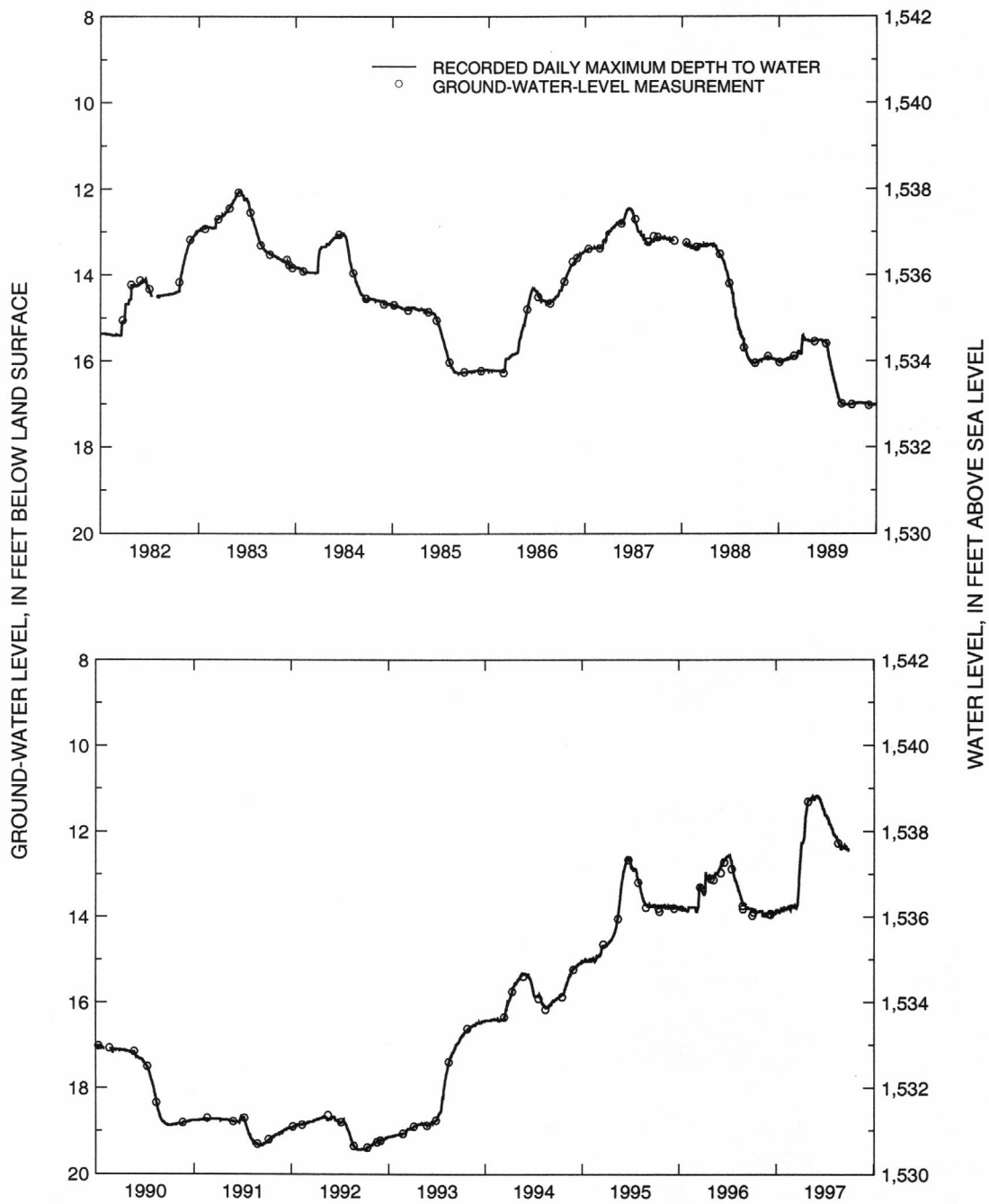


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

LaMOURE COUNTY

134-064-22BBB2--Continued



GROUND-WATER LEVELS

LOGAN COUNTY

463417099271002. Local number, 136-070-26BBB2.

LOCATION.--Lat 46°34'17", long 99°27'10", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Streeter.

WELL CHARACTERISTICS.--Drilled observation well, depth 62 ft, cased with 39 ft of 6-in diameter plastic pipe, No. 25 slot screen set 39 to 44 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From November 1978 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,909.8 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

PERIOD OF RECORD.--November 1978 to current year.

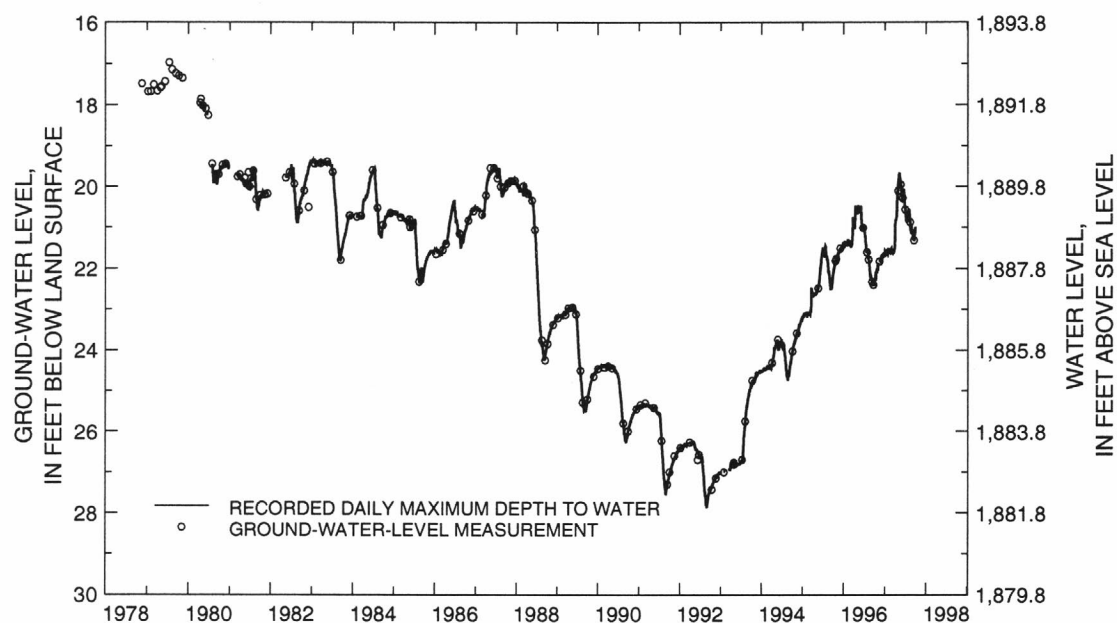
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 16.97 ft below land-surface datum, July 15, 1979; lowest daily water level, 27.85 ft below land-surface datum, August 29-31, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	22.26	---	21.68	21.63	21.62	21.60	20.85	19.79	20.29	20.68	20.56	21.19
10	22.22	---	21.66	21.61	21.60	21.58	20.81	19.73	20.28	20.82	20.80	21.23
15	22.12	21.81	21.71	21.64	21.61	21.61	20.75	19.80	20.07	20.87	20.93	21.33
20	22.04	21.80	21.62	21.57	21.57	21.56	20.43	20.00	20.11	20.77	21.05	21.30
25	21.99	21.77	21.67	21.63	21.54	21.58	20.18	19.99	20.38	20.66	20.96	21.10
EOM	21.91	21.70	21.63	21.53	21.52	21.41	19.96	20.14	20.51	20.60	21.13	21.02
MAX	22.37	---	21.72	21.66	21.65	21.65	21.32	20.14	20.51	20.87	21.13	21.33

WATER YEAR 1997 HIGHEST WATER LEVEL 19.64 MAY 13 LOWEST WATER LEVEL 22.37 OCTOBER 2

136-070-26BBB2



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

LOGAN COUNTY

463240099483801. Local number, 136-073-35DDD1.

LOCATION.--Lat 46°32'40", long 99°48'38", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Napoleon.

WELL CHARACTERISTICS.--Drilled observation well, depth 282 ft, cased with 168 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 168 to 171 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,970 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

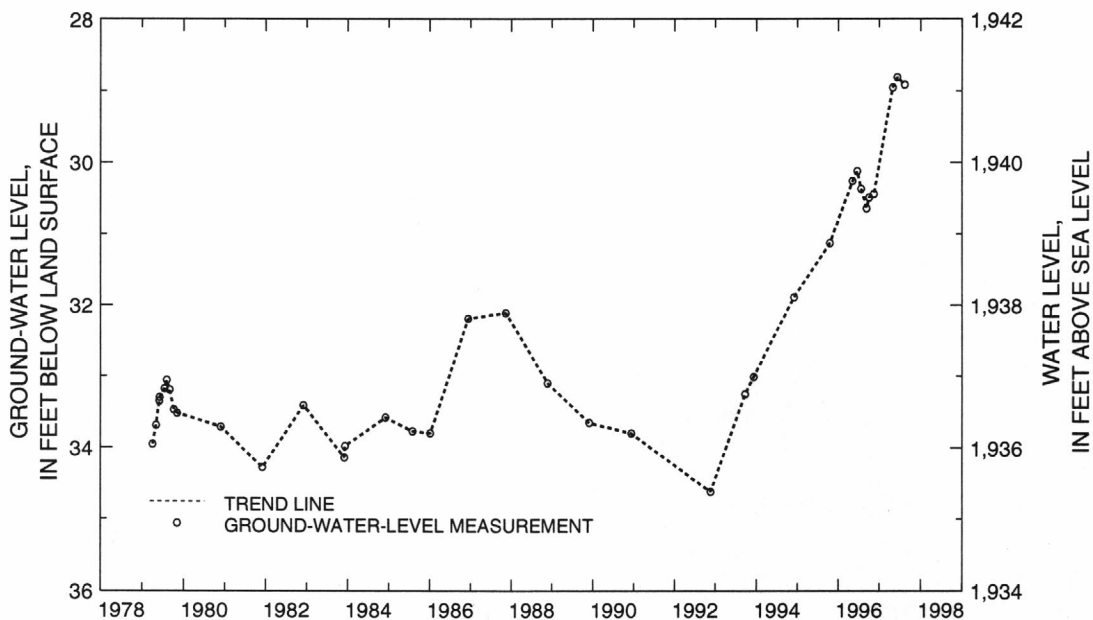
PERIOD OF RECORD.--April 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.81 ft below land-surface datum, June 10, 1997; lowest water level measured, 34.62 ft below land-surface datum, November 18, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 1	30.49	Apr. 29	28.95	June 10	28.81	Aug. 14	28.91
Nov. 14	30.44						

136-073-35DDD1



GROUND-WATER LEVELS

LOGAN COUNTY

463240099483802. Local number, 136-073-35DDD2.

LOCATION.--Lat 46°32'40", long 99°48'38", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Napoleon.

WELL CHARACTERISTICS.--Drilled observation well, depth 131 ft, cased with 118 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 118 to 121 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,970 ft. Measuring point: Top of casing 1.90 ft above land-surface datum.

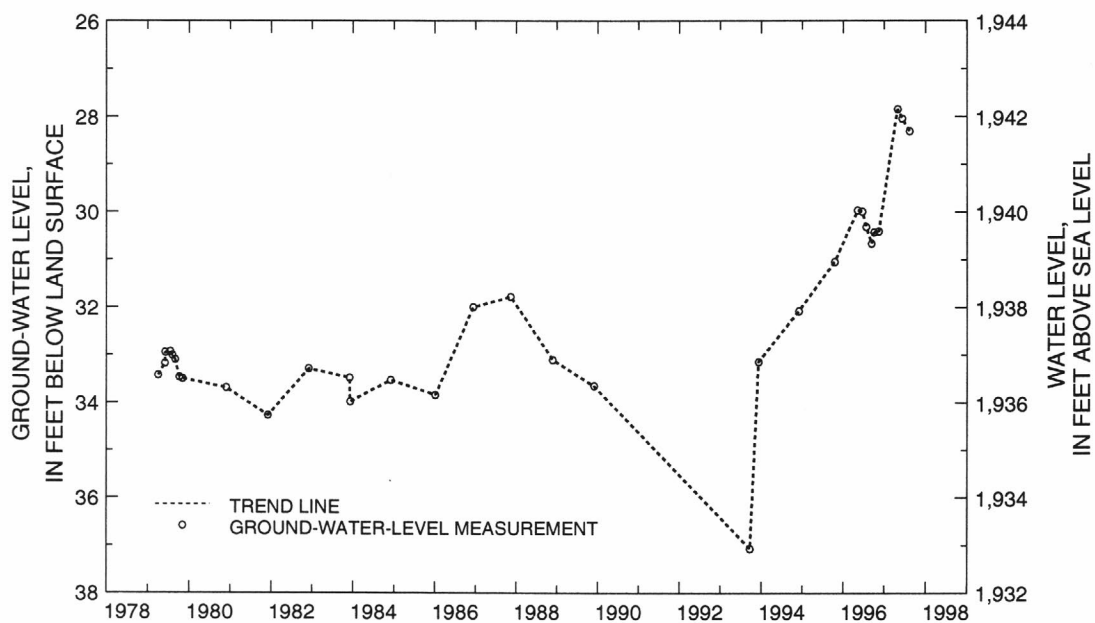
PERIOD OF RECORD.--April 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.84 ft below land-surface datum, April 29, 1997; lowest water level measured, 37.07 ft below land-surface datum, September 23, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 1	30.42	Apr. 29	27.84	June 10	28.04	Aug. 14	28.30
Nov. 14	30.40						

136-073-35DDD2



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

McHENRY COUNTY

480913100372501. Local number, 154-077-18CCC.

LOCATION.--Lat 48°09'13", long 100°37'25", Hydrologic Unit 09010003. Owner: North Dakota State Water Commission.

AQUIFER.--New Rockford.

WELL CHARACTERISTICS.--Drilled observation well, depth 260 ft, cased with 173 ft of 4-in diameter plastic pipe, No. 18 slot screen set 173 to 178 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From May 1976 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,577.49 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--May 1976 to current year.

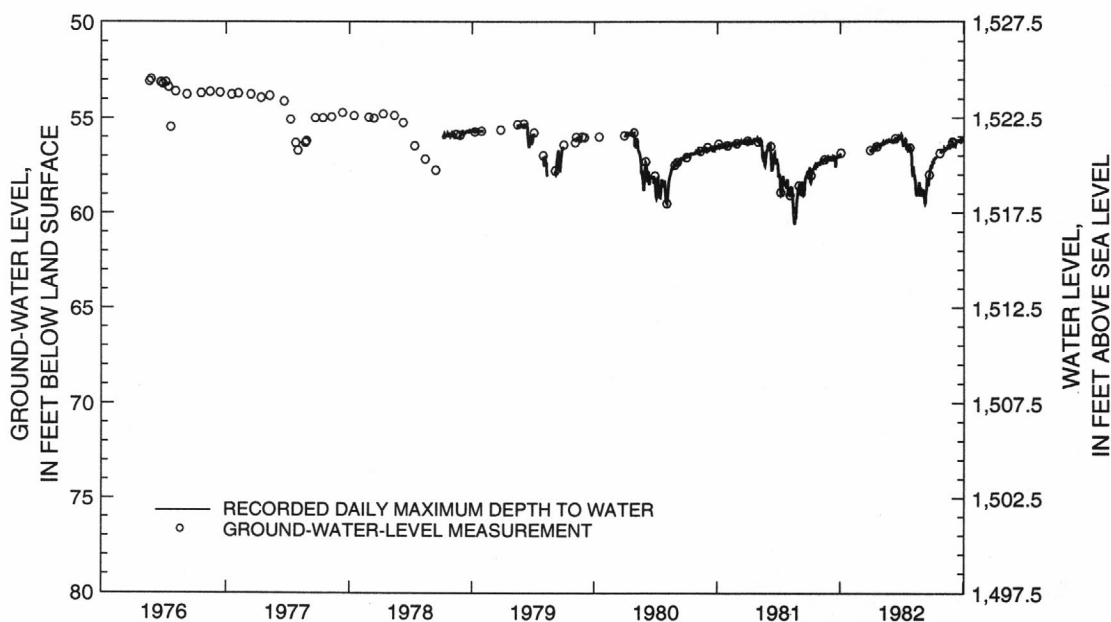
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 52.96 ft below land-surface datum, May 25, 1976; lowest daily water level, 75.43 ft below land-surface datum, August 1, 1994.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	59.95	---	58.17	---	---	---	57.12	56.70	60.01	60.05	62.80	67.16
10	---	---	58.12	---	---	---	57.12	56.68	68.67	66.44	70.96	65.36
15	---	---	58.22	---	---	---	57.07	56.66	65.29	60.39	68.09	63.45
20	---	58.41	57.97	---	---	---	56.89	56.72	60.87	61.76	62.76	63.15
25	---	58.40	58.04	---	---	---	56.89	58.44	60.04	63.54	66.22	60.71
EOM	---	58.20	57.95	---	---	---	56.74	58.54	62.64	67.27	65.65	60.08
MAX	---	---	58.25	---	---	---	---	58.54	70.72	67.27	70.96	67.16

WATER YEAR 1997 HIGHEST WATER LEVEL 56.48 MAY 13 LOWEST WATER LEVEL 70.96 AUGUST 10

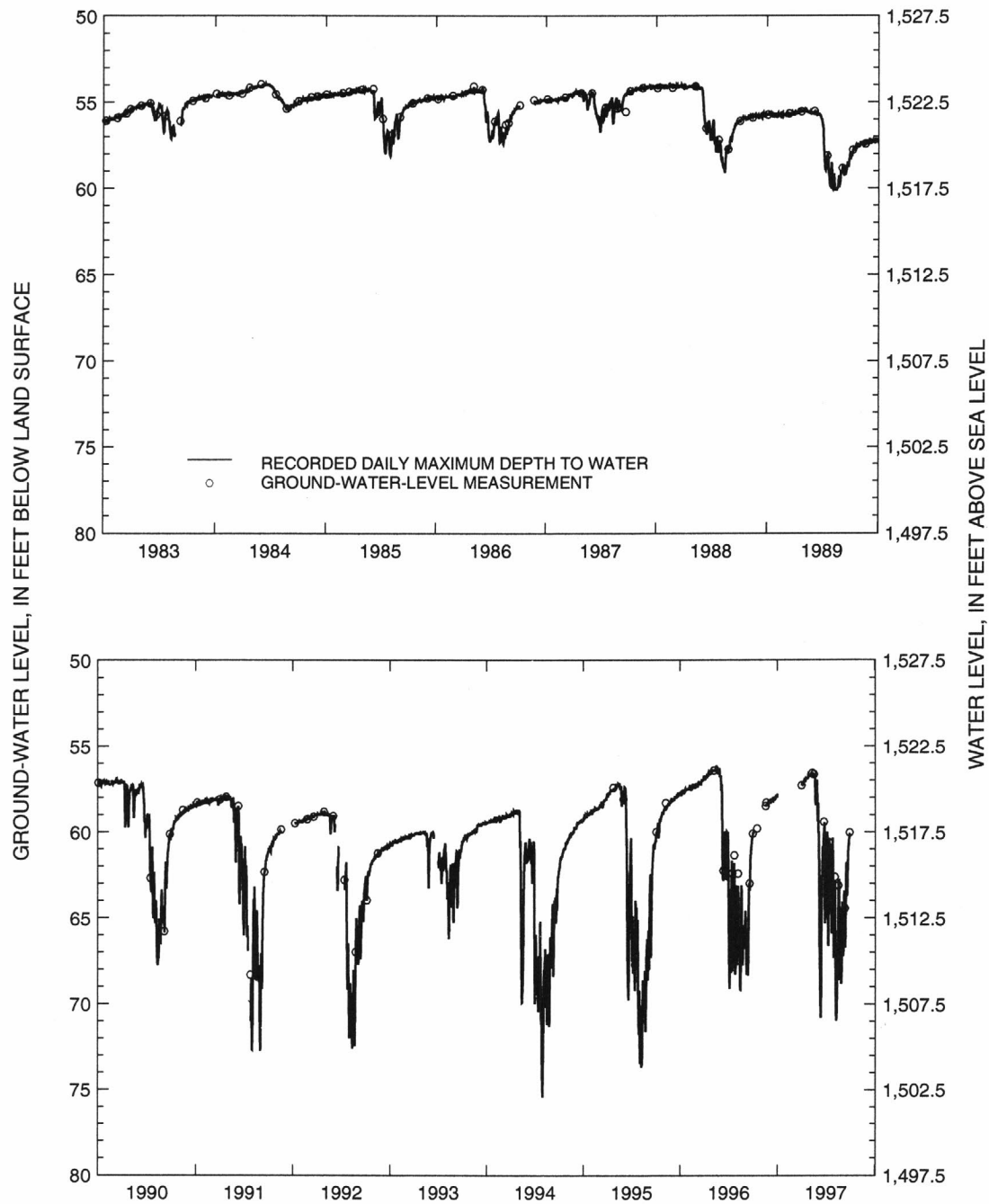
154-077-18CCC



GROUND-WATER LEVELS

McHENRY COUNTY

154-077-18CCC--Continued



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

McHENRY COUNTY

480722100444202. Local number, 154-078-31BAA2.

LOCATION.--Lat 48°07'22", long 100°44'42", Hydrologic Unit 09010003. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 300 ft, cased with 294 ft of 2.00-in diameter steel pipe, No. 12 slot screen set 294 to 300 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,550 ft. Measuring point: Top of casing 2.50 ft above land-surface datum.

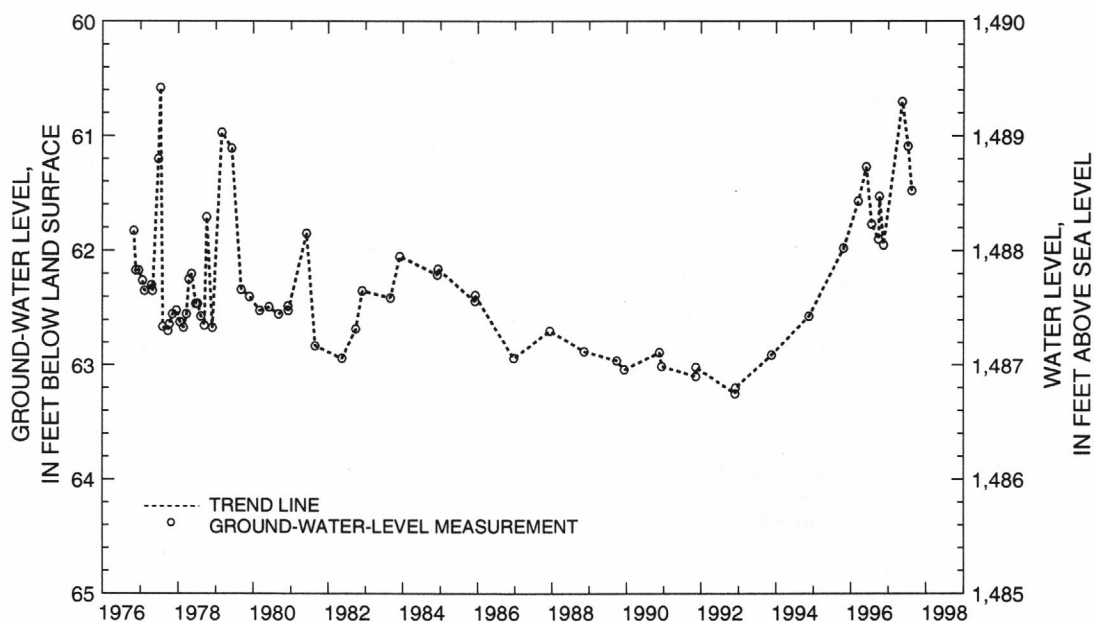
PERIOD OF RECORD.--October 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 60.58 ft below land-surface datum, July 11, 1977; lowest water level measured, 63.25 ft below land-surface datum, December 2, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 9	61.53	May 19	60.70	July 14	61.09	Aug. 18	61.48
Nov. 18	61.95						

154-078-31BAA2



GROUND-WATER LEVELS

McHENRY COUNTY

481948100305901. Local number, 156-077-13CCB1.

LOCATION.--Lat 48°19'48", long 100°30'59", Hydrologic Unit 09010003. Owner: North Dakota State Water Commission.

AQUIFER.--Denbigh.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased with 123 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 123 to 126 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,475 ft. Measuring point: Top of casing 1.70 ft above land-surface datum.

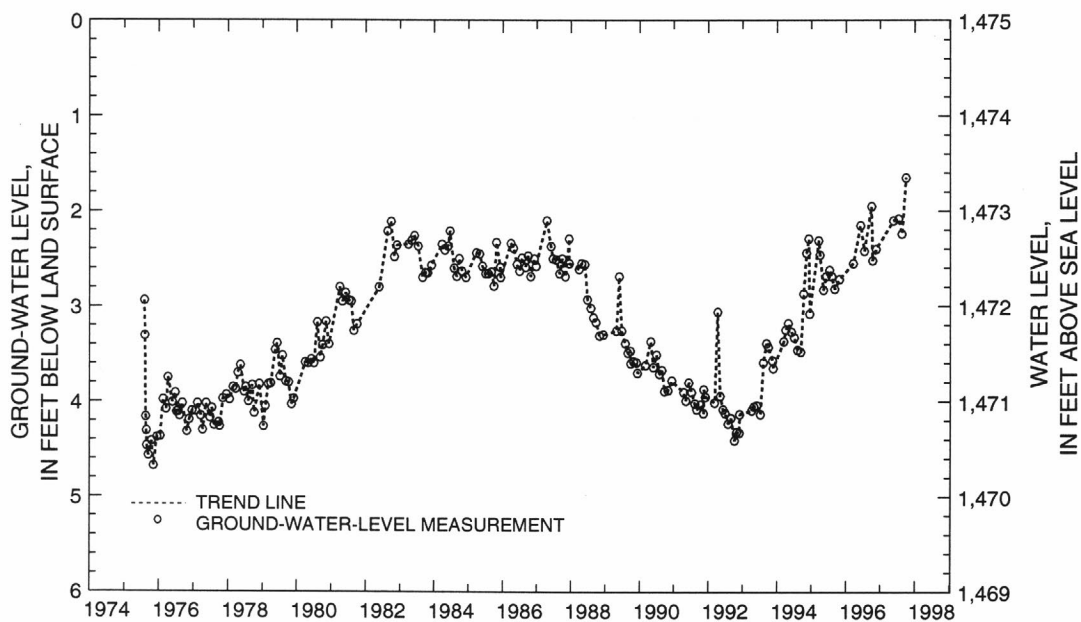
PERIOD OF RECORD.--July 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.65 ft below land-surface datum, September 29, 1997; lowest water level measured, 4.68 ft below land-surface datum, November 4, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 10	2.52	May 19	2.10	Aug. 18	2.24	Sept. 29	1.65
Nov. 18	2.40	July 14	2.08				

156-077-13CCB1



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

McHENRY COUNTY

481948100305902. Local number, 156-077-13CCB2.

LOCATION.--Lat 48°19'48", long 100°30'59", Hydrologic Unit 09010003. Owner: North Dakota State Water Commission.

AQUIFER.--Denbigh.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 53 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 53 to 56 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,475 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

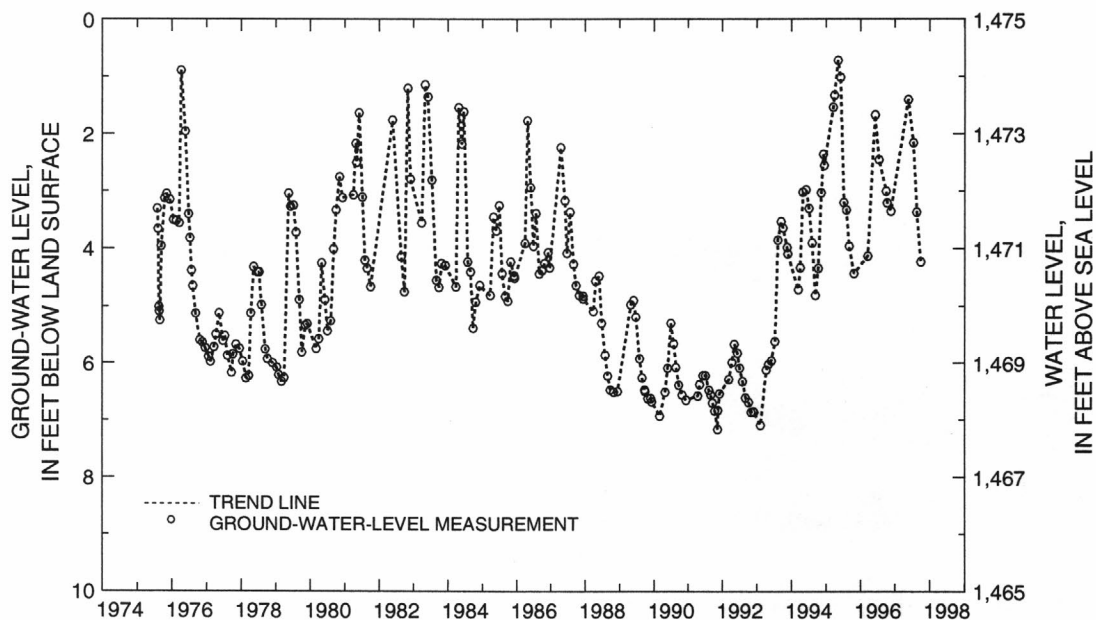
PERIOD OF RECORD.--July 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.71 ft below land-surface datum, May 7, 1995; lowest water level measured, 7.16 ft below land-surface datum, November 10, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 10	3.21	May 19	1.40	Aug. 18	3.37	Sept. 29	4.23
Nov. 18	3.35	July 14	2.16				

156-077-13CCB2



GROUND-WATER LEVELS

McINTOSH COUNTY

455807099450701. Local number, 129-072-30BBB.

LOCATION.--Lat 45°58'07", long 99°45'07", Hydrologic Unit 10130102. Owner: North Dakota State Water Commission.

AQUIFER.--Zeeland.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased with 123 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 123 to 126 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,968.3 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

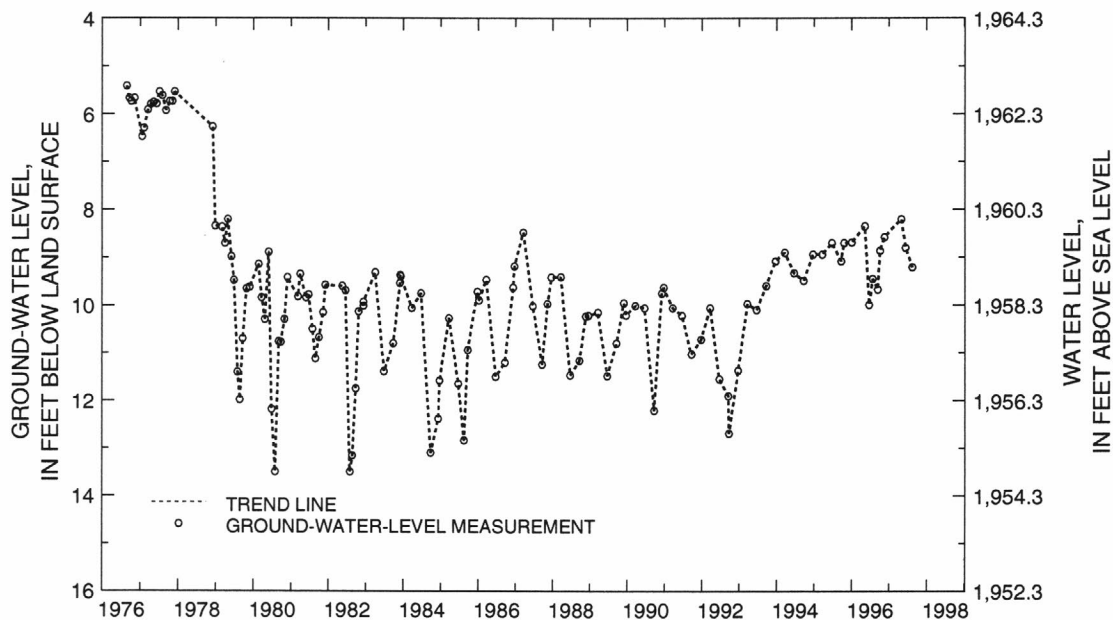
PERIOD OF RECORD.--August 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.41 ft below land-surface datum, August 20, 1976; lowest water level measured, 13.50 ft below land-surface datum, July 29, 1980 and July 27, 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 2	8.86	Apr. 29	8.20	June 10	8.80	Aug. 14	9.21
Nov. 14	8.58						

129-072-30BBB



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

McINTOSH COUNTY

460411099200701. Local number, 130-069-21BBB1.

LOCATION.--Lat 46°04'11", long 99°20'07", Hydrologic Unit 10130106. Owner: North Dakota State Water Commission.

AQUIFER.--Spring Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 222 ft, cased with 177 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 177 to 180 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,033 ft. Measuring point: Top of casing 2.20 ft above land-surface datum.

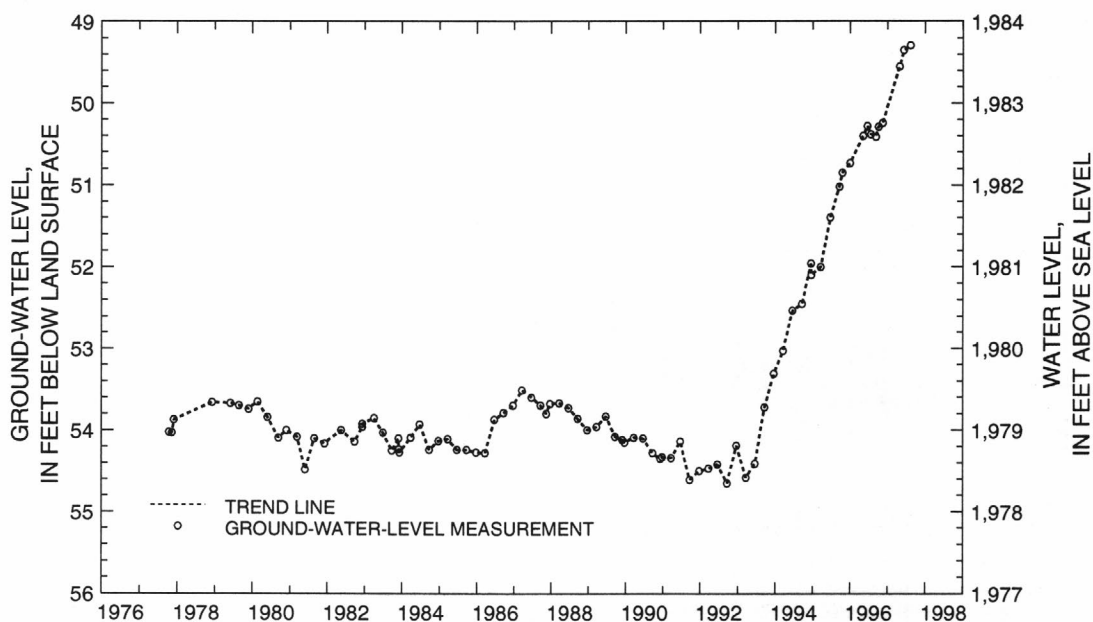
PERIOD OF RECORD.--October 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.29 ft below land-surface datum, August 14, 1997; lowest water level measured, 54.65 ft below land-surface datum, September 20, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 3	50.29	Apr. 29	49.55	June 10	49.35	Aug. 14	49.29
Nov. 14	50.24						

130-069-21BBB1



GROUND-WATER LEVELS

McINTOSH COUNTY

460411099200702. Local number, 130-069-21BBB2.

LOCATION.--Lat 46°04'11", long 99°20'07", Hydrologic Unit 10130106. Owner: North Dakota State Water Commission.

AQUIFER.--Spring Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 102 ft, cased with 97 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 97 to 100 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,033 ft. Measuring point: Top of casing 2.40 ft above land-surface datum.

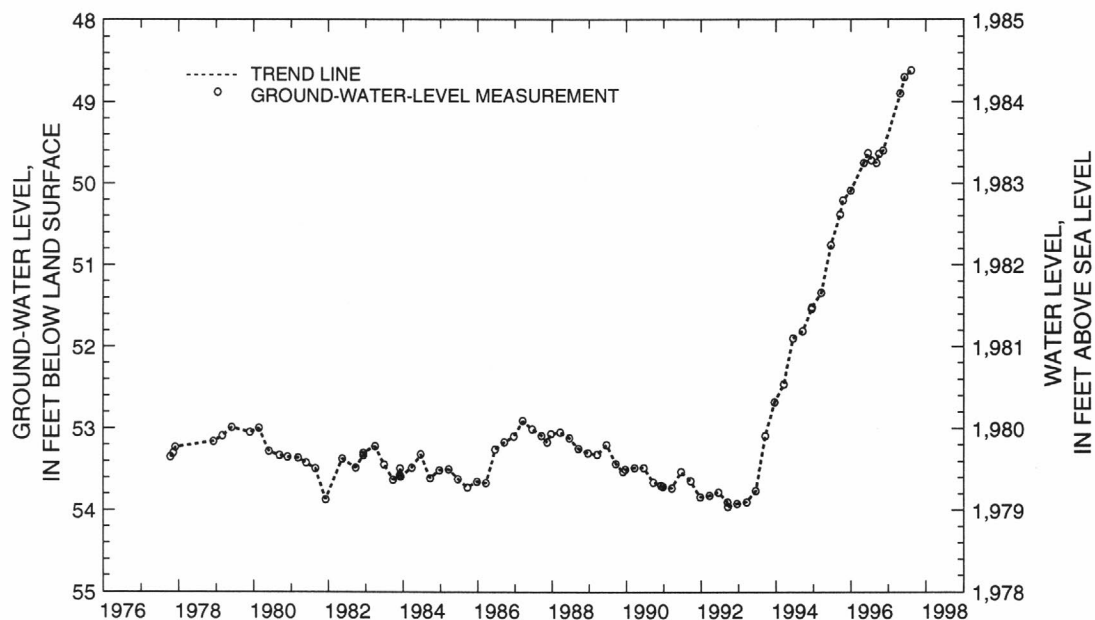
PERIOD OF RECORD.--October 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.62 ft below land-surface datum, August 14, 1997; lowest water level measured, 53.96 ft below land-surface datum, September 20, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 3	49.64	Apr. 29	48.90	June 10	48.70	Aug. 14	48.62
Nov. 14	49.60						

130-069-21BBB2



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

McINTOSH COUNTY

461446099312801. Local number, 132-071-14DDD1.

LOCATION.--Lat 46°14'46", long 99°31'28", Hydrologic Unit 10130104. Owner: North Dakota State Water Commission.

AQUIFER.--Wishek.

WELL CHARACTERISTICS.--Drilled observation well, depth 182 ft, cased with 118 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 118 to 121 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,028 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

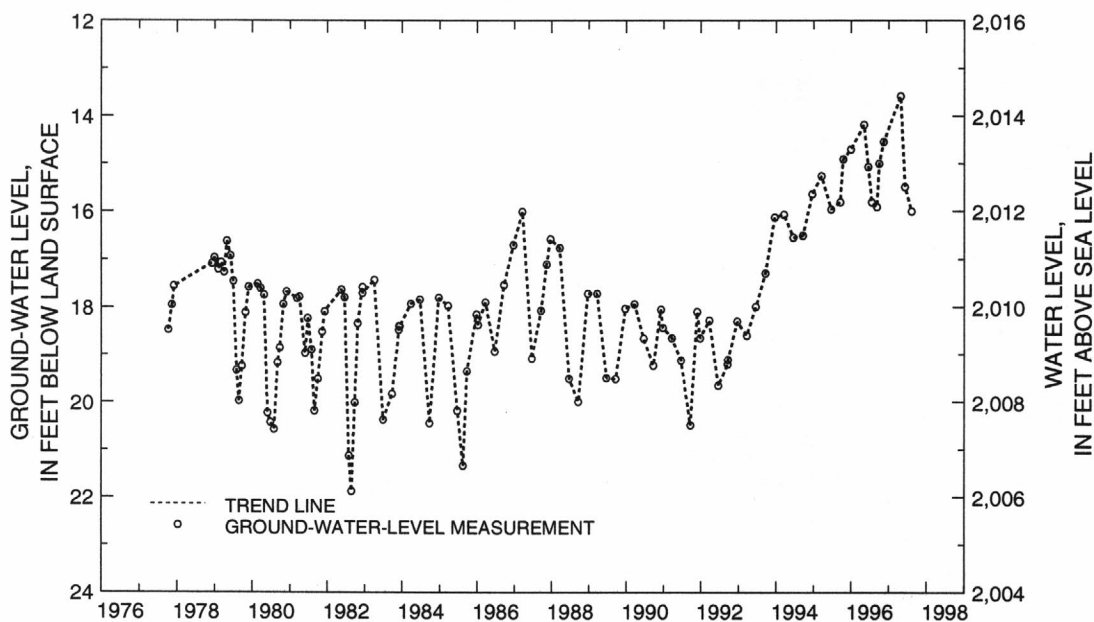
PERIOD OF RECORD.--October 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.58 ft below land-surface datum, April 29, 1997; lowest water level measured, 21.88 ft below land-surface datum, August 22, 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 2	15.00	Apr. 29	13.58	June 10	15.49	Aug. 14	16.00
Nov. 14	14.54						

132-071-14DDD1



GROUND-WATER LEVELS

McINTOSH COUNTY

461446099312802. Local number, 132-071-14DDD2.

LOCATION.--Lat 46°14'46", long 99°31'28", Hydrologic Unit 10130104. Owner: North Dakota State Water Commission.

AQUIFER.--Wishek.

WELL CHARACTERISTICS.--Drilled observation well, depth 50 ft, cased with 38 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 38 to 41 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,028 ft. Measuring point: Top of casing 2.20 ft above land-surface datum.

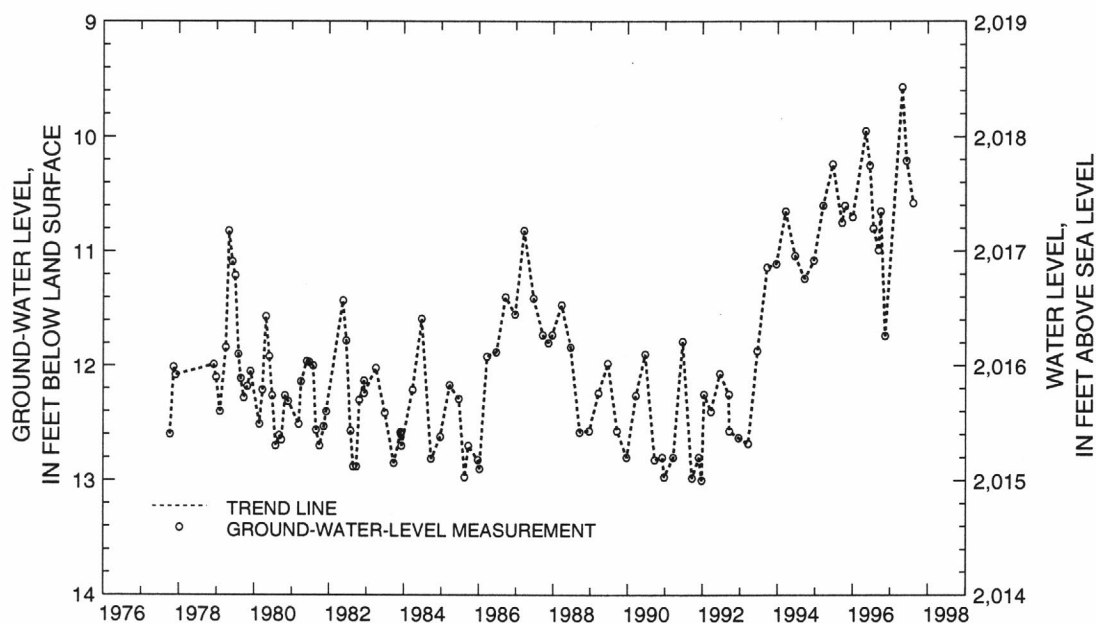
PERIOD OF RECORD.--October 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.57 ft below land-surface datum, April 29, 1997; lowest water level measured, 13.00 ft below land-surface datum, December 23, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 2	10.65	Apr. 29	9.57	June 10	10.21	Aug. 14	10.58
Nov. 14	11.74						

132-071-14DDD2



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

McKENZIE COUNTY

474814103104701. Local number, 150-098-23AAB.

LOCATION.--Lat 47°48'14", long 103°10'47", Hydrologic Unit 10110205. Owner: North Dakota State Water Commission.

AQUIFER.--Cherry Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 162 ft, cased with 98 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 98 to 104 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,002 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

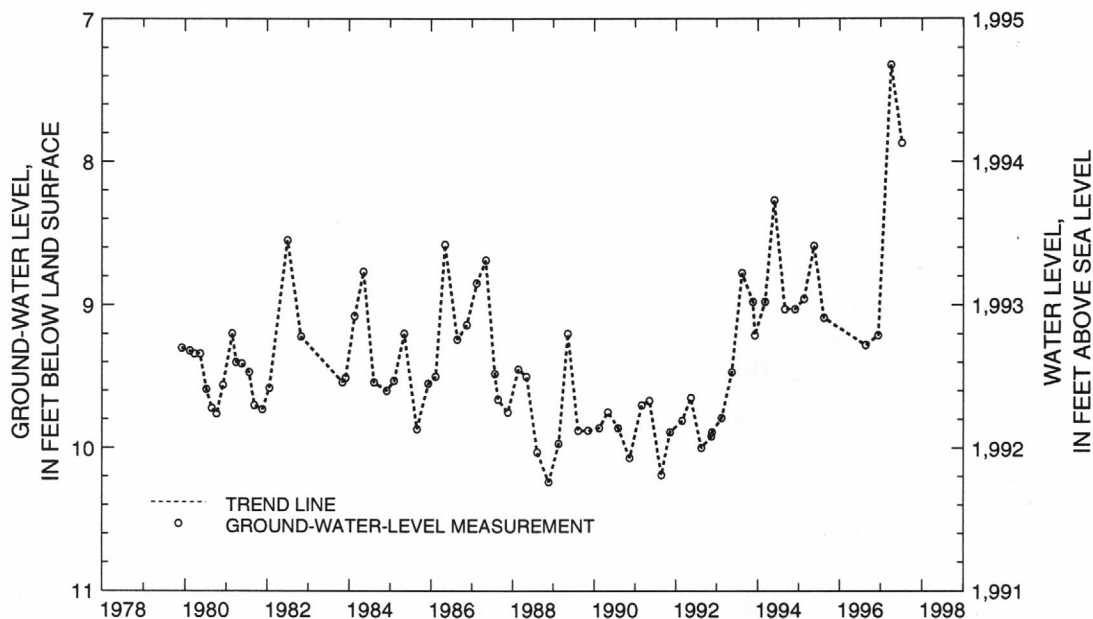
PERIOD OF RECORD.--December 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.32 ft below land-surface datum, April 2, 1997; lowest water level measured, 10.24 ft below land-surface datum, November 18, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Dec. 10	9.21	Apr. 2	7.32	July 9	7.87

150-098-23AAB



GROUND-WATER LEVELS

McKENZIE COUNTY

475452103570101. Local number, 151-104-11ADD.

LOCATION.--Lat 47°54'52", long 103°57'01", Hydrologic Unit 10100004. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 25 ft, cased with 23 ft of 1.25-in diameter plastic pipe, slot screen set 23 to 25 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,880 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

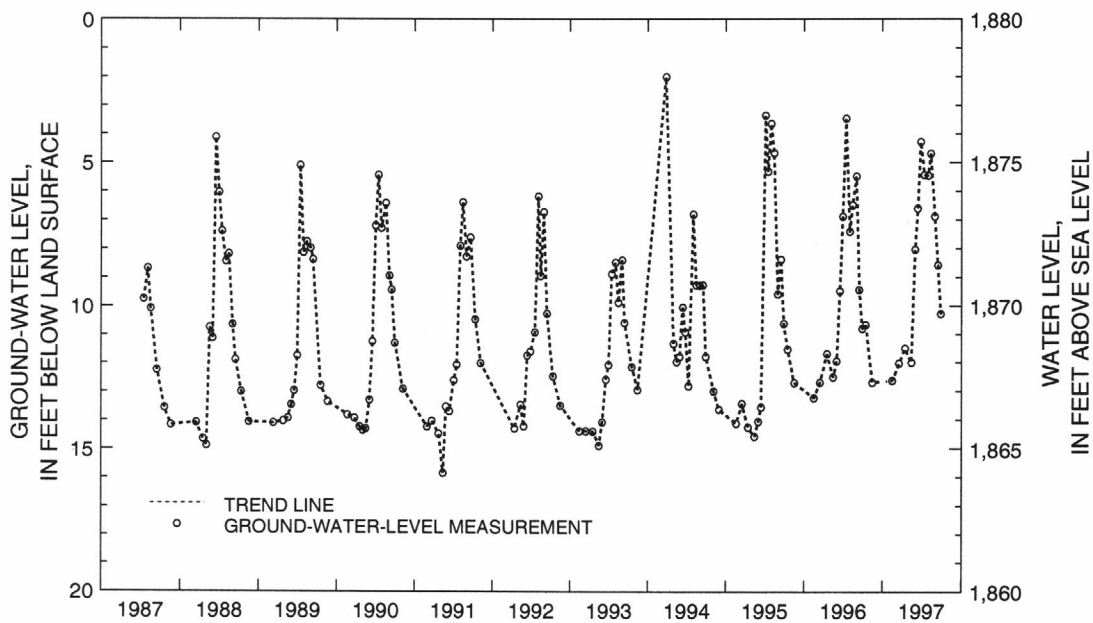
PERIOD OF RECORD.--July 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.00 ft below land-surface datum, March 26, 1994; lowest water level measured, 15.85 ft below land-surface datum, May 14, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	10.68	Apr. 16	11.50	June 28	4.28	Sept. 1	6.89
Nov. 15	12.69	May 15	11.99	July 15	5.44	Sept. 15	8.59
Feb. 15	12.62	June 1	8.04	Aug. 1	5.46	Sept. 29	10.29
Mar. 19	12.03	June 14	6.61	Aug. 14	4.69		

151-104-11ADD



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

McKENZIE COUNTY

475321103574901. Local number, 151-104-23BAC.

LOCATION.--Lat 47°53'21", long 103°57'49", Hydrologic Unit 10100004. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 30 ft, cased with 27.8 ft of 1.25-in diameter plastic pipe, screen set 27.8 to 29.8 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,886.6 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

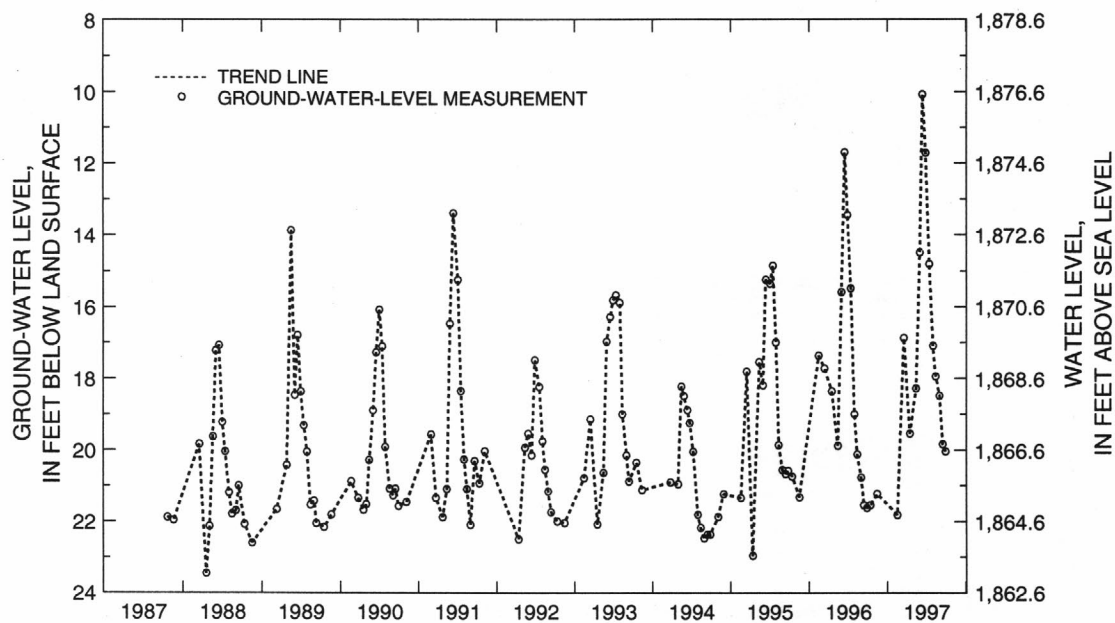
PERIOD OF RECORD.--October 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.07 ft below land-surface datum, June 14, 1997; lowest water level measured, 23.46 ft below land-surface datum, April 17, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	21.54	Apr. 16	19.54	June 28	11.71	Sept. 1	18.48
Nov. 15	21.22	May 15	18.28	July 15	14.81	Sept. 15	19.83
Feb. 17	21.82	June 1	14.48	Aug. 1	17.09	Sept. 29	20.04
Mar. 19	16.87	June 14	10.07	Aug. 14	17.94		

151-104-23BAC



GROUND-WATER LEVELS

McKENZIE COUNTY

475903104010801. Local number, 152-104-17DBC.

LOCATION.--Lat 47°59'03", long 104°01'08", Hydrologic Unit 10060005. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 25 ft, cased with 22 ft of 1.25-in diameter plastic pipe, slot screen set 22 to 24 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,872 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

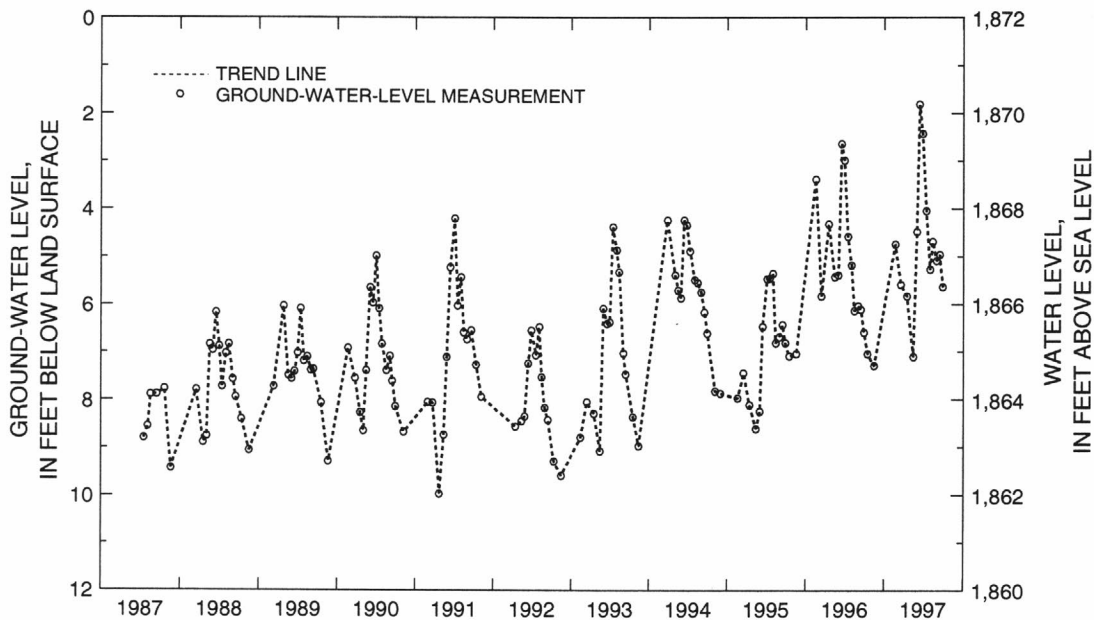
PERIOD OF RECORD.--July 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.81 ft below land-surface datum, June 14, 1997; lowest water level measured, 9.97 ft below land-surface datum, April 24, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	7.04	Apr. 16	5.83	June 28	2.43	Sept. 1	5.09
Nov. 15	7.29	May 15	7.10	July 15	4.04	Sept. 15	4.96
Feb. 21	4.74	June 1	4.48	Aug. 1	5.27	Sept. 29	5.64
Mar. 19	5.59	June 14	1.81	Aug. 14	4.69		

152-104-17DBC



GROUND-WATER LEVELS

McKENZIE COUNTY

475850104022501. Local number, 152-104-18DCC.

LOCATION.--Lat 47°58'50", long 104°02'25", Hydrologic Unit 10060005. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 25 ft, cased with 21.3 ft of 1.25-in diameter plastic pipe, slot screen set 21.3 to 23.3 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,876.5 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

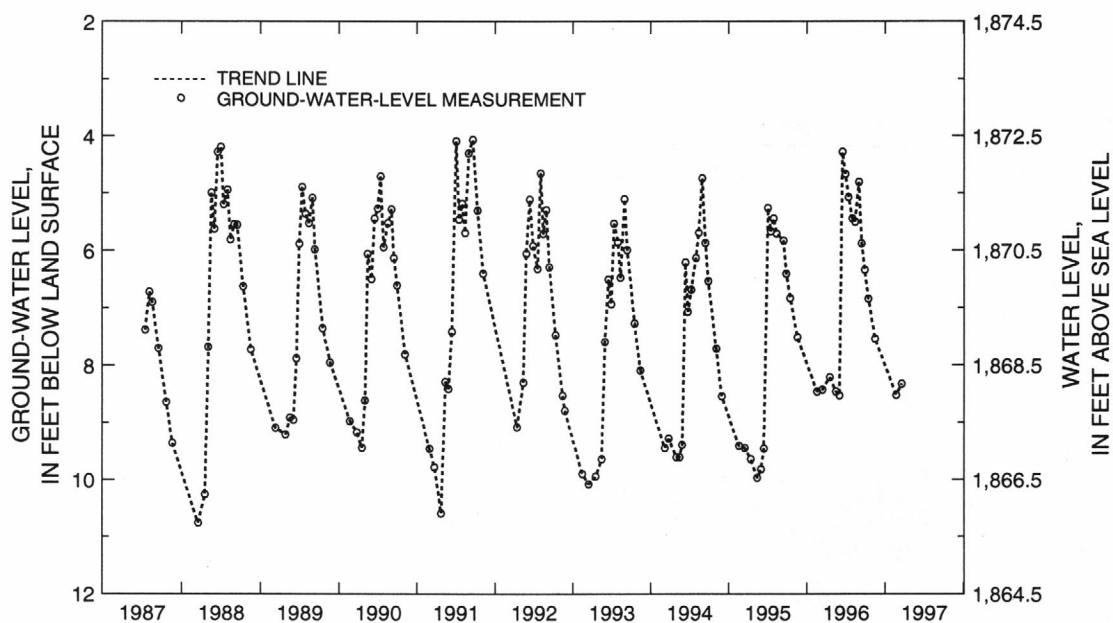
PERIOD OF RECORD.--July 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.07 ft below land-surface datum, September 20, 1991; lowest water level measured, 10.76 ft below land-surface datum, March 16, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	6.85	Nov. 15	7.54	Feb. 21	8.52	Mar. 19	8.33

152-104-18DCC



GROUND-WATER LEVELS

McKENZIE COUNTY

475736103581601. Local number, 152-104-27ADB.

LOCATION.--Lat 47°57'36", long 103°58'16", Hydrologic Unit 10100004. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 25 ft, cased with 23 ft of 1.25-in diameter plastic pipe, slot screen set 23 to 25 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,874.8 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

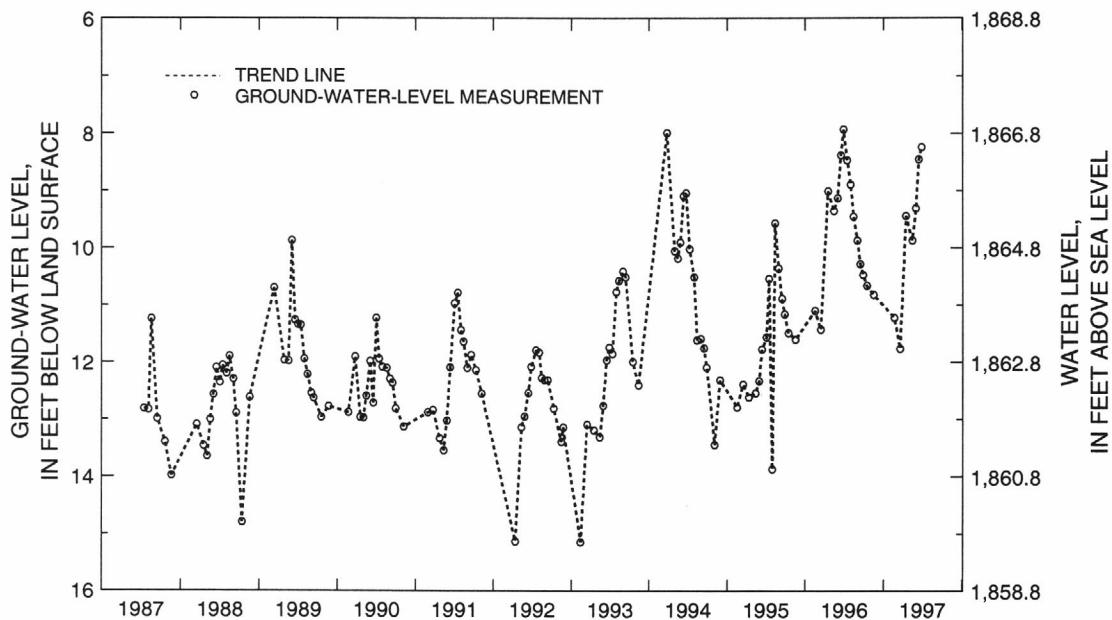
PERIOD OF RECORD.--July 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.93 ft below land-surface datum, June 29, 1996; lowest water level measured, 15.14 ft below land-surface datum, February 14, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	10.66	Mar. 19	11.76	May 15	9.87	June 14	8.45
Nov. 15	10.82	Apr. 16	9.44	June 1	9.31	June 28	8.24
Feb. 21	11.22						

152-104-27ADB



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

McKENZIE COUNTY

475636104003001. Local number, 152-104-33BCC.

LOCATION.--Lat 47°56'36", long 104°00'30", Hydrologic Unit 10100004. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 35 ft, cased with 31.9 ft of 1.25-in diameter plastic pipe, slot screen set 31.9 to 33.9 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,877.6 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

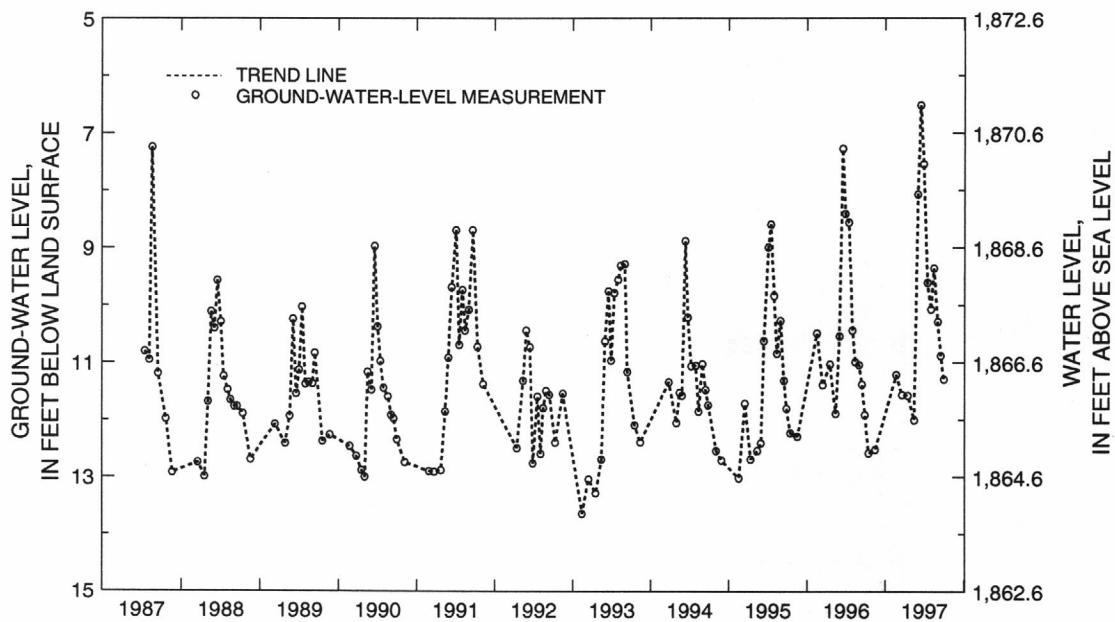
PERIOD OF RECORD.--July 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.51 ft below land-surface datum, June 14, 1997; lowest water level measured, 13.64 ft below land-surface datum, February 14, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	12.58	Apr. 16	11.57	June 28	7.54	Sept. 1	10.29
Nov. 15	12.52	May 15	12.00	July 15	9.61	Sept. 15	10.88
Feb. 21	11.21	June 1	8.07	Aug. 1	10.07	Sept. 29	11.29
Mar. 19	11.56	June 14	6.51	Aug. 14	9.36		

152-104-33BCC



GROUND-WATER LEVELS

McKENZIE COUNTY

475609103585402. Local number, 152-104-34CDC2.

LOCATION.--Lat 47°56'09", long 103°58'54", Hydrologic Unit 10100004. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 25 ft, cased with 22.7 ft of 1-in diameter plastic pipe, screen set 22.7 to 24.9 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,875 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

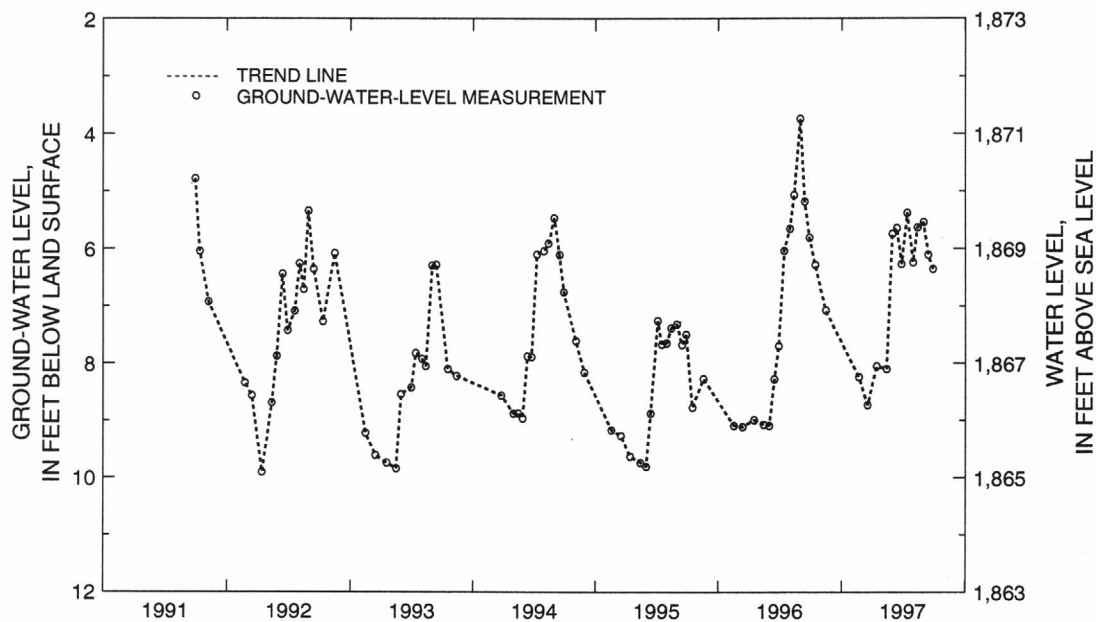
PERIOD OF RECORD.--September 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.74 ft below land-surface datum, September 1, 1996; lowest water level measured, 9.91 ft below land-surface datum, April 13, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	6.28	Apr. 16	8.05	June 28	6.27	Sept. 1	5.54
Nov. 15	7.08	May 15	8.10	July 15	5.38	Sept. 15	6.11
Feb. 21	8.24	June 1	5.74	Aug. 1	6.24	Sept. 29	6.35
Mar. 19	8.73	June 14	5.64	Aug. 14	5.63		

152-104-34CDC2



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

McKENZIE COUNTY

475616103574701. Local number, 152-104-35CCA.

LOCATION.--Lat 47°56'16", long 103°57'47", Hydrologic Unit 10100004. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 25 ft, cased with 23 ft of 1.25-in diameter plastic pipe, slot screen set 23 to 25 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,880.3 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

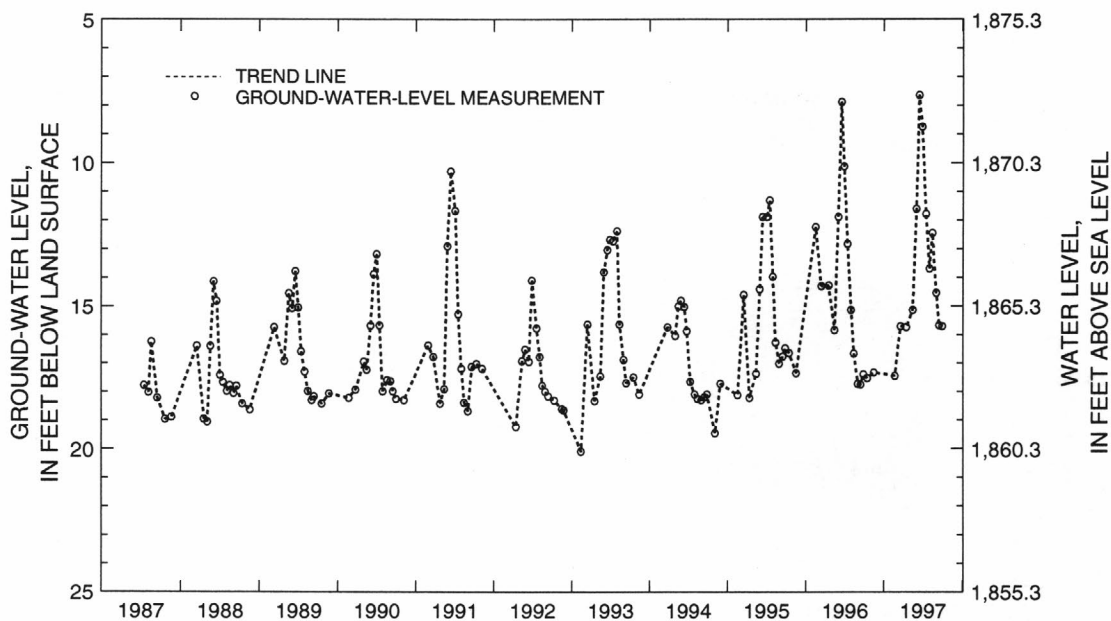
PERIOD OF RECORD.--July 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.63 ft below land-surface datum, June 14, 1997; lowest water level measured, 20.10 ft below land-surface datum, February 14, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	17.53	Apr. 16	15.74	June 28	8.73	Sept. 1	14.54
Nov. 15	17.32	May 15	15.14	July 15	11.79	Sept. 15	15.68
Feb. 21	17.44	June 1	11.60	Aug. 1	13.68	Sept. 29	15.71
Mar. 19	15.71	June 14	7.63	Aug. 14	12.45		

152-104-35CCA



GROUND-WATER LEVELS

McKENZIE COUNTY

475629103570901. Local number, 152-104-35DBA.

LOCATION.--Lat 47°56'29", long 103°57'09", Hydrologic Unit 10100004. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 25 ft, cased with 23 ft of 1.25-in diameter plastic pipe, slot screen set 23 to 25 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,878.9 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

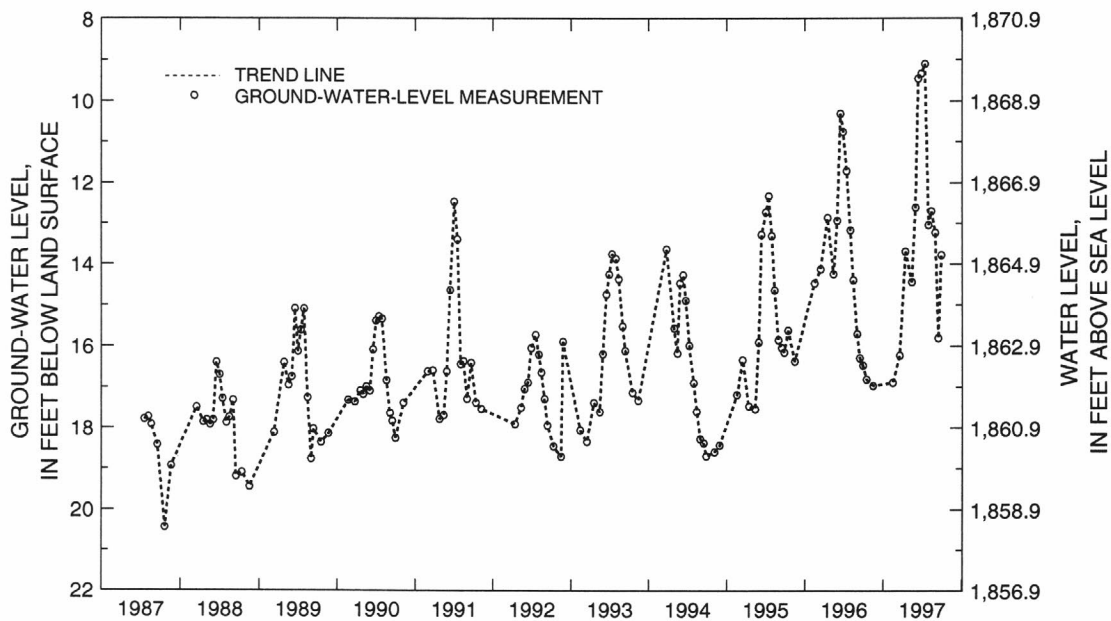
PERIOD OF RECORD.--July 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.10 ft below land-surface datum, July 15, 1997; lowest water level measured, 20.44 ft below land-surface datum, October 21, 1987.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	16.81	Apr. 16	13.69	June 28	9.34	Sept. 1	13.23
Nov. 15	16.97	May 15	14.44	July 15	9.10	Sept. 15	15.81
Feb. 15	16.89	June 1	12.61	Aug. 1	13.04	Sept. 29	13.78
Mar. 19	16.23	June 14	9.46	Aug. 14	12.70		

152-104-35DBA



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

McKENZIE COUNTY

475609103564901. Local number, 152-104-35DDD.

LOCATION.--Lat 47°56'09", long 103°56'49", Hydrologic Unit 10100004. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 25 ft, cased with 23 ft of 1.25-in diameter plastic pipe, slot screen set 23 to 25 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,878.5 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

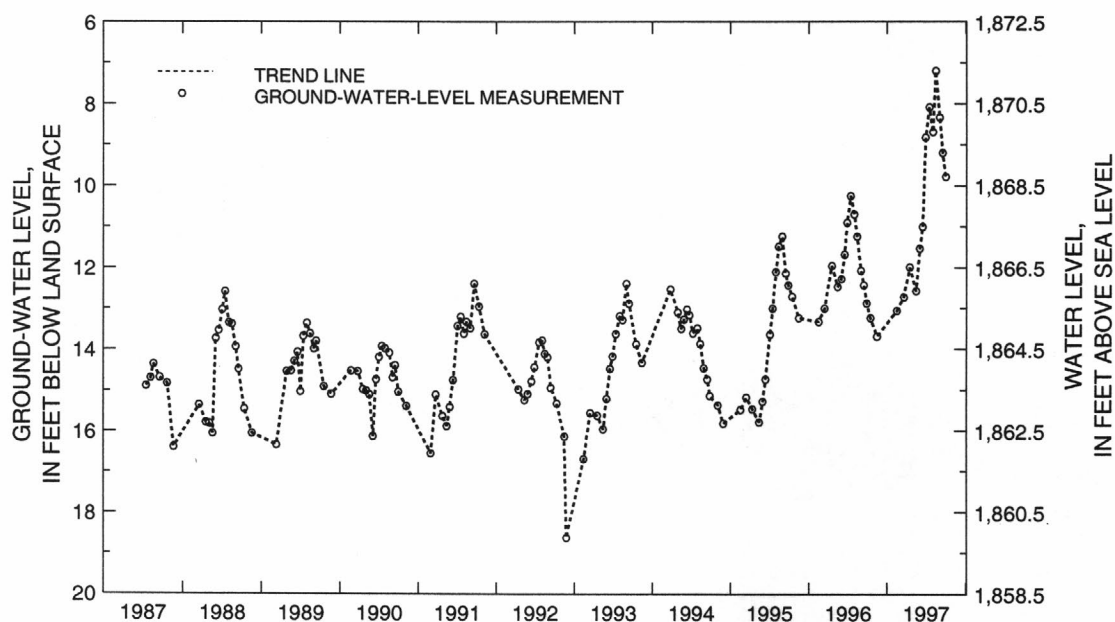
PERIOD OF RECORD.--July 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.20 ft below land-surface datum, Aug. 14, 1997; lowest water level measured, 18.63 ft below land-surface datum, November 24, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	13.24	Apr. 16	11.99	June 28	8.82	Sept. 1	8.33
Nov. 15	13.69	May 15	12.58	July 15	8.09	Sept. 15	9.20
Feb. 15	13.06	June 1	11.53	Aug. 1	8.69	Sept. 29	9.78
Mar. 19	12.73	June 14	11.01	Aug. 14	7.20		

152-104-35DDD



GROUND-WATER LEVELS

McLEAN COUNTY

474026100583201. Local number, 148-081-03AAB.

LOCATION.--Lat 47°40'26", long 100°58'32", Hydrologic Unit 10130101. Owner: North Dakota State Water Commission.

AQUIFER.--Horseshoe Valley.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 40 ft of 4-in diameter plastic pipe, slotted 35 to 40 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder December 1967 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for December 1967 to January 1975. From January 1975 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,886.4 ft. Measuring point: Top of casing 1.40 ft above land-surface datum.

PERIOD OF RECORD.--September 1967 to current year.

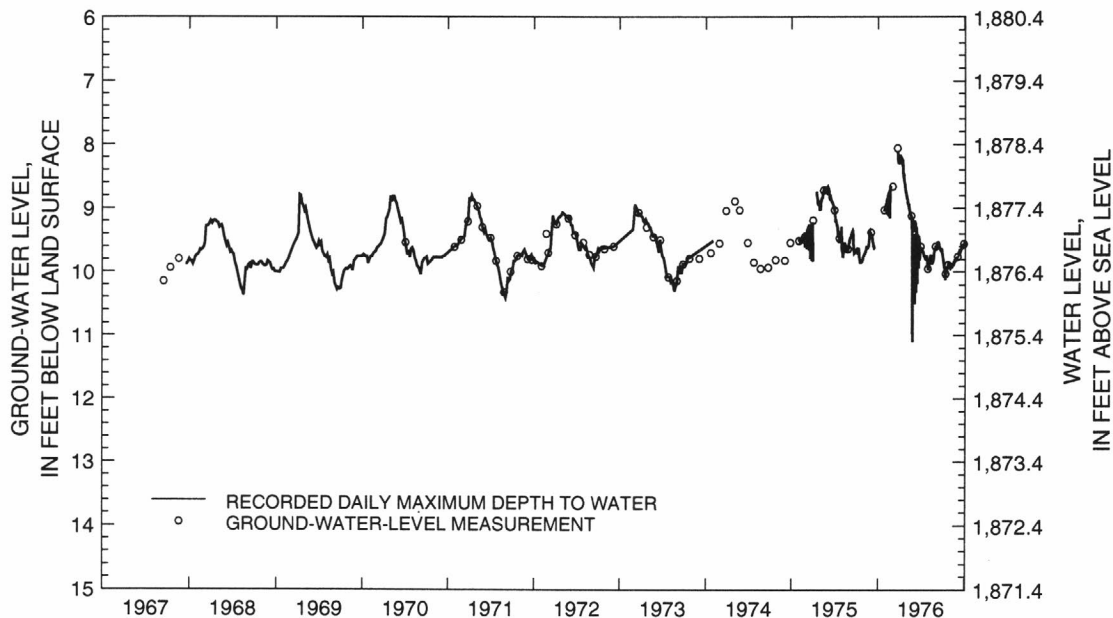
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 7.04 ft below land-surface datum, April 11, 1996; lowest daily water level, 14.14 ft below land-surface datum, September 3, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.62	9.50	8.72	8.49	8.37	8.09	7.57	7.95	8.66	9.06	10.75	10.84
10	9.50	8.91	8.65	8.42	8.37	8.02	7.73	8.00	8.85	9.93	10.14	11.18
15	9.50	8.91	8.61	8.44	8.37	7.99	7.66	8.10	9.51	9.20	10.65	10.07
20	9.50	8.91	8.61	8.40	8.24	7.96	7.51	8.18	8.84	10.18	10.67	9.69
25	9.50	8.91	8.61	8.38	8.24	7.73	7.73	8.20	9.06	9.73	10.53	9.47
EOM	9.50	8.76	8.61	8.37	8.13	7.36	7.81	8.25	10.12	10.08	11.19	9.37
MAX	9.76	9.50	8.76	8.61	8.37	8.11	7.81	8.25	10.16	10.50	11.19	11.26

WATER YEAR 1997 HIGHEST WATER LEVEL 7.36 MARCH 29-31, APRIL 1 LOWEST WATER LEVEL 11.26 SEPTEMBER 4

148-081-03AAB

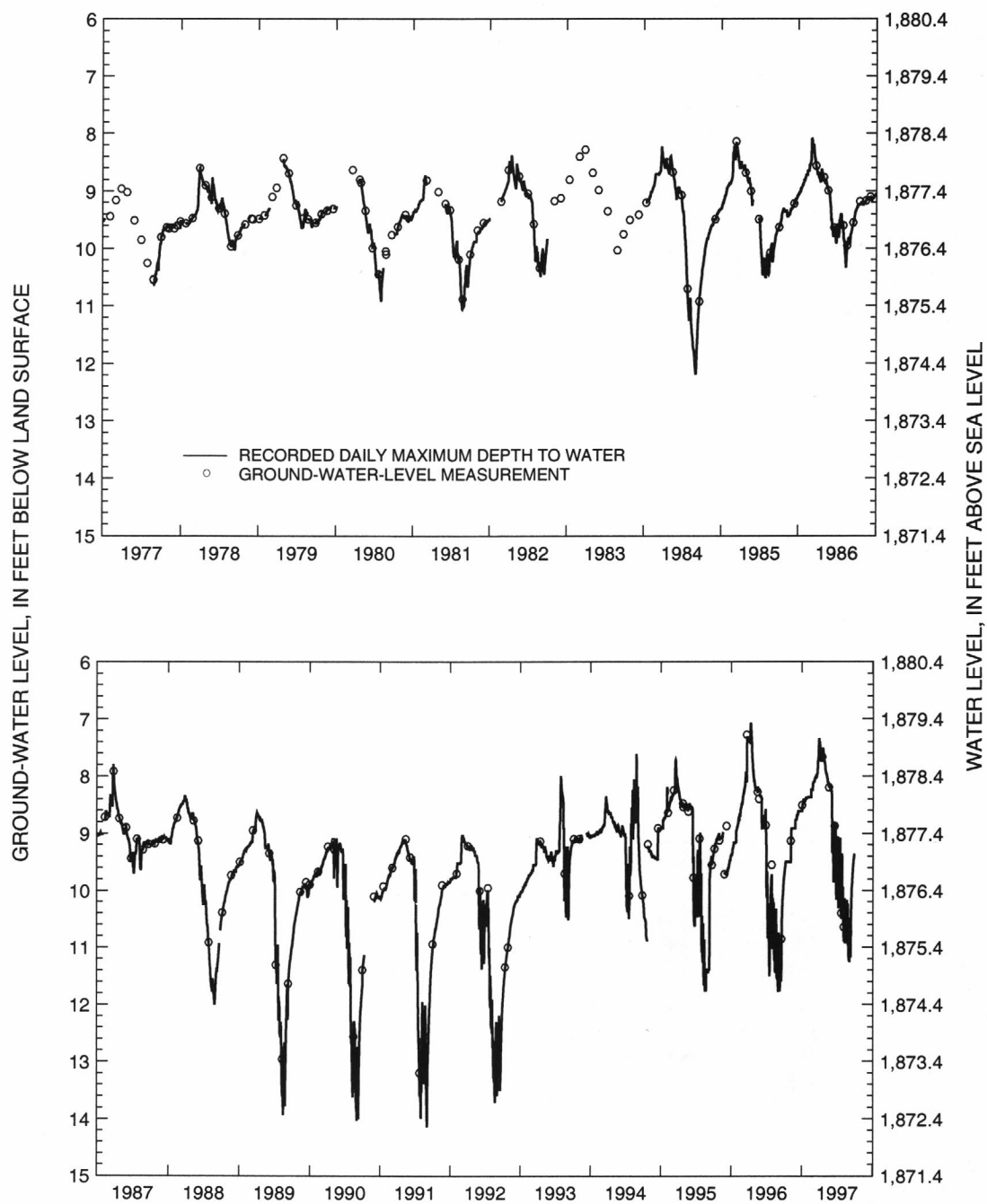


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

McLEAN COUNTY

148-081-03AAB--Continued



GROUND-WATER LEVELS

MERCER COUNTY

472641102105901. Local number, 146-090-20CCC.

LOCATION.--Lat 47°26'41", long 102°10'59", Hydrologic Unit 10130201. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 1,860 ft, cased with 1,540 ft of 4-in diameter steel pipe, open ended.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,120 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

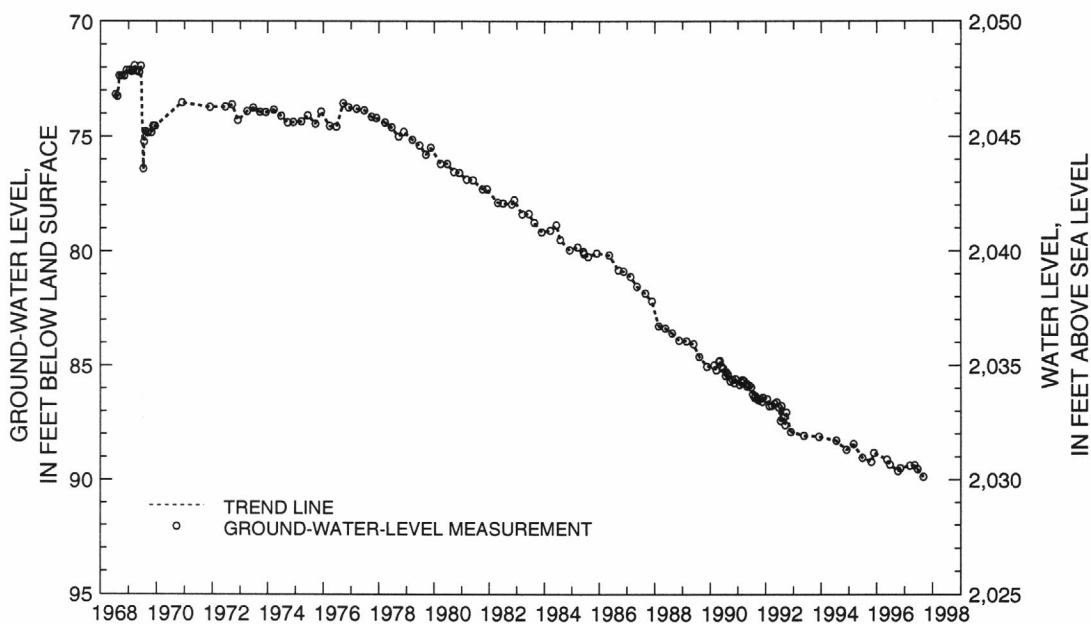
PERIOD OF RECORD.--July 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 71.92 ft below land-surface datum, March 18, 1969; lowest water level measured, 89.88 ft below land-surface datum, September 3, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 7	89.63	Mar. 10	89.40	June 19	89.55	Sept. 3	89.88
Nov. 4	89.50	May 15	89.38				

146-090-20CCC



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

MORTON COUNTY

464734100543501. Local number, 138-081-09ABB1.

LOCATION.--Lat 46°47'34", long 100°54'35", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 762 ft, cased with 525 ft of 2-in diameter steel pipe, No. 12 slot screen set 525 to 537 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,780 ft. Measuring point: Top of casing 3.50 ft above land-surface datum.

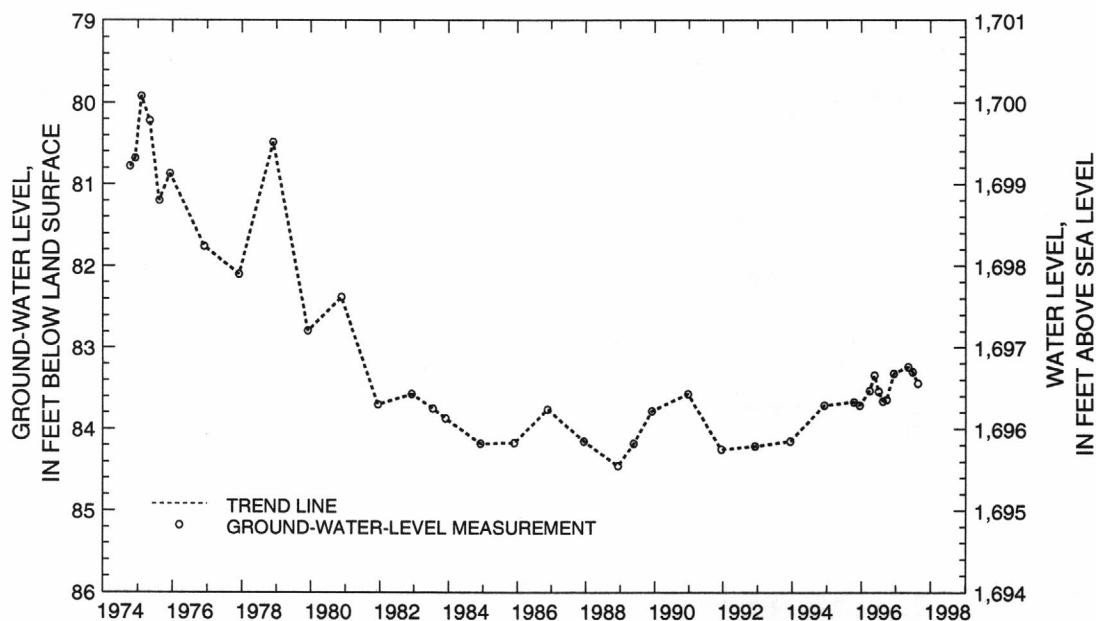
PERIOD OF RECORD.--October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.92 ft below land-surface datum, February 5, 1975; lowest water level measured, 84.45 ft below land-surface datum, December 5, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Dec. 9	83.32	May 9	83.24	June 28	83.30	Aug. 19	83.44

138-081-09ABB1



GROUND-WATER LEVELS

MORTON COUNTY

464734100543502. Local number, 138-081-09ABB2.

LOCATION.--Lat 46°47'34", long 100°54'35", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 362 ft, cased with 336 ft of 2-in diameter steel pipe, No. 12 slot screen set 336 to 348 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,780 ft. Measuring point: Top of casing 3.50 ft above land-surface datum.

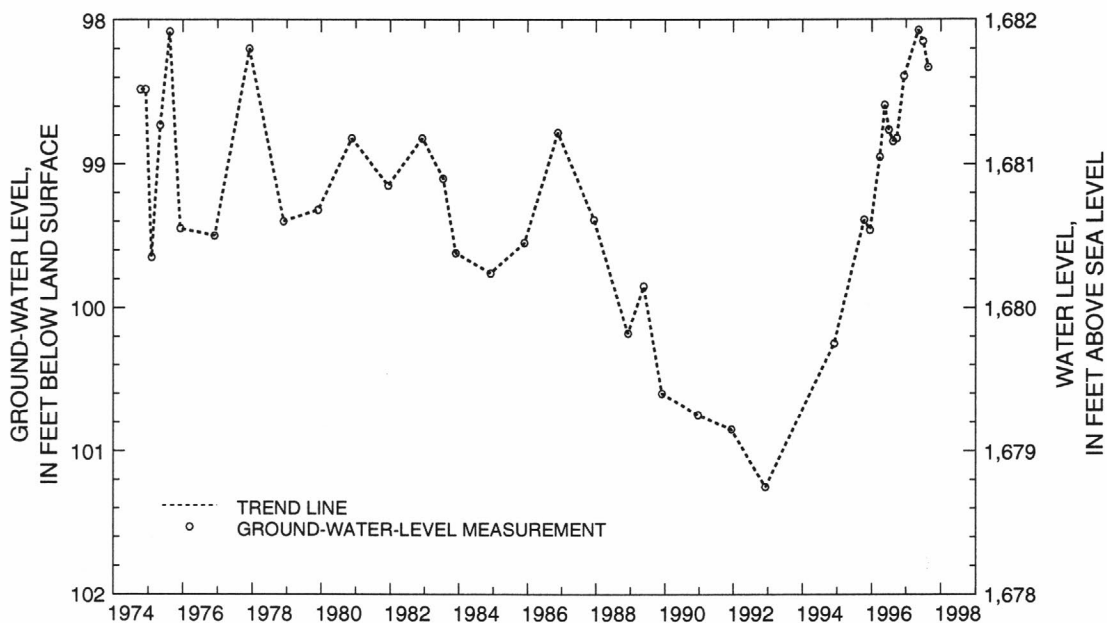
PERIOD OF RECORD.--October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 98.07 ft below land-surface datum, May 9, 1997; lowest water level measured, 101.25 ft below land-surface datum, December 4, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Dec. 9	98.39	May 9	98.07	June 28	98.15	Aug. 19	98.33

138-081-09ABB2



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

MORTON COUNTY

464734100543504. Local number, 138-081-09ABB4.

LOCATION.--Lat 46°47'34", long 100°54'35", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Cannonball-Ludlow.

WELL CHARACTERISTICS.--Drilled observation well, depth 162 ft, cased with 153 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 153 to 159 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,780 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

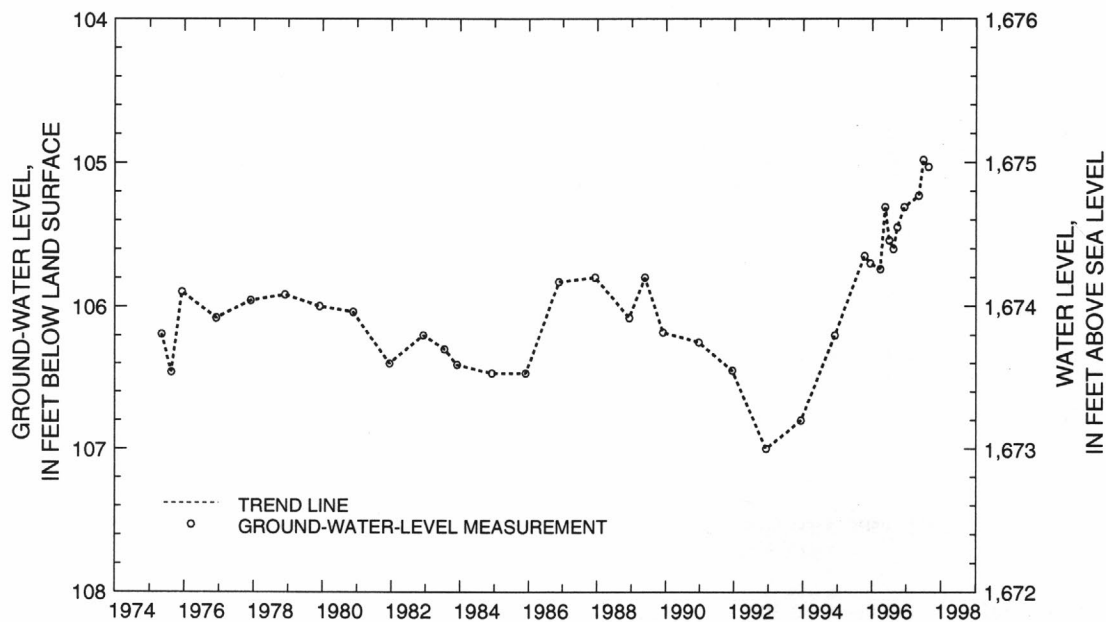
PERIOD OF RECORD.--May 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 104.98 ft below land-surface datum, June 28, 1997; lowest water level measured, 107.00 ft below land-surface datum, December 4, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Dec. 9	105.31	May 9	105.23	June 28	104.98	Aug. 19	105.03

138-081-09ABB4



GROUND-WATER LEVELS

MORTON COUNTY

464847101303801. Local number, 139-086-35BCC.

LOCATION.--Lat 46°48'47", long 101°30'38", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Sims.

WELL CHARACTERISTICS.--Drilled observation well, depth 140 ft, cased with 57 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 57 to 63 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,010 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

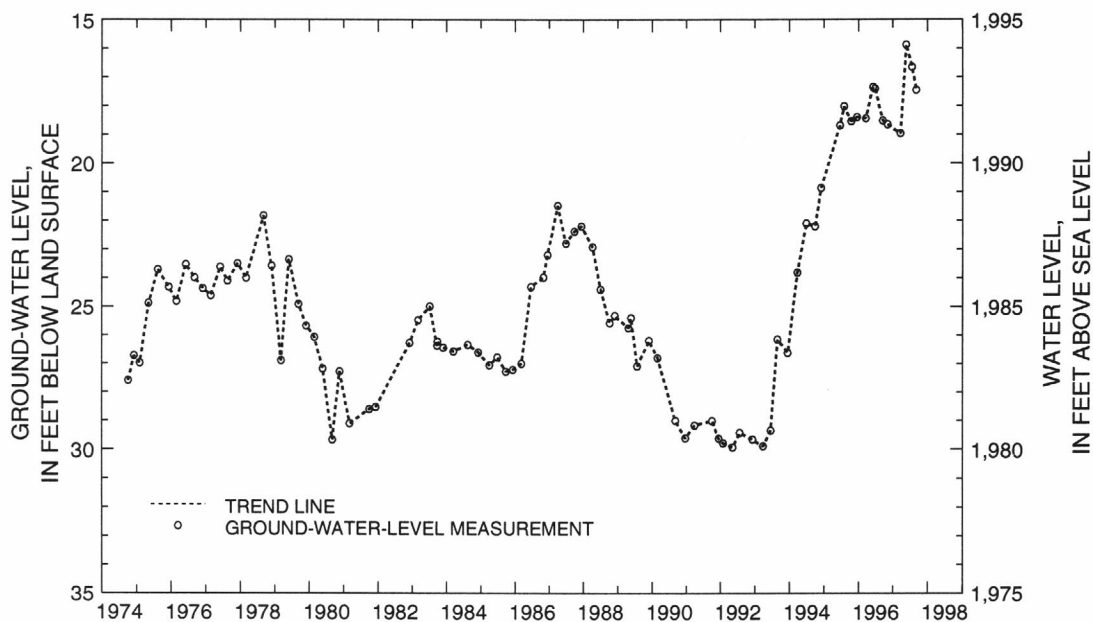
PERIOD OF RECORD.--October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.86 ft below land-surface datum, May 22, 1997; lowest water level measured, 29.94 ft below land-surface datum, May 8, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 4	18.65	May 22	15.86	July 22	16.65	Sept. 3	17.44
Mar. 21	18.96						

139-086-35BCC



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

MORTON COUNTY

464846101464501. Local number, 139-088-34BCC1.

LOCATION.--Lat 46°48'46", long 101°46'45", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 1,302 ft, cased with 1,044 ft of 2-in diameter steel pipe, No. 12 slot screen set 1,044 to 1,062 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,070 ft. Measuring point: Top of casing 4.00 ft above land-surface datum.

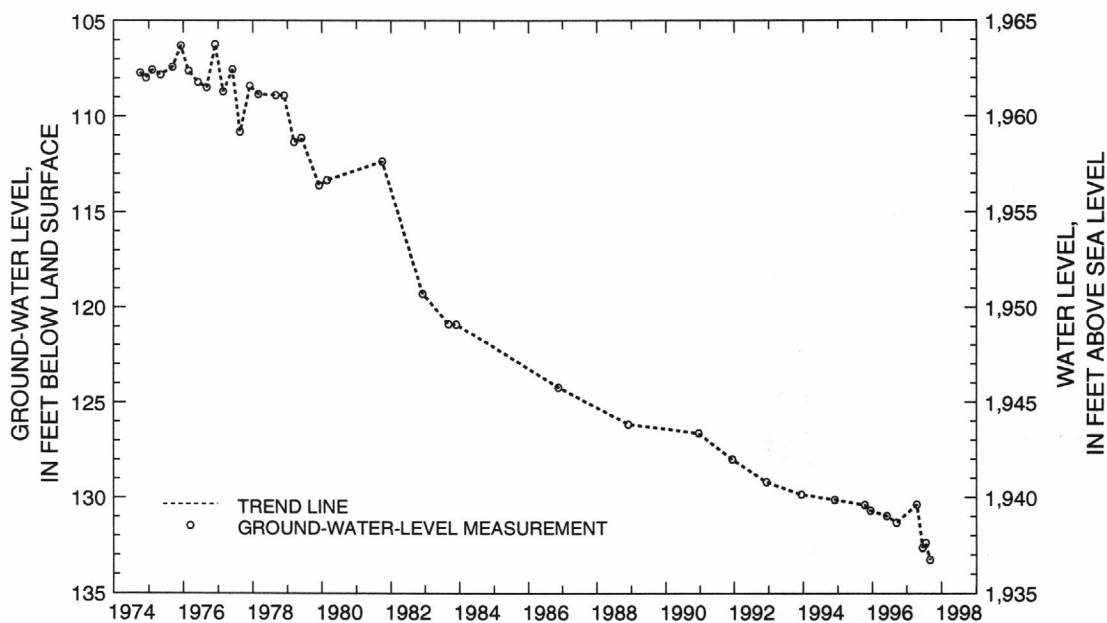
PERIOD OF RECORD.--October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 106.22 ft below land-surface datum, November 30, 1976; lowest water level measured, 133.26 ft below land-surface datum, September 3, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr. 18	130.37	June 18	132.64	July 22	132.40	Sept. 3	133.26

139-088-34BCC1



GROUND-WATER LEVELS

MORTON COUNTY

464846101464502. Local number, 139-088-34BCC2.

LOCATION.--Lat 46°48'46", long 101°46'45", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 862 ft, cased with 842 ft of 2-in diameter steel pipe, No. 12 slot screen set 842 to 860 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,070 ft. Measuring point: Top of casing 4.00 ft above land-surface datum.

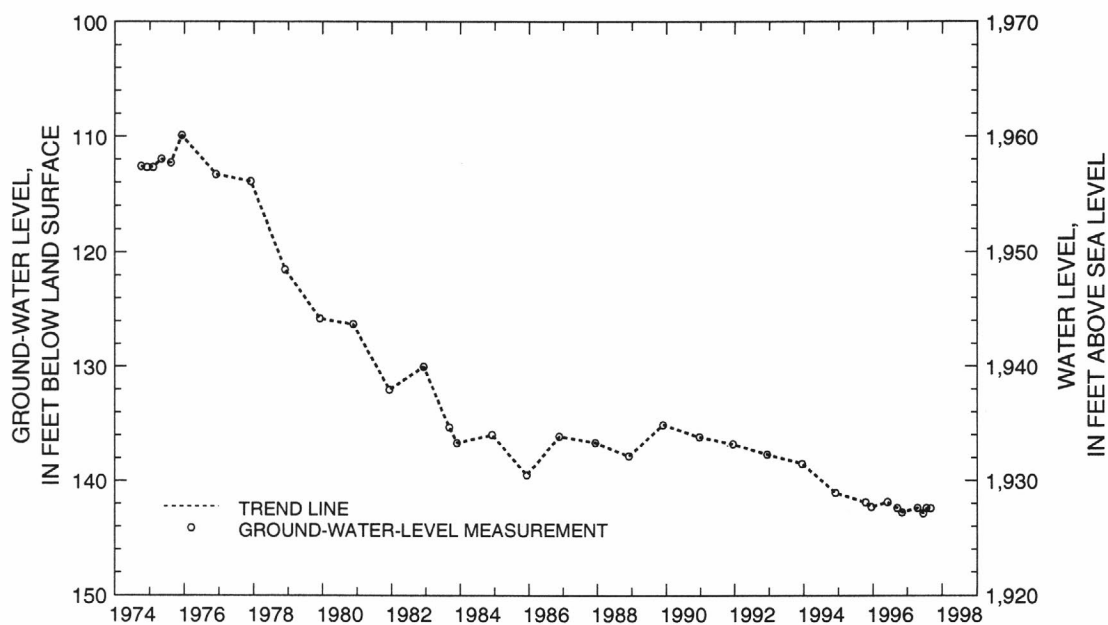
PERIOD OF RECORD.--October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 109.89 ft below land-surface datum, December 4, 1975; lowest water level measured, 142.88 ft below land-surface datum, June 18, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 4	142.78	June 18	142.88	July 22	142.42	Sept. 3	142.44
Apr. 18	142.41						

139-088-34BCC2



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

MORTON COUNTY

464846101464503. Local number, 139-088-34BCC3.

LOCATION.--Lat 46°48'46", long 101°46'45", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Tongue River.

WELL CHARACTERISTICS.--Drilled observation well, depth 302 ft, cased with 288 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 288 to 294 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,070 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

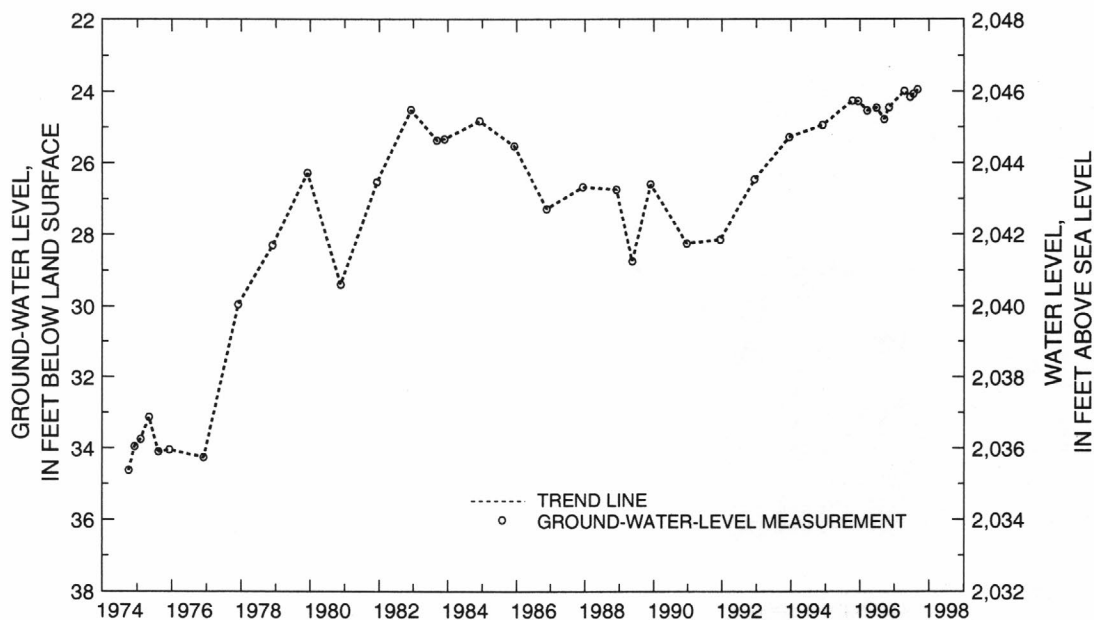
PERIOD OF RECORD.--October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.95 ft below land-surface datum, September 3, 1997; lowest water level measured, 34.62 ft below land-surface datum, October 4, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 4	24.45	June 18	24.16	July 22	24.07	Sept. 3	23.95
Apr. 18	23.99						

139-088-34BCC3



GROUND-WATER LEVELS

MOUNTRAIL COUNTY

480120101571901. Local number, 152-088-04BBBD1.

LOCATION.--Lat 48°01'20", long 101°57'19", Hydrologic Unit 10110101. Owner: North Dakota State Water Commission.

AQUIFER.--Sentinel Butte.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 66 ft of 1.25-in diameter plastic pipe, screen set 66 to 71 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,094.73 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

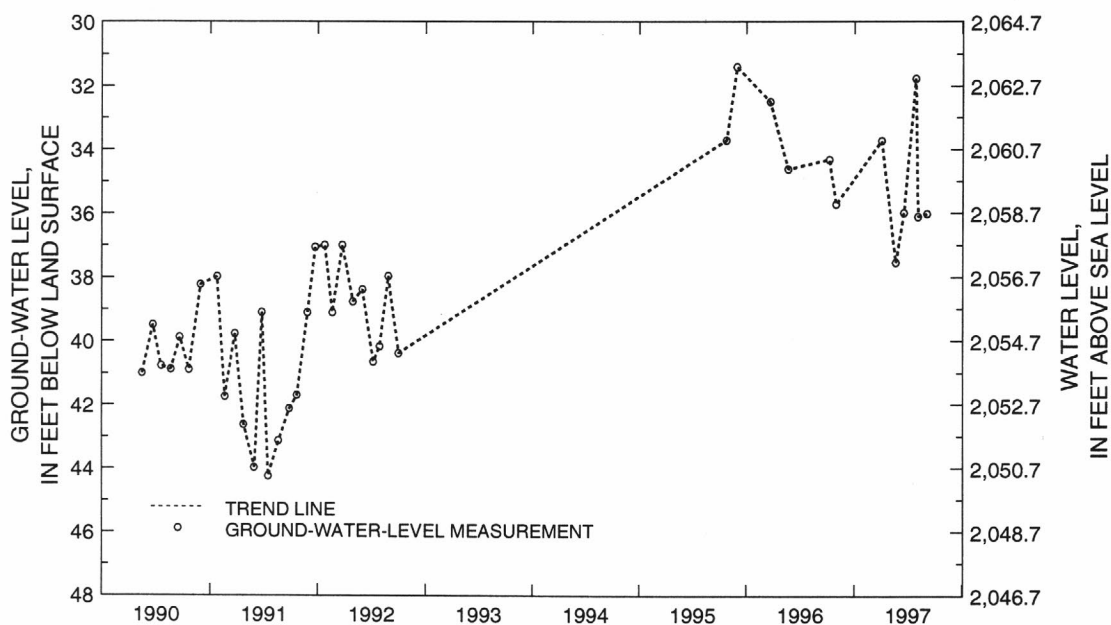
PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.40 ft below land-surface datum, November 29, 1995; lowest water level measured, 44.24 ft below land-surface datum, July 16, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 8	34.31	Apr. 3	33.72	June 18	35.98	Aug. 5	36.10
Oct. 31	35.72	May 22	37.54	July 28	31.77	Sept. 4	36.02

152-088-04BBBD1



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

MOUNTRAIL COUNTY

480120101571902. Local number, 152-088-04BBBD2.

LOCATION.--Lat 48°01'20", long 101°57'19", Hydrologic Unit 10110101. Owner: North Dakota State Water Commission.

AQUIFER.--Sentinel Butte.

WELL CHARACTERISTICS.--Drilled observation well, depth 89 ft, cased with 82 ft of 1.25-in diameter plastic pipe, screen set 82 to 87 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,095 ft. Measuring point: Top of casing 1.50 ft above land-surface datum.

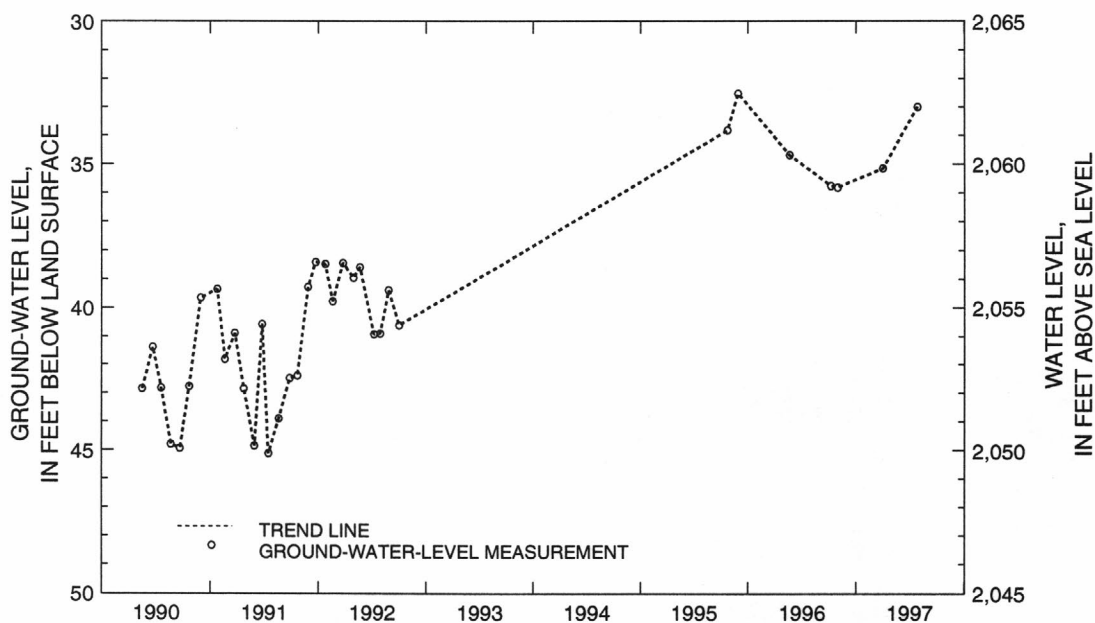
PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.52 ft below land-surface datum, November 29, 1995; lowest water level measured, 45.12 ft below land-surface datum, July 16, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 8	35.76	Oct. 31	35.81	Apr. 3	35.15	July 28	33.00

152-088-04BBBD2



GROUND-WATER LEVELS

NELSON COUNTY

474806098133401. Local number, 150-059-20AAA.

LOCATION.--Lat 47°48'06", long 98°13'34", Hydrologic Unit 09020203. Owner: North Dakota State Water Commission.

AQUIFER.--McVile.

WELL CHARACTERISTICS.--Drilled observation well, depth 340 ft, cased with 247 ft of 4-in diameter plastic pipe, No. 20 slot screen set 247 to 253 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder August 1968 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for August 1968 to September 1970. From October 1970 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,474 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

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

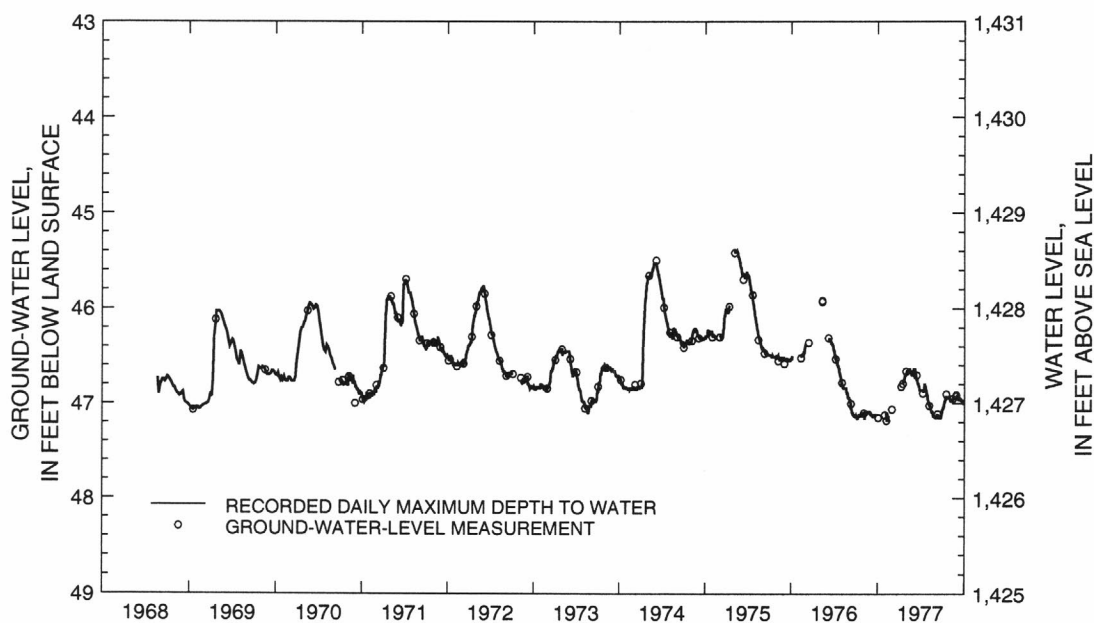
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 43.19 ft below land-surface datum, April 25, 1996; lowest daily water level, 47.39 ft below land-surface datum, January 28, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	44.93	44.94	44.87	44.93	45.04	45.05	44.02	43.46	43.83	44.14	43.86	44.20
10	45.03	44.96	44.87	44.96	45.04	45.05	44.04	43.50	43.92	44.16	43.94	44.25
15	44.97	44.92	44.91	44.96	45.05	45.07	44.01	43.53	44.00	43.95	43.97	44.34
20	44.99	44.97	44.89	44.99	45.02	45.05	43.55	43.62	44.09	43.79	44.03	44.39
25	45.03	---	44.91	45.03	45.04	45.05	43.43	43.65	44.11	43.68	44.08	44.39
EOM	44.97	44.87	44.93	44.93	44.98	44.81	43.37	43.74	44.11	43.76	44.13	44.46
MAX	45.05	---	44.93	45.03	45.06	45.09	44.58	43.74	44.15	44.16	44.13	44.46

WATER YEAR 1997 HIGHEST WATER LEVEL 43.34 APRIL 28-29 LOWEST WATER LEVEL 45.09 MARCH 18-19

150-059-20AAA

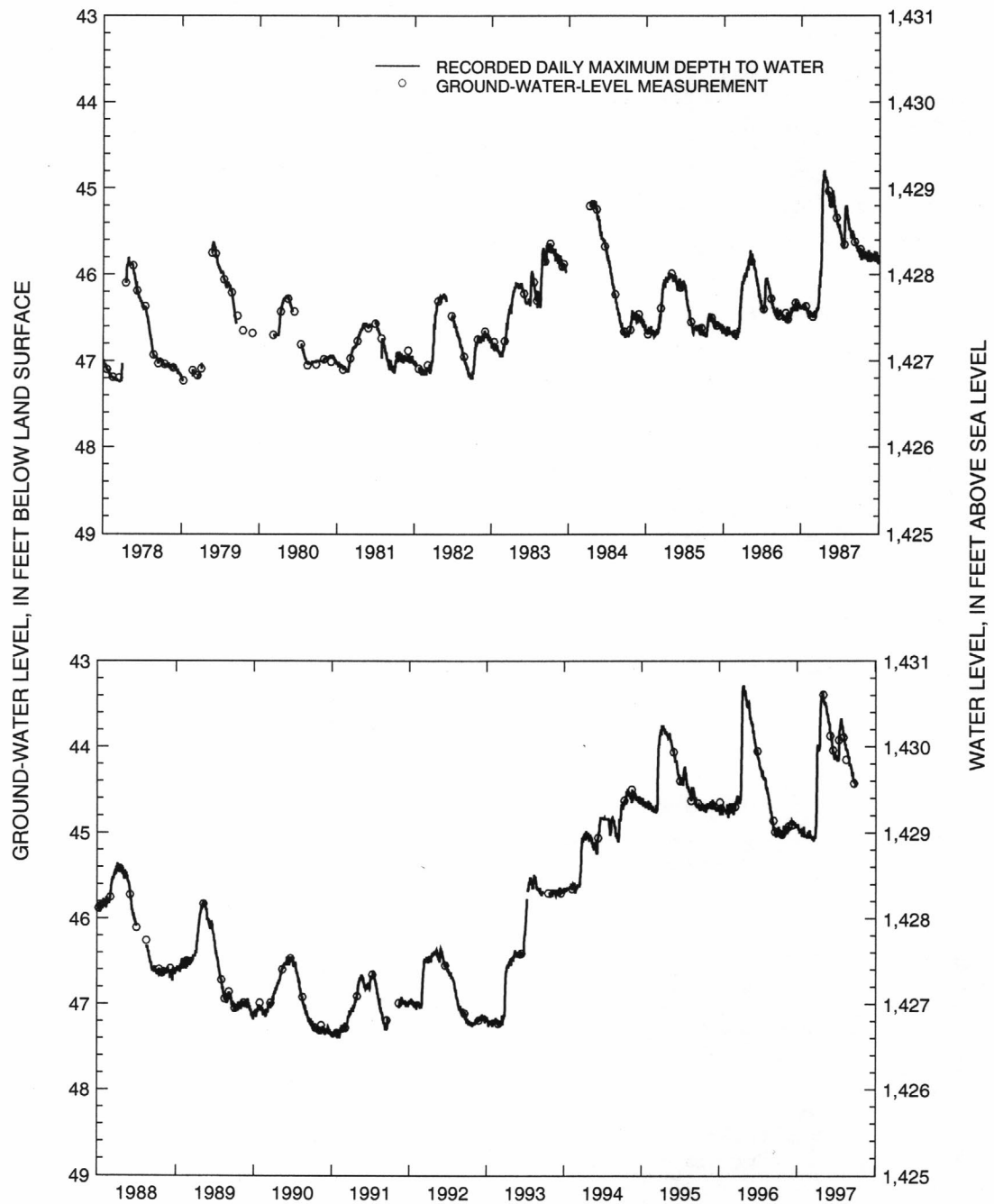


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

NELSON COUNTY

150-059-20AAA--Continued



GROUND-WATER LEVELS

NELSON COUNTY

480138098074101. Local number, 153-058-32DBB.

LOCATION.--Lat 48°01'38", long 98°07'41", Hydrologic Unit 09020307. Owner: North Dakota State Water Commission.

AQUIFER.--Pierre Shale.

WELL CHARACTERISTICS.--Drilled observation well, depth 120 ft, cased with 120 ft of 5-in diameter steel pipe, slotted 110 to 120 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,510 ft. Measuring point: Top of casing 1.45 ft above land-surface datum.

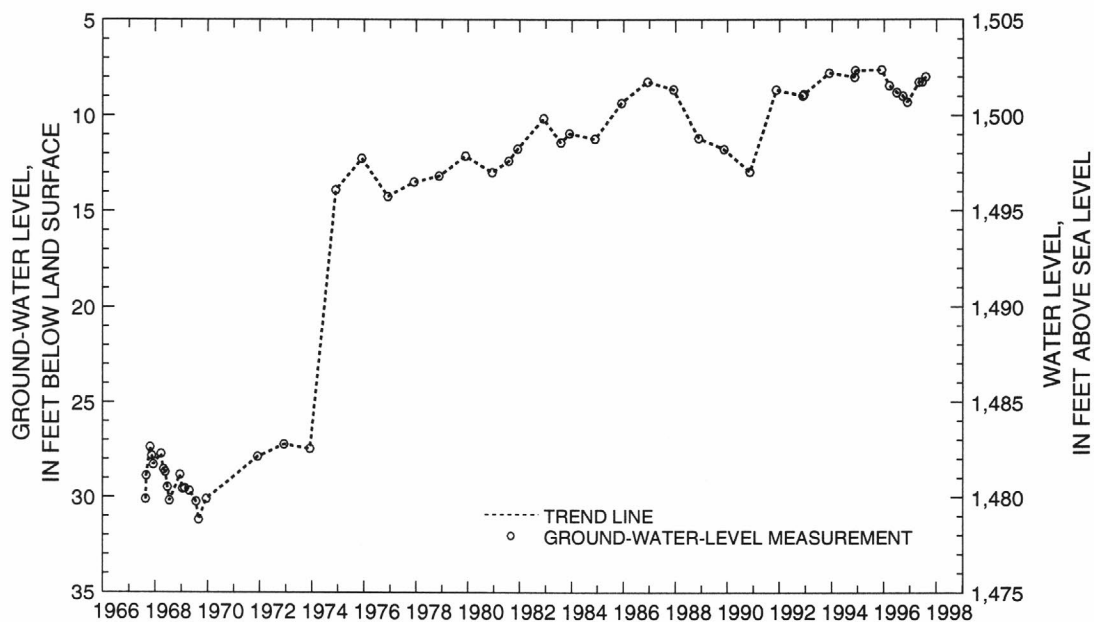
PERIOD OF RECORD.--August 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.61 ft below land-surface datum, November 30, 1995; lowest water level measured, 31.20 ft below land-surface datum, August 28, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 20	9.30	May 2	8.26	June 17	8.24	Aug. 5	7.98

153-058-32DBB



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

OLIVER COUNTY

470642101162701. Local number, 142-084-24BBA.

LOCATION.--Lat 47°06'42", long 101°16'27", Hydrologic Unit 10130101. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 1,295 ft, cased with 966 ft of 4-in diameter steel pipe, open ended.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,006 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

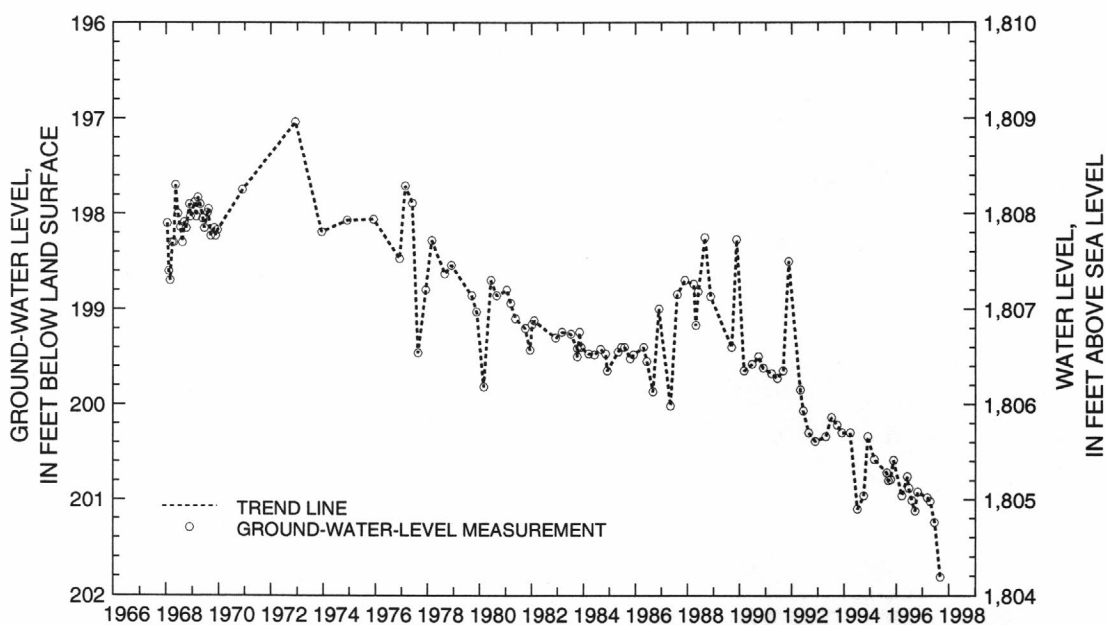
PERIOD OF RECORD.--January 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 197.04 ft below land-surface datum, December 8, 1972; lowest water level measured, 201.81 ft below land-surface datum, September 2, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 24	200.92	Apr. 17	201.02	June 17	201.24	Sept. 2	201.81
Mar. 10	200.98						

142-084-24BBA



GROUND-WATER LEVELS

PEMBINA COUNTY

485425097550502. Local number, 163-056-29CDD2.

LOCATION.--Lat 48°54'25", long 97°55'05", Hydrologic Unit 09020313. Owner: North Dakota State Water Commission.

AQUIFER.--Pembina River.

WELL CHARACTERISTICS.--Drilled observation well, depth 40 ft, cased with 20 ft of 4-in diameter steel pipe, No. 24 slot screen set 20 to 25 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 957 ft. Measuring point: Top of casing 0.60 ft above land-surface datum.

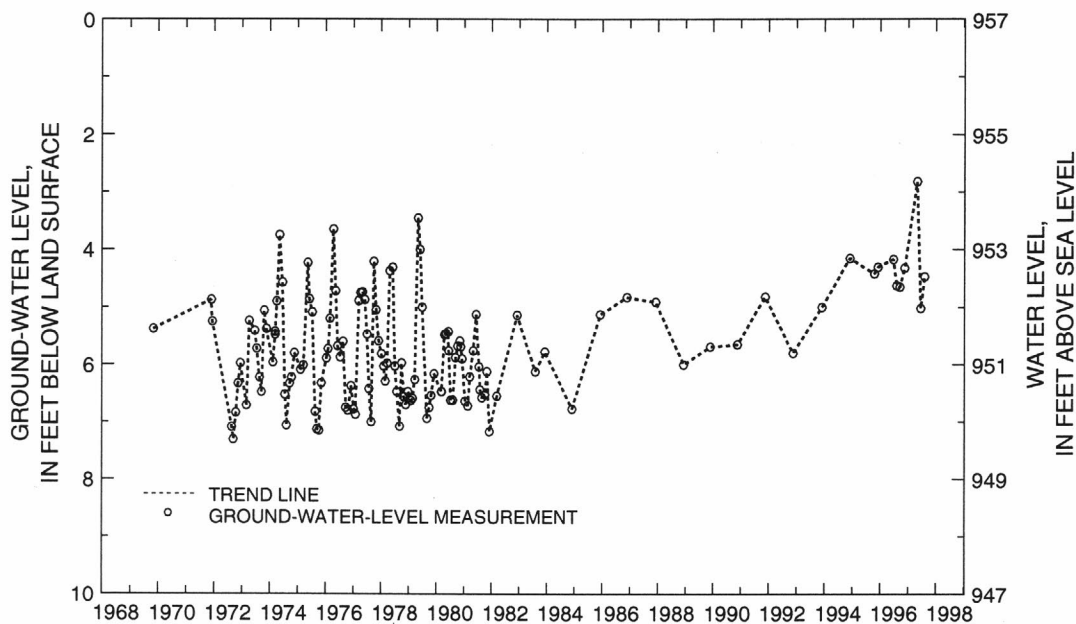
PERIOD OF RECORD.--October 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.82 ft below land-surface datum, May 1, 1997; lowest water level measured, 7.31 ft below land-surface datum, September 7, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 21	4.32	May 1	2.82	June 17	5.02	Aug. 5	4.47

163-056-29CDD2



GROUND-WATER LEVELS

PIERCE COUNTY

475139099484801. Local number, 151-072-36AAA1.

LOCATION.--Lat 47°51'39", long 99°48'48", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--New Rockford.

WELL CHARACTERISTICS.--Drilled observation well, depth 320 ft, cased with 213 ft of 4-in diameter plastic pipe, screen set 213 to 238 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder November 1967 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for November 1967 to July 1974. From August 1974 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,602 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--November 1967 to current year.

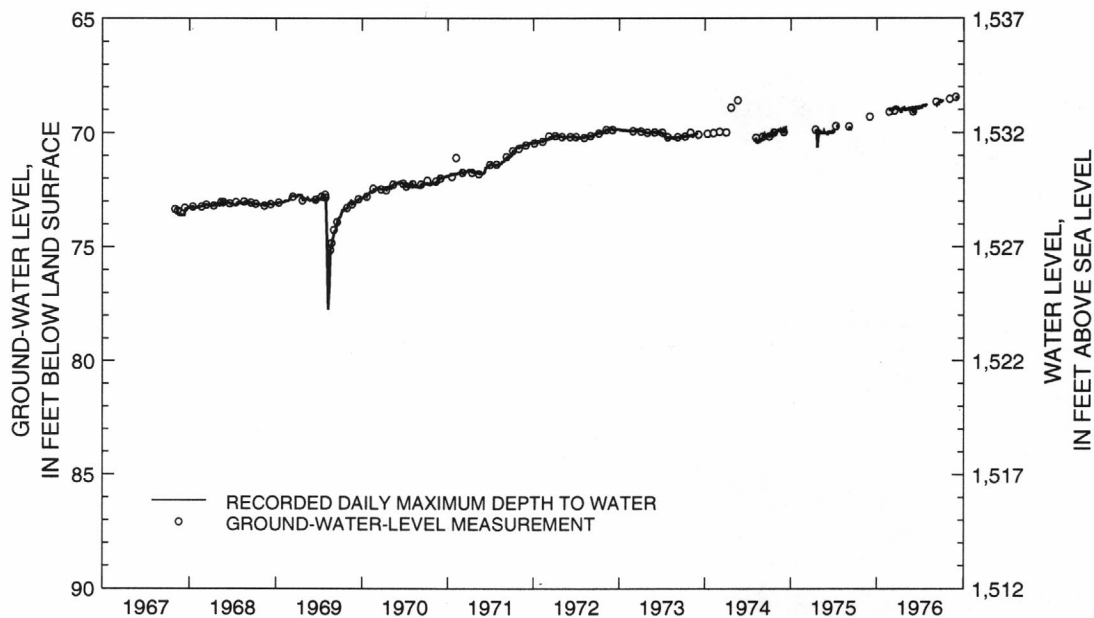
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 68.26 ft below land-surface datum, March 10-11, 1977; lowest daily water level, 86.32 ft below land-surface datum, August 22-27, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	80.07	79.46	78.88	78.57	78.37	78.16	77.98	77.76	78.44	78.80	78.73	78.66
10	80.00	79.33	78.86	78.50	78.37	78.15	77.78	77.83	78.83	78.67	78.92	78.64
15	79.88	79.33	78.84	78.46	78.30	78.15	77.73	77.84	79.08	78.61	78.93	78.59
20	79.76	79.24	78.66	78.44	78.23	78.10	77.73	77.93	79.08	78.57	78.85	78.43
25	79.64	79.12	78.69	78.40	78.22	78.05	77.75	77.93	78.95	78.57	78.84	78.35
EOM	79.50	79.01	78.63	78.30	78.20	77.98	77.76	78.09	78.90	78.57	78.84	78.25
MAX	80.14	79.50	---	78.61	78.37	78.17	78.00	78.09	79.10	78.90	78.93	78.79

WATER YEAR 1997 HIGHEST WATER LEVEL 77.71 APRIL 14-15 LOWEST WATER LEVEL 80.14 OCTOBER 1

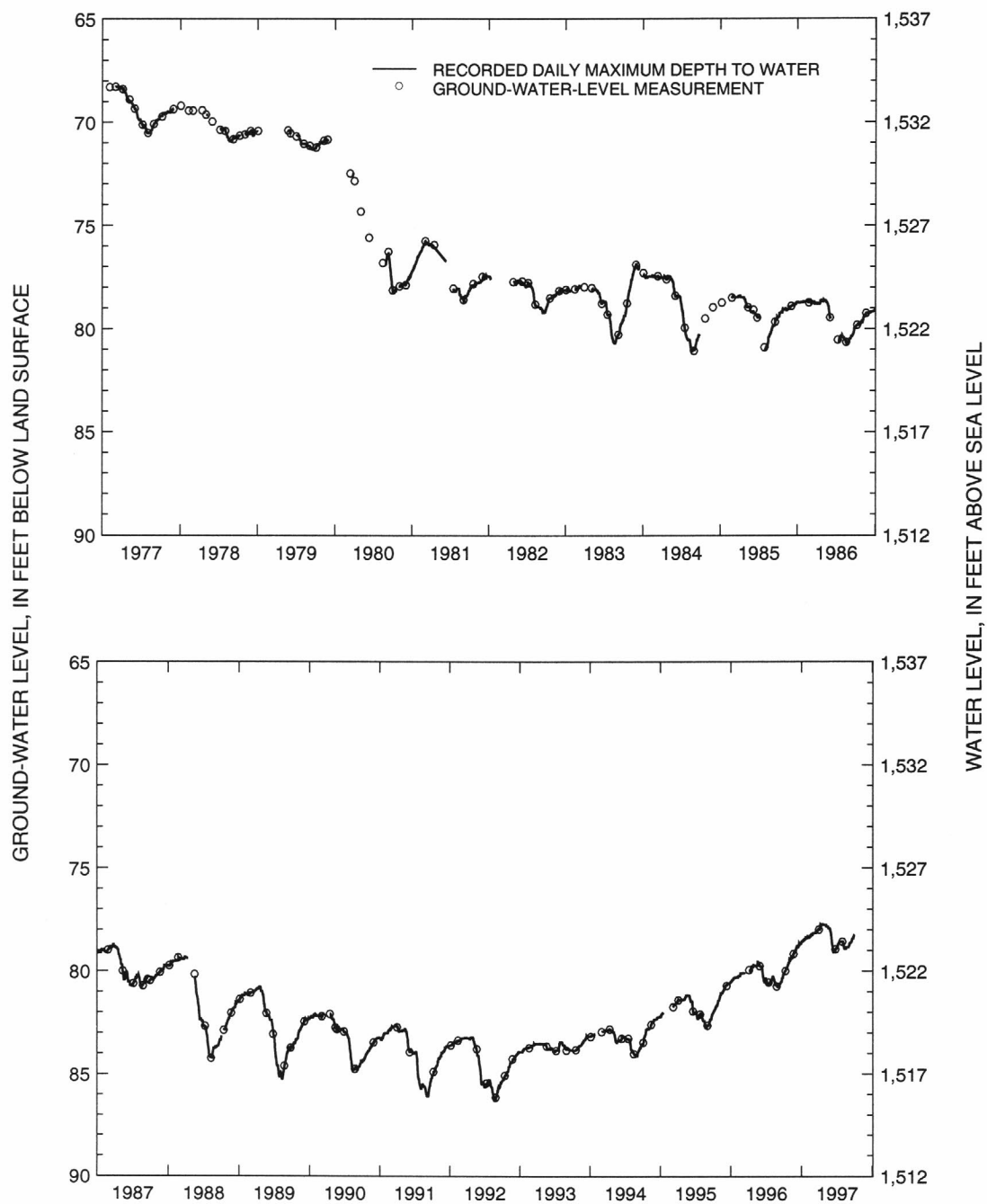
151-072-36AAA1



GROUND-WATER LEVELS

PIERCE COUNTY

151-072-36AAA1--Continued



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

PIERCE COUNTY

482033099594901. Local number, 156-073-12CCC.

LOCATION.--Lat 48°20'33", long 99°59'49", Hydrologic Unit 09010004. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 120 ft, cased with 72.5 ft of 4-in diameter plastic pipe, screen set 72.5 to 77.5 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,550 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

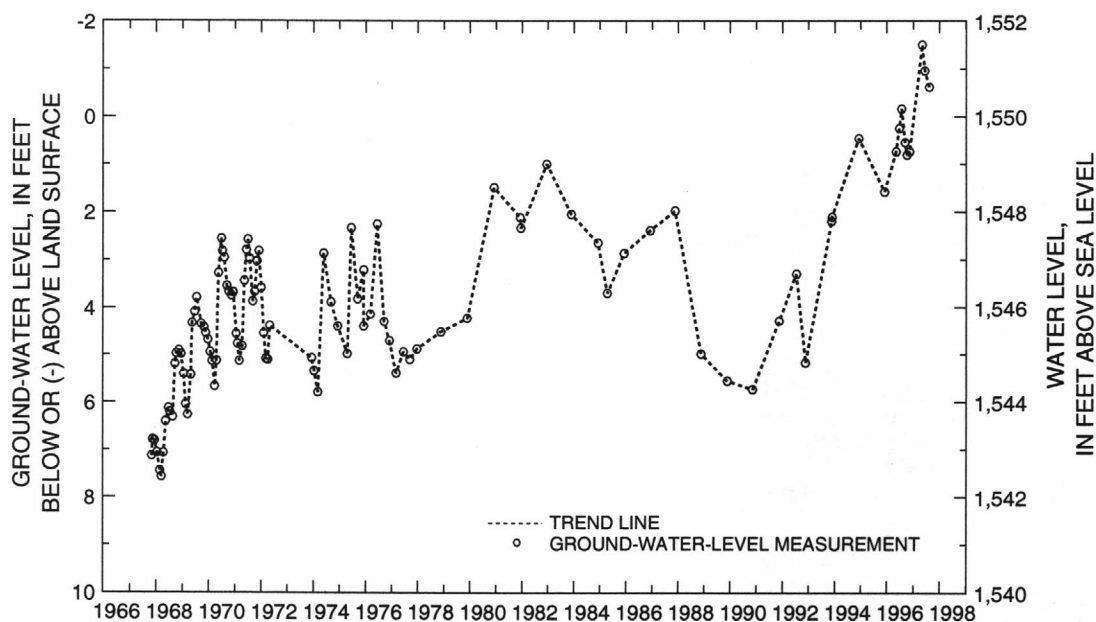
PERIOD OF RECORD.--November 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, -1.51 ft below land-surface datum, May 7, 1997; lowest water level measured, 7.57 ft below land-surface datum, March 12, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 10	0.81	May 7	-1.51	June 11	-0.96	Aug. 14	-0.62
Nov. 13	0.74						

156-073-12CCC



GROUND-WATER LEVELS

PIERCE COUNTY

483054100071901. Local number, 158-073-17BBB.

LOCATION.--Lat 48°30'54", long 100°07'19", Hydrologic Unit 09010004. Owner: North Dakota State Water Commission.

AQUIFER.--Lake Souris.

WELL CHARACTERISTICS.--Drilled observation well, depth 180 ft, cased with 56 ft of 1.25-in diameter plastic pipe, screen set 56 to 59 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,508 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

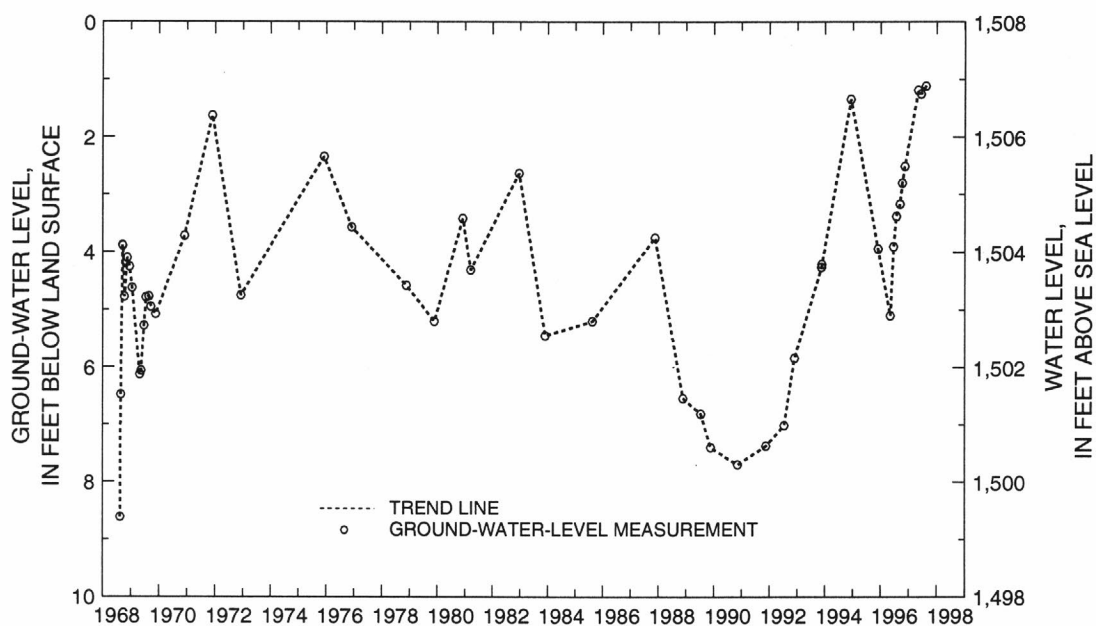
PERIOD OF RECORD.--August 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.11 ft below land-surface datum, August 14, 1997; lowest water level measured, 8.62 ft below land-surface datum, August 12, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 10	2.80	May 7	1.18	June 11	1.25	Aug. 14	1.11
Nov. 13	2.51						

158-073-17BBB



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

RAMSEY COUNTY

480351098552303. Local number, 153-064-19AAB3.

LOCATION.--Lat 48°03'51", long 98°55'23", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 122 ft, cased with 117 ft of 4-in diameter plastic pipe, No. 12 slot screen set 117 to 122 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder September 1973 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for September 1973 to December 1974. From October 1975 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,465 ft. Measuring point: Top of casing 4.00 ft above land-surface datum.

PERIOD OF RECORD.--January 1974 to current year.

REMARKS.--Recorder removed. Well destroyed due to road construction.

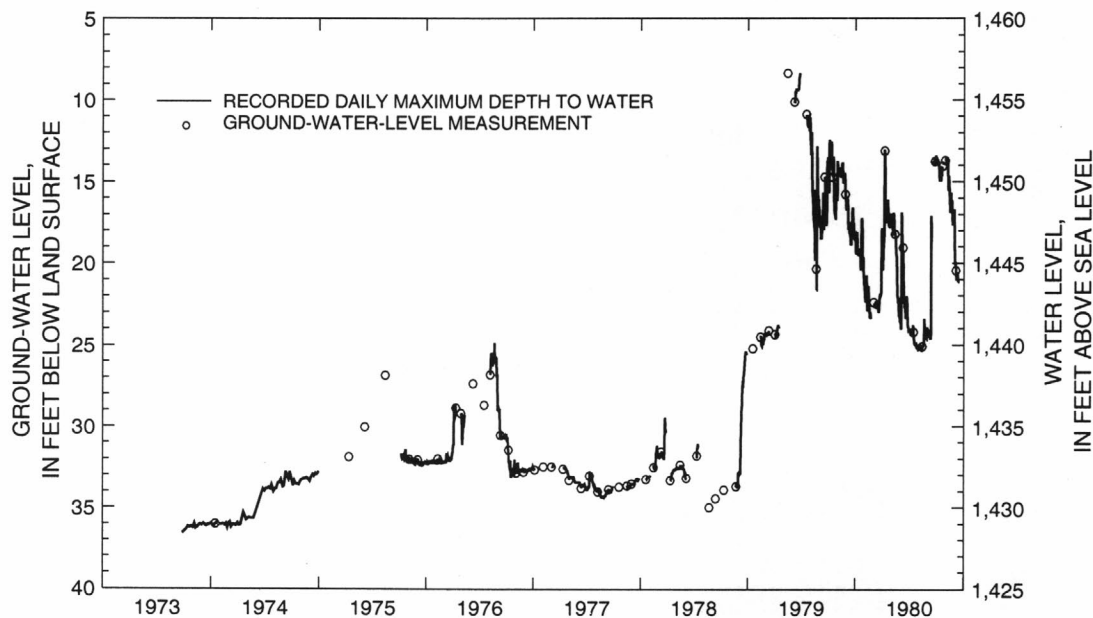
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 6.68 ft below land-surface datum, April 28-29, 1987; lowest daily water level, 36.57 ft below land-surface datum, September 25, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	17.72	17.60	16.90	16.79	17.33	---	17.06	15.29	---	---	---	---
10	18.44	17.21	16.85	16.79	17.37	17.19	17.04	---	---	---	---	---
15	18.63	16.93	17.12	16.80	17.38	17.19	17.04	---	---	---	---	---
20	18.42	16.96	16.93	16.81	17.18	17.23	16.76	---	---	---	---	---
25	18.25	17.15	17.04	16.81	17.18	17.26	16.51	---	---	---	---	---
EOM	18.03	16.87	16.99	17.04	17.19	17.29	15.95	---	---	---	---	---
MAX	18.80	18.01	17.12	17.04	17.39	---	17.30	---	---	---	---	---

WATER YEAR 1997 HIGHEST WATER LEVEL 14.97 May 6 LOWEST WATER LEVEL 18.80 OCTOBER 13-14

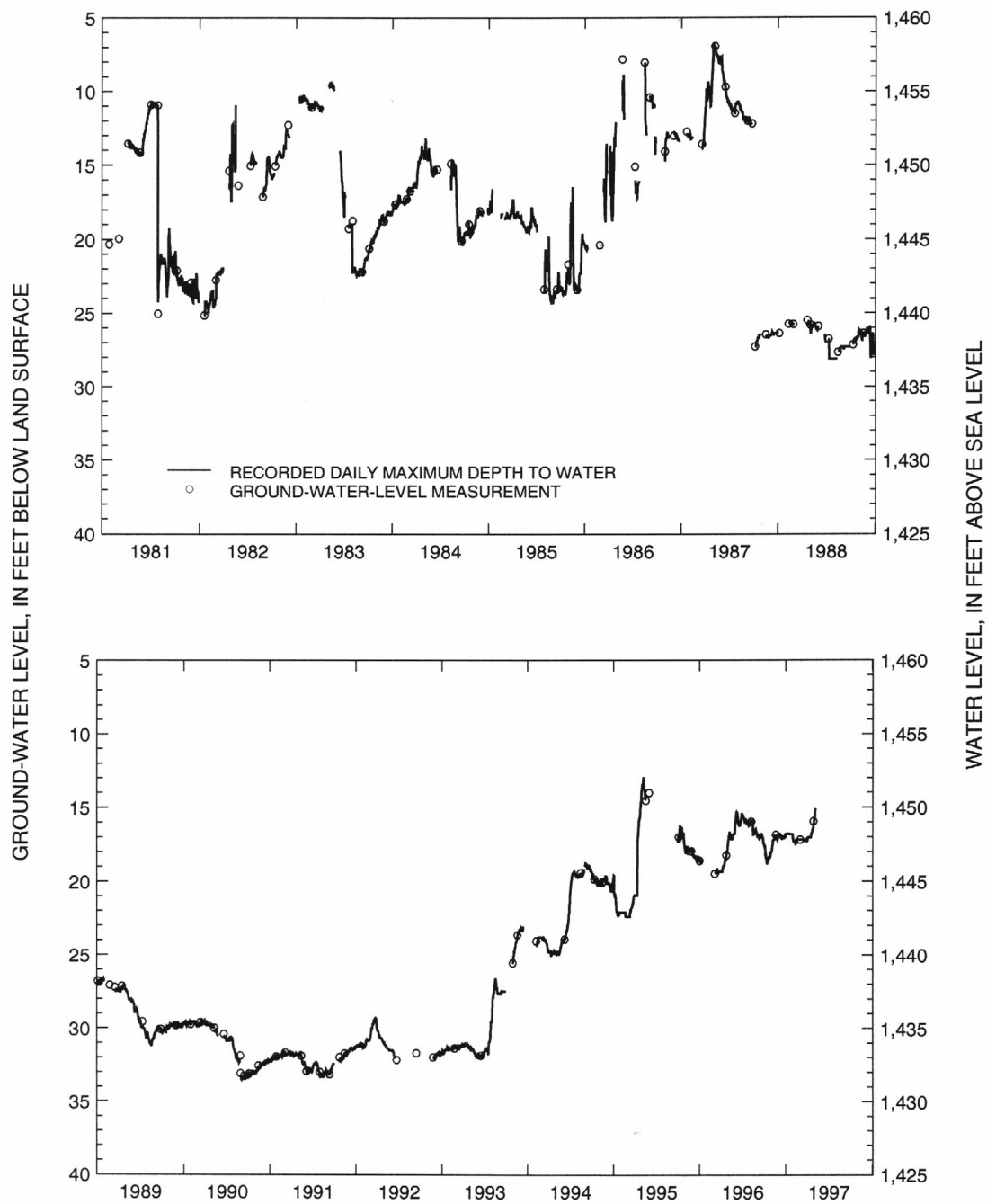
153-064-19AAB3



GROUND-WATER LEVELS

RAMSEY COUNTY

153-064-19AAB3--Continued



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

RAMSEY COUNTY

480449099002402. Local number, 153-065-09DDD2.

LOCATION.--Lat 48°04'49", long 99°00'24", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 140 ft, cased with 117 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 117 to 120 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,458 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

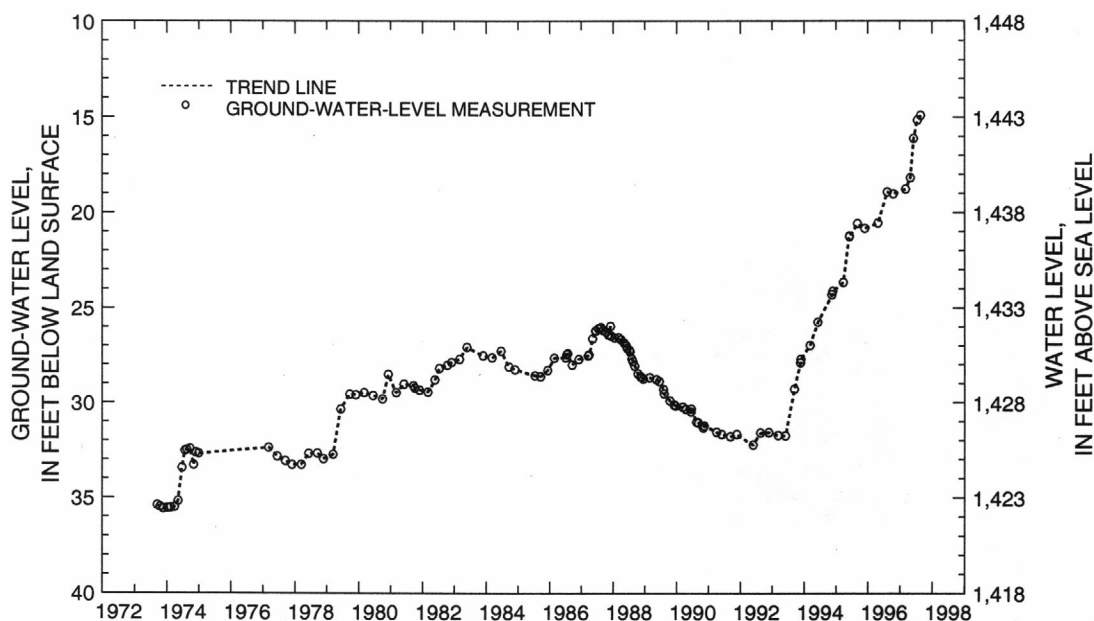
PERIOD OF RECORD.--September 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.90 ft below land-surface datum, August 26, 1997; lowest water level measured, 35.57 ft below land-surface datum, November 20, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	19.02	Apr. 28	18.17	July 16	15.15	Aug. 26	14.90
Mar. 4	18.78	June 5	16.11				

153-065-09DDD2



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

113

GROUND-WATER LEVELS

RAMSEY COUNTY

480817099013201. Local number, 154-065-21CCC.

LOCATION.--Lat 48°08'17", long 99°01'32", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased with 127 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 127 to 133 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,473 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

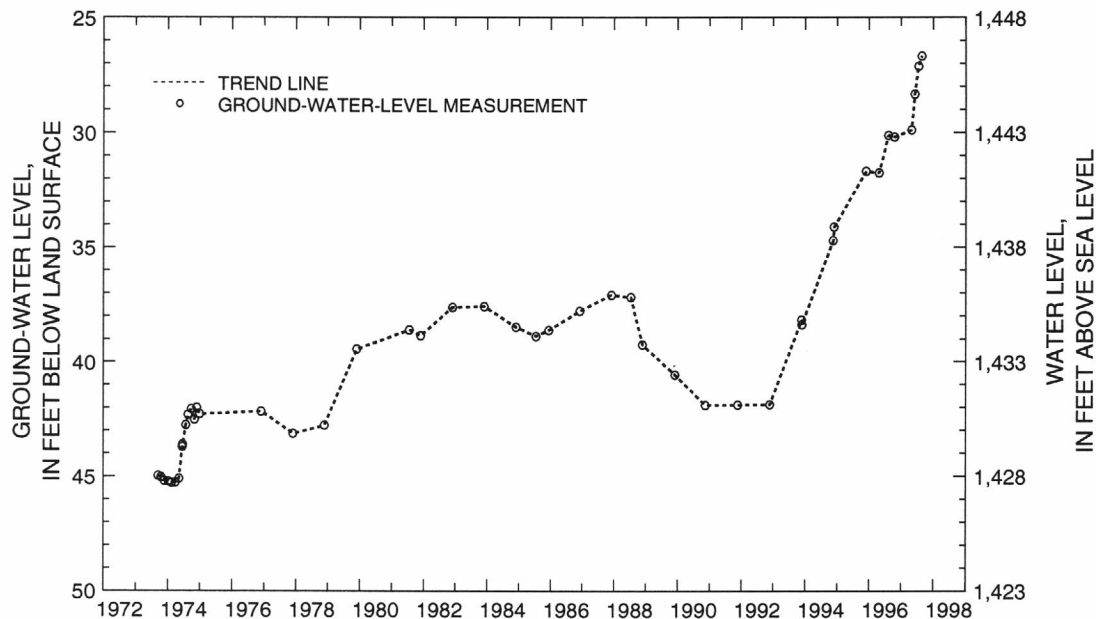
PERIOD OF RECORD.--September 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.68 ft below land-surface datum, August 26, 1997; lowest water level measured, 45.28 ft below land-surface datum, February 14, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 16	30.20	June 5	28.34	July 16	27.12	Aug. 26	26.68
Apr. 28	29.89						

154-065-21CCC



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

RAMSEY COUNTY

481929098392601. Local number, 156-062-20BBB.

LOCATION.--Lat 48°19'29", long 98°39'26", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Pierre Shale.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 60 ft of 4-in diameter plastic pipe, slotted 48 to 58 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,495 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

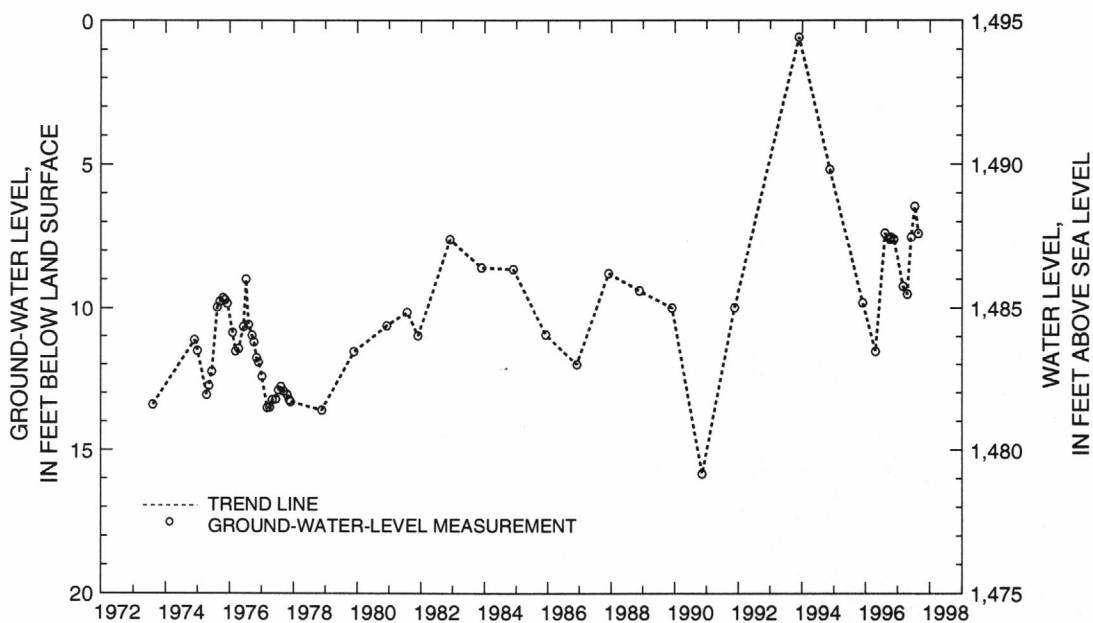
PERIOD OF RECORD.--August 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.56 ft below land-surface datum, November 24, 1993; lowest water level measured, 15.84 ft below land-surface datum, November 14, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 7	7.62	Nov. 19	7.62	Apr. 20	9.52	July 15	6.47
Oct. 16	7.55	Mar. 4	9.25	June 3	7.54	Aug. 26	7.42

156-062-20BBB



GROUND-WATER LEVELS

RANSOM COUNTY

461838097553402. Local number, 133-058-25BBA2.

LOCATION.--Lat 46°18'38", long 97°55'34", Hydrologic Unit 09020105. Owner: North Dakota State Water Commission.

AQUIFER.--Englevale.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 34 ft of 5-in diameter plastic pipe, No. 15 slot screen set 34 to 38 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From June 1982 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,320 ft. Measuring point: Top of casing 1.50 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 1.87 ft below land-surface datum, April 15, 1997; lowest daily water level, 12.73 ft below land-surface datum, August 28-29, 1985.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

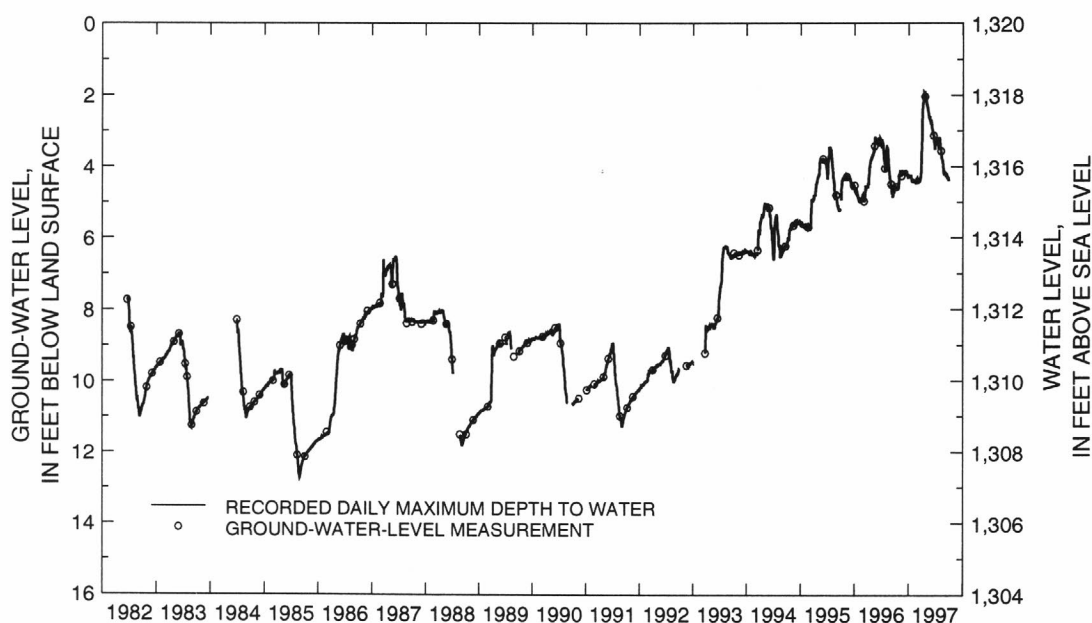
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.55	4.18	4.15	4.26	4.43	4.41	2.55	2.28	2.78	3.33	3.50	4.18
10	4.60	4.17	4.13	4.26	4.40	4.37	2.23	2.35	2.95	3.37	3.64	4.26
15	4.61	4.19	4.17	4.26	4.39	4.41	1.94	2.48	3.03	3.24	3.77	4.22
20	4.59	4.19	4.15	4.34	4.40	4.39	1.91	2.63	3.13	3.30	3.86	4.31
25	4.61	4.21	4.24	4.39	4.46	4.24	2.05	2.63	3.34	3.49	4.12	4.33
EOM	4.24	4.14	4.32	4.35	4.35	3.58	2.13	2.77	3.29	3.24	4.24	4.40
MAX	4.63	4.24	4.32	4.42	4.46	4.42	3.48	2.77	3.49	3.49	4.24	4.40

WATER YEAR 1997

HIGHEST WATER LEVEL 1.87 APRIL 15

LOWEST WATER LEVEL 4.63 OCTOBER 16

133-058-25BBA2



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

RANSOM COUNTY

462400097552502. Local number, 134-058-24CDC2.

LOCATION.--Lat 46°24'00", long 97°55'25", Hydrologic Unit 09020105. Owner: North Dakota State Water Commission.

AQUIFER.--Englevale.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 54.5 ft of 4-in diameter plastic pipe, No. 20 slot screen set 54.5 to 59.5 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder April 1968 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for April 1968 to July 1968. From July 1968 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,344 ft. Measuring point: Top of casing 1.10 ft above land-surface datum.

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

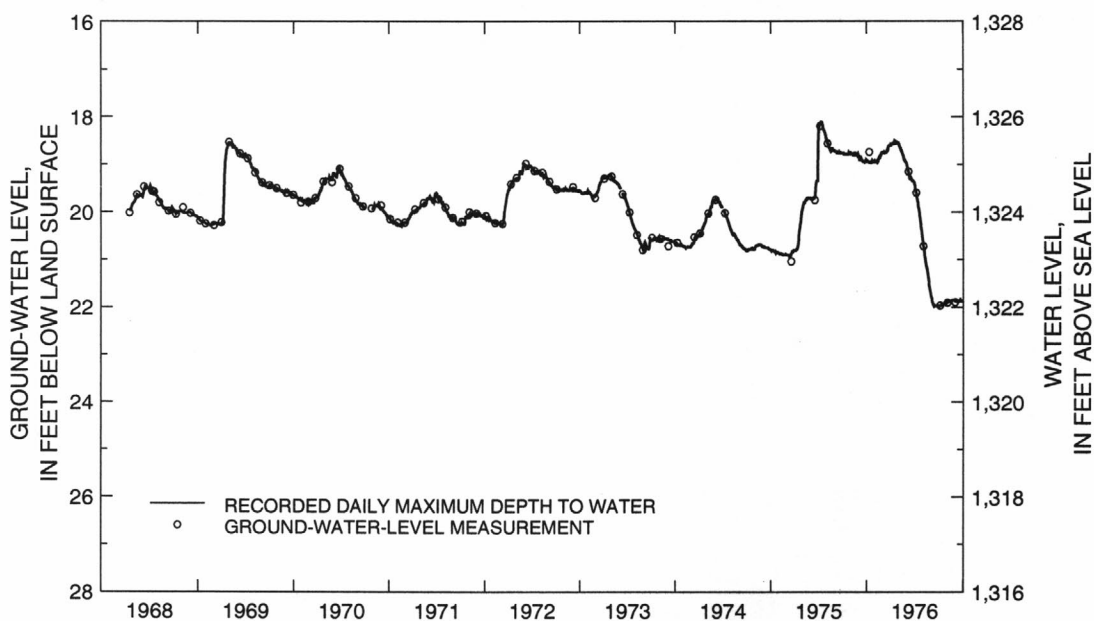
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 18.12 ft below land-surface datum, July 9-11 and 13-16, 1975; lowest daily water level, 27.08 ft below land-surface datum, September 11-13, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.70	21.26	20.99	20.88	20.84	20.75	19.18	18.65	18.77	---	---	19.79
10	21.67	21.18	20.94	20.86	20.79	20.70	19.23	18.65	18.82	---	19.61	19.72
15	21.60	21.16	20.94	20.87	20.78	20.71	19.02	18.69	18.77	---	19.69	19.63
20	21.55	21.13	20.90	20.83	20.75	20.66	18.82	18.73	---	---	19.86	19.67
25	21.51	21.10	20.94	20.87	20.73	20.61	18.74	18.78	---	---	20.07	19.59
EOM	21.35	21.01	20.92	20.79	20.69	20.13	18.64	18.79	---	---	20.00	19.64
MAX	21.74	21.33	21.01	20.89	20.84	20.75	19.96	18.81	---	---	---	19.98

WATER YEAR 1997 HIGHEST WATER LEVEL 18.59 JUNE 13 LOWEST WATER LEVEL 21.74 OCTOBER 1-3

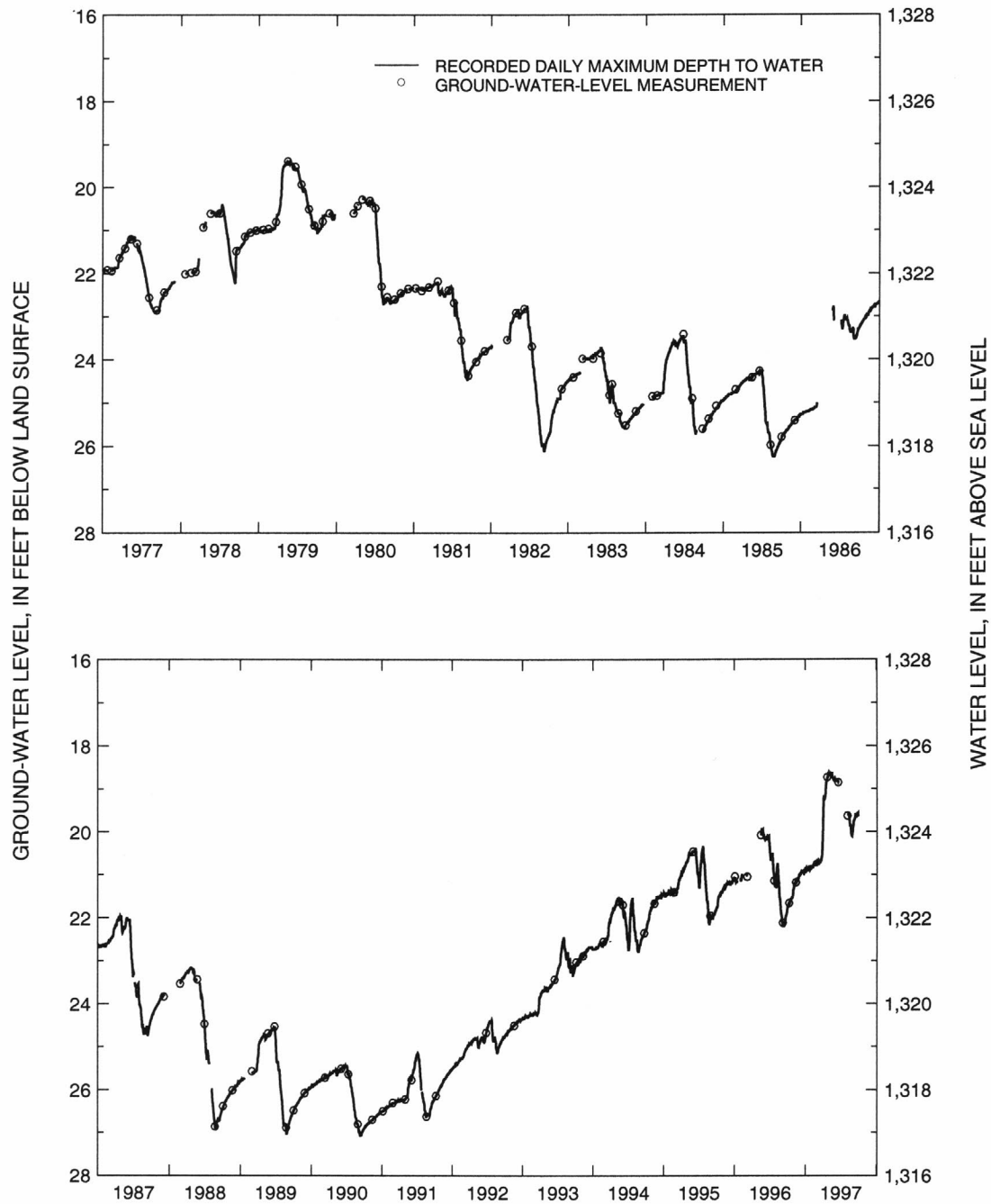
134-058-24CDC2



GROUND-WATER LEVELS

RANSOM COUNTY

134-058-24CDC2--Continued



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

RENVILLE COUNTY

484500101294901. Local number, 161-084-24DDD.

LOCATION.--Lat 48°45'00", long 101°29'49", Hydrologic Unit 09010005. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 662 ft, cased with 470 ft of 2-in diameter steel pipe, No. 12 slot screen set 470 to 488 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,619 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

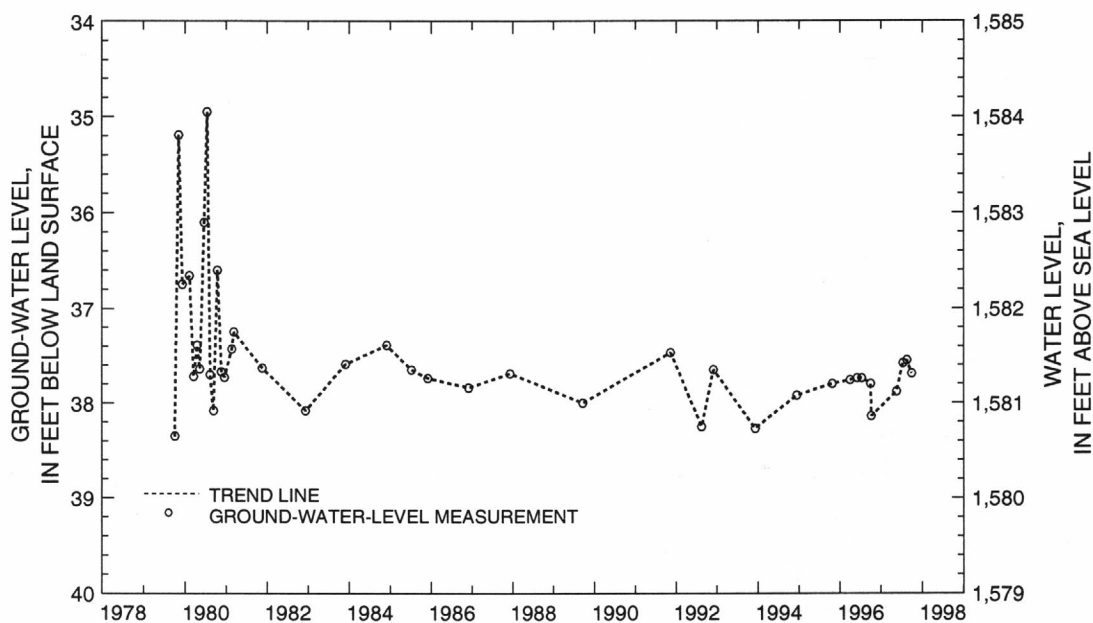
PERIOD OF RECORD.--October 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.95 ft below land-surface datum, July 17, 1980; lowest water level measured, 38.35 ft below land-surface datum, October 3, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 1	37.80	May 20	37.88	Aug. 19	37.55	Sept. 30	37.69
Oct. 9	38.14	July 15	37.58				

161-084-24DDD



GROUND-WATER LEVELS

RICHLAND COUNTY

460358096581401. Local number, 130-050-17DDD.

LOCATION.--Lat 46°03'58", long 96°58'14", Hydrologic Unit 09020105. Owner: North Dakota State Water Commission.

AQUIFER.--Milnor Channel.

WELL CHARACTERISTICS.--Drilled observation well, depth 57.6 ft, cased with 57.6 ft of 1.25-in diameter plastic pipe, slotted 47 to 57.6 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,080 ft. Measuring point: Top of casing 1.90 ft above land-surface datum.

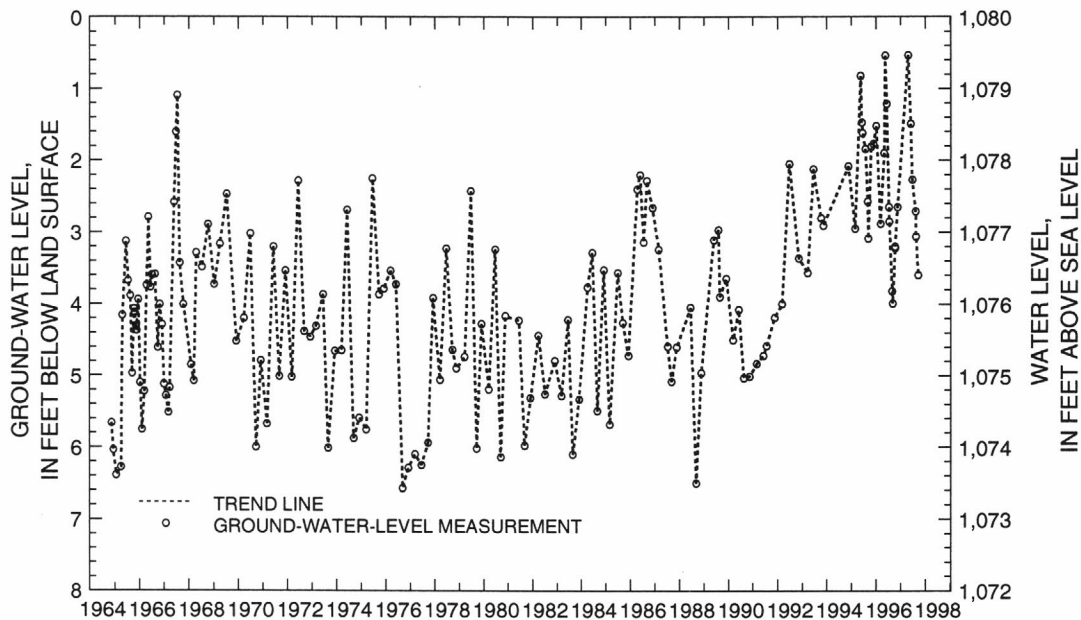
PERIOD OF RECORD.--November 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.53 ft below land-surface datum, April 20, 1997; lowest water level measured, 6.57 ft below land-surface datum, September 9, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 7	3.22	Apr. 20	0.53	June 19	2.27	Aug. 13	3.06
Oct. 8	3.20	May 28	1.49	Aug. 7	2.71	Sept. 17	3.60
Nov. 14	2.65						

130-050-17DDD



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

RICHLAND COUNTY

462425096441202. Local number, 134-048-20ADD2.

LOCATION.--Lat 46°24'25", long 96°44'12", Hydrologic Unit 09020105. Owner: North Dakota State Water Commission.

AQUIFER.--Colfax.

WELL CHARACTERISTICS.--Drilled observation well, depth 260 ft, cased with 130 ft of 5-in diameter steel pipe, No. 15 slot screen set 130 to 135 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From June 1980 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 941.5 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

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

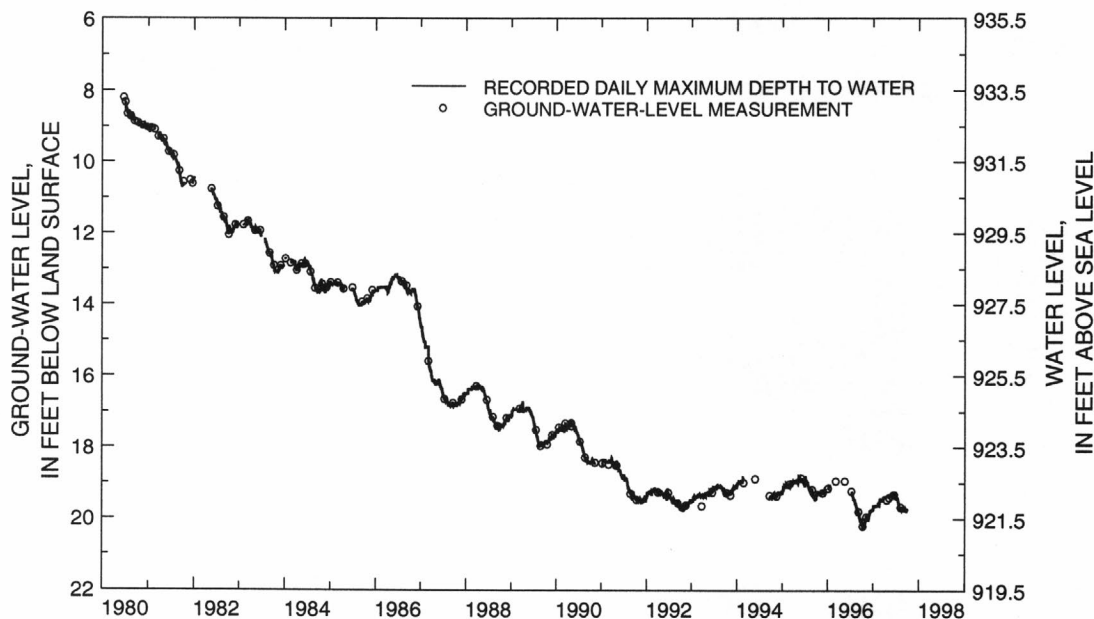
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 8.20 ft below land-surface datum, June 18, 1980; lowest daily water level, 20.24 ft below land-surface datum, October 9-10, 1996.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	20.14	19.99	19.83	19.64	19.63	19.44	19.38	---	19.27	19.39	19.74	19.72
10	20.24	19.97	19.77	19.64	19.56	19.48	19.38	19.39	19.34	19.43	19.71	19.75
15	20.21	19.97	19.78	19.63	19.59	19.47	19.38	19.38	19.31	19.42	19.65	19.72
20	20.14	19.97	19.74	19.63	19.56	19.46	---	19.38	19.27	19.50	19.72	19.79
25	20.14	19.95	19.74	19.63	19.44	19.41	---	19.29	19.38	19.55	19.73	19.76
EOM	20.00	19.86	19.72	19.63	19.44	19.39	---	19.31	19.33	19.67	19.73	19.76
MAX	20.24	20.03	19.85	19.69	19.63	19.48	---	---	19.42	19.68	19.75	19.80

WATER YEAR 1997 HIGHEST WATER LEVEL 19.25 MAY 23-24, JUNE 2-3, 15, 19-20, and 28
LOWEST WATER LEVEL 20.24 OCTOBER 9-10

134-048-20ADD2



GROUND-WATER LEVELS

RICHLAND COUNTY

462633097163402. Local number, 134-052-06CCD2.

LOCATION.--Lat 46°26'33", long 97°16'34", Hydrologic Unit 09020204. Owner: North Dakota State Water Commission.

AQUIFER.--Sheyenne Delta.

WELL CHARACTERISTICS.--Drilled observation well, depth 283 ft, cased with 40 ft of 4-in diameter plastic pipe, slotted 30 to 40 ft below land-surface datum.

INSTRUMENTATION.--Water-level data September 1963 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for May 1965 to September 1966. From September 1966 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,067.03 ft. Measuring point: Top of casing 0.65 ft above land-surface datum.

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

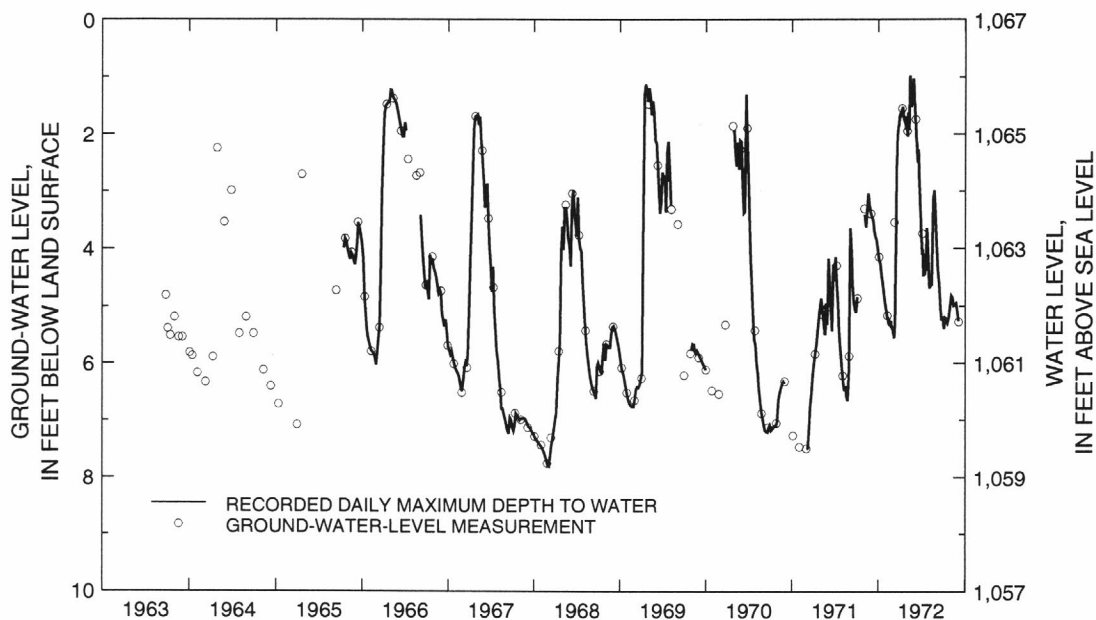
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 0.78 ft below land-surface datum, May 13, 1972; lowest daily water level, 9.07 ft below land-surface datum, February 22, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.10	5.21	5.26	5.30	---	---	---	2.30	3.05	3.39	4.78	5.94
10	6.25	5.18	5.26	5.30	---	---	---	2.38	3.64	3.48	4.95	6.22
15	6.35	5.39	5.25	5.30	---	---	---	2.55	4.00	3.19	5.23	5.84
20	6.22	5.40	5.30	5.30	---	---	---	2.75	3.56	3.48	5.38	5.84
25	6.31	5.36	5.30	5.30	---	---	1.98	2.53	4.01	4.05	5.74	5.84
EOM	5.25	5.28	5.30	---	---	---	2.07	2.97	3.89	4.69	5.79	5.83
MAX	6.39	5.42	5.32	---	---	---	---	2.97	4.36	4.69	5.92	6.26

WATER YEAR 1997 HIGHEST WATER LEVEL 1.80 APRIL 21 LOWEST WATER LEVEL 6.39 OCTOBER 16

134-052-06CCD2

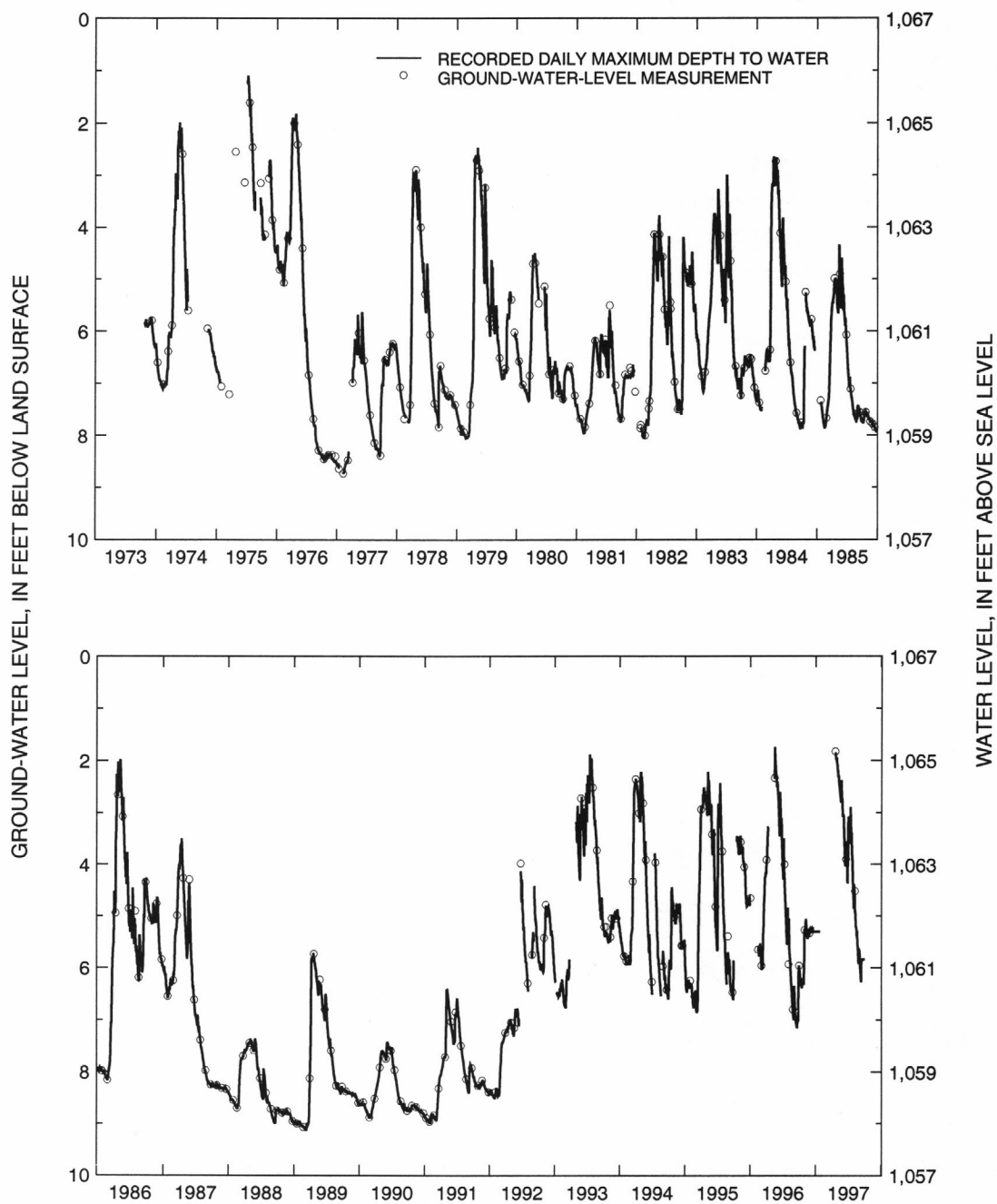


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

RICHLAND COUNTY

134-052-06CCD2--Continued



GROUND-WATER LEVELS

RICHLAND COUNTY

463422097115602. Local number, 136-052-22DDD2.

LOCATION.--Lat 46°34'22", long 97°11'56", Hydrologic Unit 09020204. Owner: North Dakota State Water Commission.

AQUIFER.--Sheyenne Delta.

WELL CHARACTERISTICS.--Drilled observation well, depth 26.9 ft, cased with 26.4 ft of 4-in diameter plastic pipe, slotted 17 to 26.4 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder October 1963 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for July 1965 to September 1966. From September 1966 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,050 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 0.21 ft below land-surface datum, July 9, 1975; lowest daily water level, 9.35 ft below land-surface datum, March 1-10, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

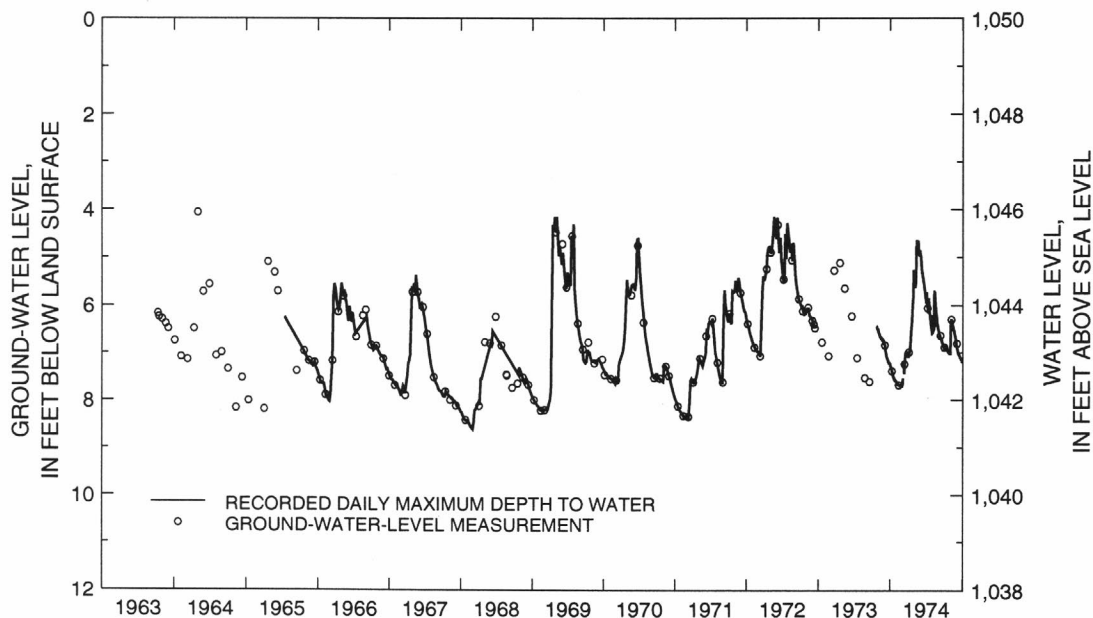
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.97	5.82	6.06	6.43	---	---	2.08	1.91	2.71	4.10	5.35	5.58
10	6.16	5.76	6.06	6.47	---	---	2.26	1.91	3.15	3.86	5.45	6.05
15	6.28	6.10	6.07	6.52	---	---	1.68	2.17	3.39	3.71	5.63	5.54
20	6.31	6.08	6.14	6.57	---	---	1.77	2.46	3.64	4.32	5.77	5.90
25	6.42	6.06	6.30	---	---	5.93	1.61	1.82	4.11	4.71	5.97	6.11
EOM	5.79	6.03	6.43	---	---	3.58	1.59	2.41	4.30	5.12	6.07	6.16
MAX	6.42	6.10	6.43	---	---	---	3.01	2.62	4.30	5.12	6.08	6.16

WATER YEAR 1997

HIGHEST WATER LEVEL 0.91 MAY 23

LOWEST WATER LEVEL 6.68 MARCH 20

136-052-22DDD2

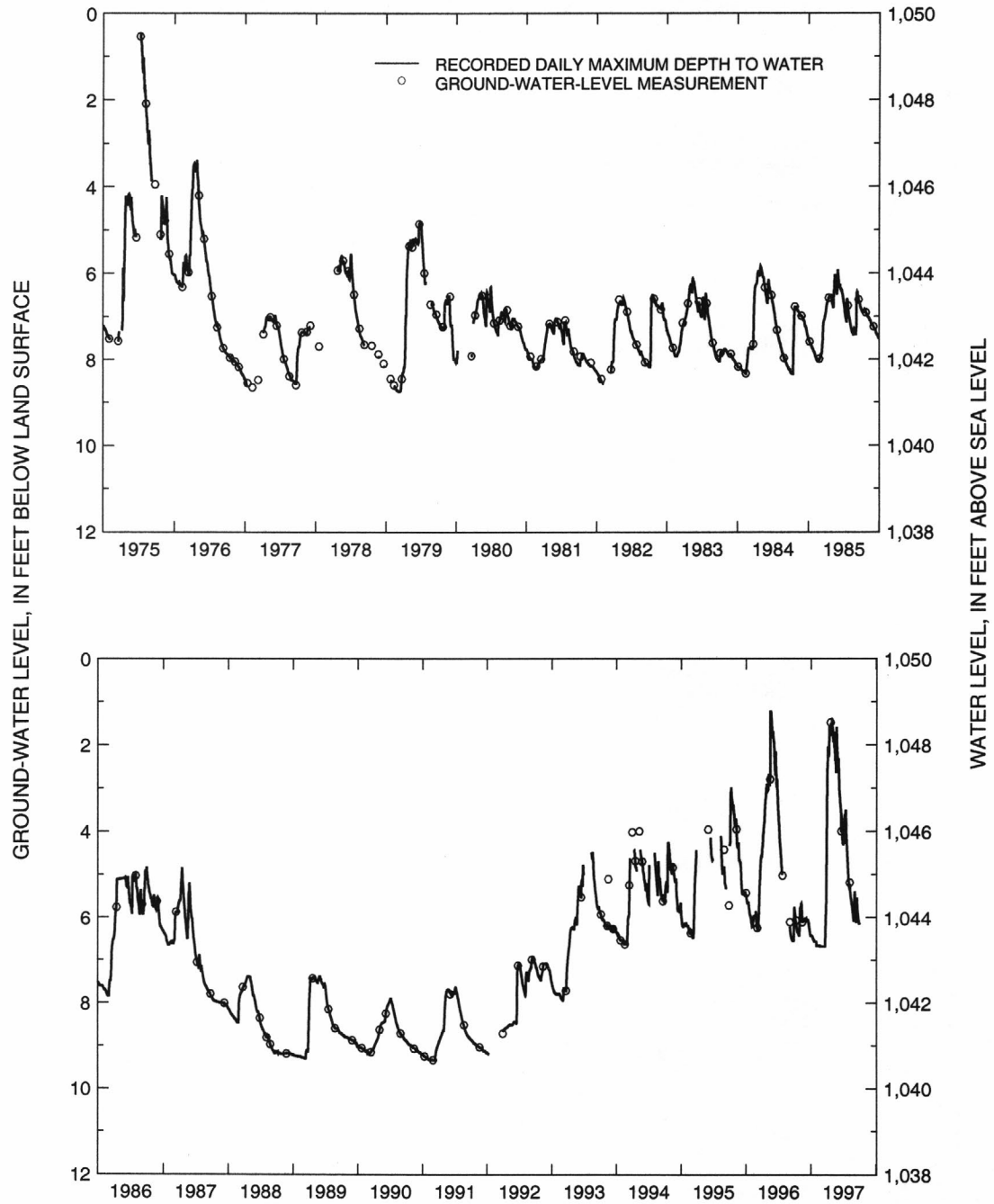


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

RICHLAND COUNTY

136-052-22DDD2--Continued



GROUND-WATER LEVELS

ROLETTE COUNTY

484731099504104. Local number, 161-071-03CDD4.

LOCATION.--Lat 48°47'31", long 99°50'41", Hydrologic Unit 09010004. Owner: Public Health Service.

AQUIFER.--Shell Valley.

WELL CHARACTERISTICS.--Drilled observation well, depth 42 ft, cased with 28.3 ft of 8-in diameter steel pipe, No. 40 slot screen set 28.3 to 38.3 ft below land-surface datum.

INSTRUMENTATION.--Intermittent water levels November 1974 to August 1979. Water-level recorder August 1979 to current year. Daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,752 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

PERIOD OF RECORD.--November 1974 to current year.

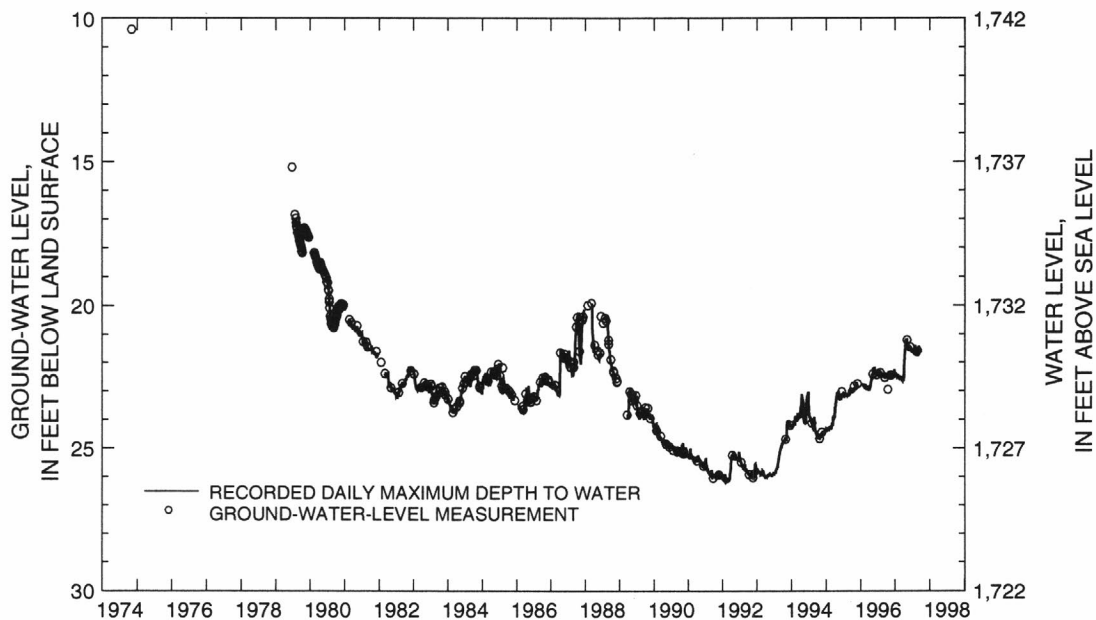
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 10.37 ft below land-surface datum, November 4, 1974; lowest daily water level, 26.19 ft below land-surface datum, February 24, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	22.41	22.39	22.42	22.44	22.51	22.58	22.27	21.27	21.45	21.63	21.60	21.51
10	22.42	22.47	22.46	22.45	22.50	22.58	21.83	21.29	21.47	21.64	21.66	21.45
15	22.40	22.45	22.42	22.44	22.54	22.59	21.69	21.38	21.51	21.60	21.68	21.59
20	22.38	22.48	22.42	22.44	22.54	22.58	21.37	21.43	21.58	21.59	21.70	21.61
25	22.36	22.50	22.34	22.49	22.49	22.59	21.22	21.42	21.61	21.50	21.71	21.57
EOM	22.38	22.44	22.40	22.44	22.52	22.55	21.21	21.42	21.58	21.52	21.73	21.64
MAX	22.48	22.51	22.49	22.51	22.57	22.62	22.56	21.45	21.61	21.65	21.77	21.67

WATER YEAR 1997 HIGHEST WATER LEVEL 21.17 APRIL 28 LOWEST WATER LEVEL 22.62 MARCH 17-18

161-071-03CDD4



GROUND-WATER LEVELS

ROLETTE COUNTY

484310099572401. Local number, 161-072-35CDC.

LOCATION.--Lat 48°43'10", long 99°57'24", Hydrologic Unit 09010004. Owner: North Dakota State Water Commission.

AQUIFER.--Shell Valley.

WELL CHARACTERISTICS.--Drilled observation well, depth 77 ft, cased with 70 ft of 5-in diameter plastic pipe, No. 15 slot screen set 70 to 75 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From November 1982 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,630 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 23.33 ft below land-surface datum, May 21, 1983; lowest daily water level, 41.62 ft below land-surface datum, July 12, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

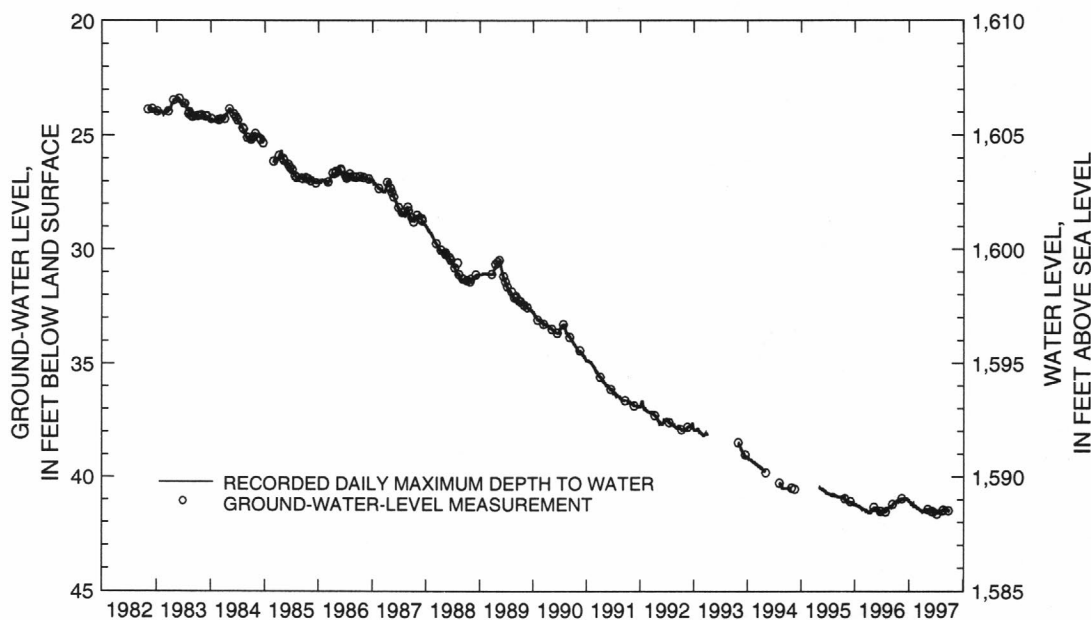
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	41.11	40.99	40.95	41.10	41.25	41.39	41.51	41.45	41.54	41.58	41.51	41.41
10	41.08	41.00	40.95	41.13	41.28	41.43	41.52	41.45	41.55	41.60	41.51	41.43
15	41.05	40.98	40.97	41.19	41.32	41.44	41.54	41.46	41.55	41.59	41.49	41.44
20	41.03	40.96	40.99	41.18	41.34	41.47	41.50	41.47	41.56	41.59	41.47	41.46
25	41.01	40.96	41.00	41.21	41.35	41.50	41.46	41.52	41.57	41.57	41.41	41.49
EOM	41.00	40.95	41.06	41.26	41.36	41.52	41.42	41.52	41.58	41.52	41.38	41.54
MAX	41.12	41.00	41.06	41.26	41.36	41.52	41.55	41.53	41.58	41.62	41.51	41.54

WATER YEAR 1997

HIGHEST WATER LEVEL 40.93 DECEMBER 11

LOWEST WATER LEVEL 41.62 JULY 12

161-072-35CDC



GROUND-WATER LEVELS

ROLETTE COUNTY

485707100053701. Local number, 163-073-11CCC1.

LOCATION.--Lat 48°57'07", long 100°05'37", Hydrologic Unit 09010004. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 715 ft, cased with 406 ft of 2-in diameter steel pipe, No. 12 slot screen set 406 to 412 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,123 ft. Measuring point: Top of casing 3.30 ft above land-surface datum.

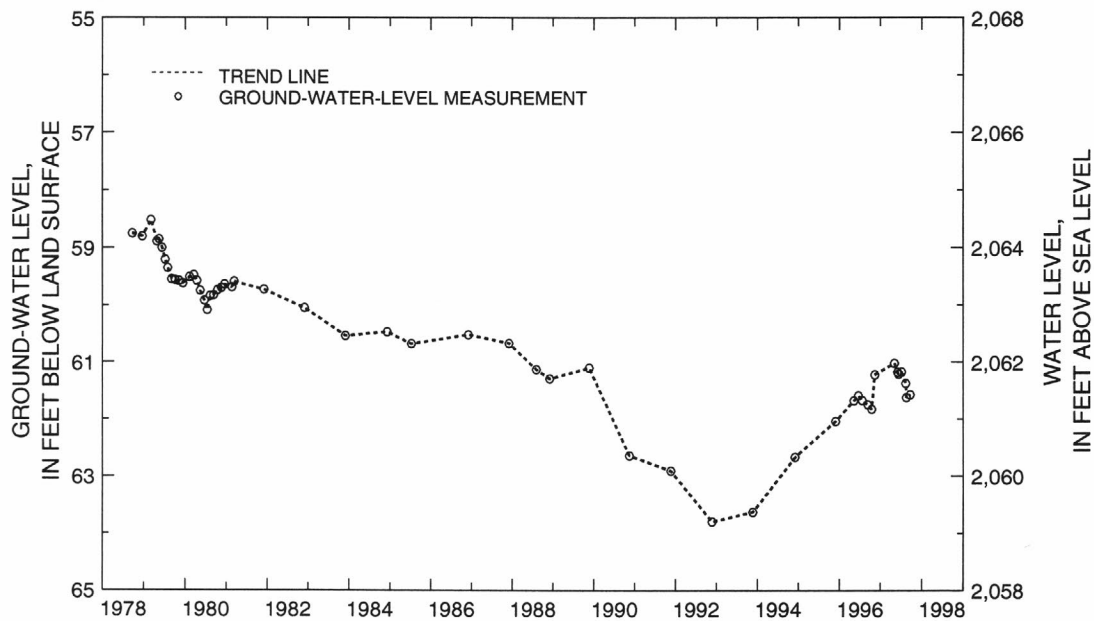
PERIOD OF RECORD.--September 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 58.52 ft below land-surface datum, March 6, 1979; lowest water level measured, 63.80 ft below land-surface datum, November 23, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 16	61.83	June 3	61.18	July 8	61.17	Aug. 20	61.62
Nov. 13	61.22	June 11	61.21	Aug. 15	61.37	Sept. 24	61.57
May 7	61.02						

163-073-11CCC1



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

ROLETTE COUNTY

485707100053702. Local number, 163-073-11CCC2.

LOCATION.--Lat 48°57'07", long 100°05'37", Hydrologic Unit 09010004. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 295 ft, cased with 269 ft of 2-in diameter steel pipe, No. 12 slot screen set 269 to 275 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,123 ft. Measuring point: Top of casing 3.30 ft above land-surface datum.

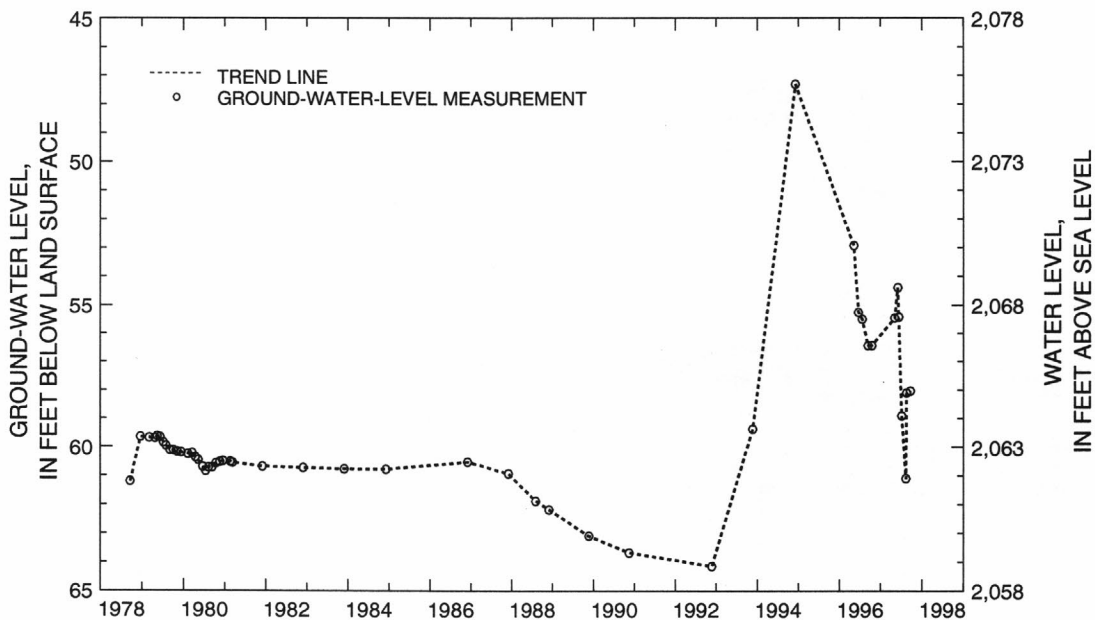
PERIOD OF RECORD.--September 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.30 ft below land-surface datum, December 6, 1994; lowest water level measured, 64.15 ft below land-surface datum, November 23, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 16	56.43	June 3	54.40	July 8	58.90	Aug. 20	58.09
May 7	55.46	June 11	55.42	Aug. 15	61.10	Sept. 24	58.02

163-073-11CCC2



GROUND-WATER LEVELS

SARGENT COUNTY

460120097591803. Local number, 129-058-06AAA3.

LOCATION.--Lat 46°01'20", long 97°59'18", Hydrologic Unit 10160003. Owner: North Dakota State Water Commission.

AQUIFER.--Oakes.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 52 ft of 6-in diameter plastic pipe, 4 in No. 25 slot screen set 52 to 57 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From November 1993 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,313 ft. Measuring point: Top of casing 1.0 ft above land-surface datum.

PERIOD OF RECORD.--November 1993 to current year.

REMARKS.--This well replaces NDSWC 9619A drilled on July 1, 1976, which collapsed in September 1993. The new well was drilled on October 3, 1993, by the North Dakota State Water Commission and instrumented on November 3, 1993.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 2.15 ft below land-surface datum, Apr. 18, 1997; lowest daily water level, 14.58 ft below land-surface datum, August 23, 1995.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

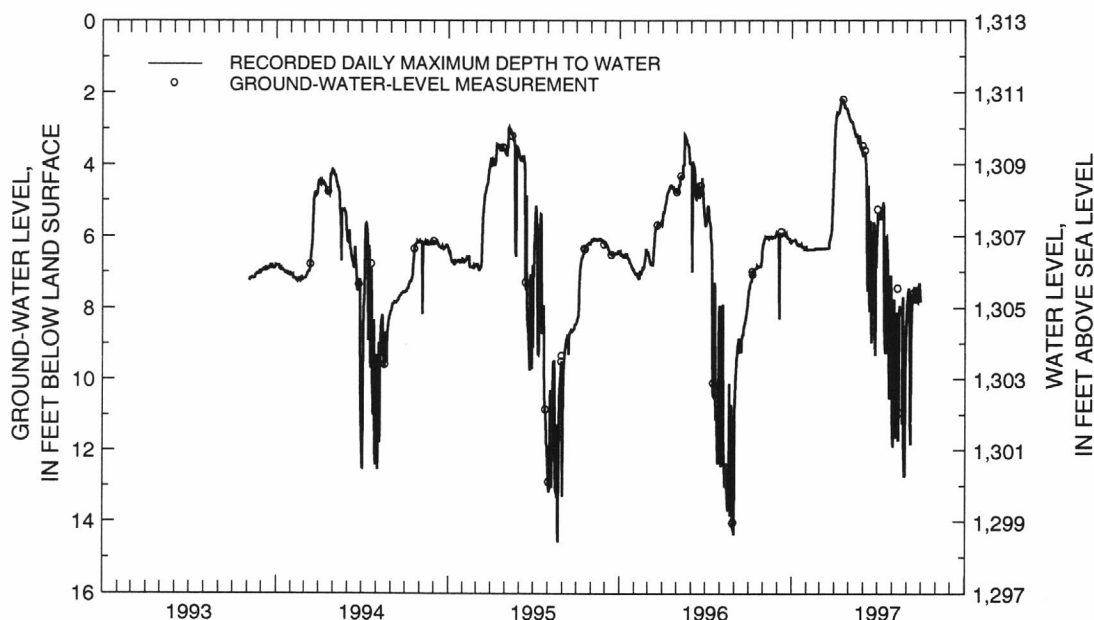
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.28	6.06	8.30	6.12	6.37	6.35	2.65	2.80	3.77	5.42	7.75	7.45
10	7.02	6.01	5.94	6.16	6.37	6.35	2.55	2.89	7.52	5.53	8.23	9.03
15	6.92	6.01	5.95	6.26	6.37	6.34	2.24	3.14	5.98	8.41	8.29	7.58
20	6.86	6.02	5.93	6.26	6.35	6.33	2.26	3.27	6.00	6.02	---	7.62
25	6.84	6.01	6.06	6.30	6.35	5.95	2.43	3.34	8.84	10.25	11.80	7.52
EOM	6.28	5.94	6.17	6.30	6.35	4.16	2.58	3.74	5.99	10.91	8.55	7.83
MAX	7.51	6.21	8.30	6.35	6.38	6.35	3.63	3.74	9.33	10.91	---	11.83

WATER YEAR 1997

HIGHEST WATER LEVEL 2.15 APRIL 18

LOWEST WATER LEVEL 12.74 AUGUST 27

129-058-06AAA3



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

SARGENT COUNTY

461003097191501. Local number, 131-053-10CCC.

LOCATION.--Lat 46°10'03", long 97°19'15", Hydrologic Unit 09020105. Owner: North Dakota State Water Commission.

AQUIFER.--Milnor Channel.

WELL CHARACTERISTICS.--Drilled observation well, depth 140 ft, cased with 50 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 50 to 56 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,092 ft. Measuring point: Top of casing 2.20 ft above land-surface datum.

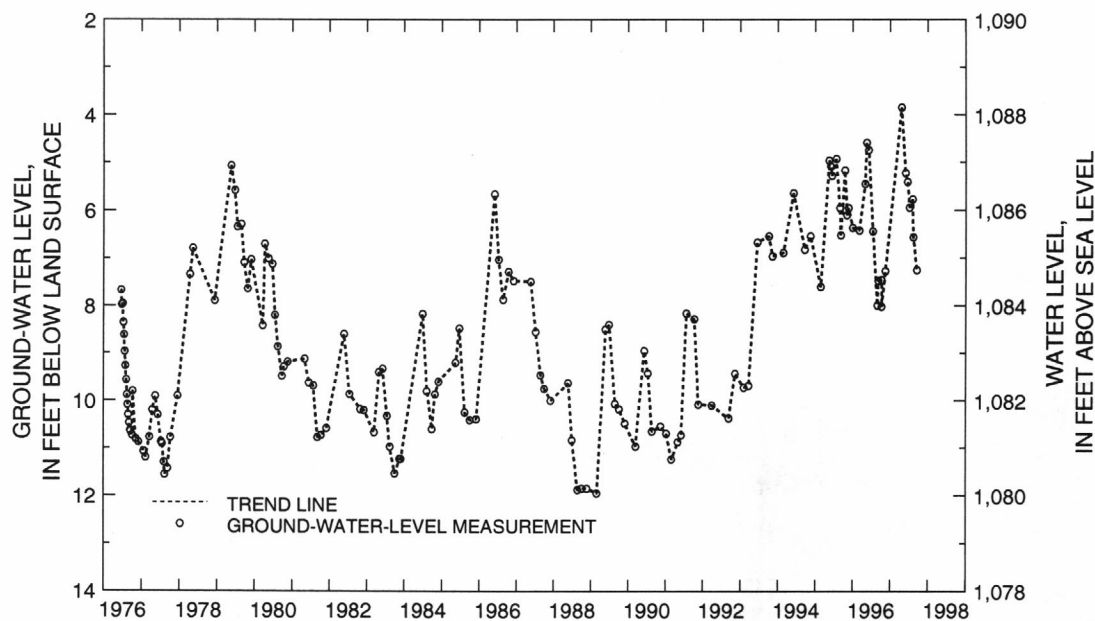
PERIOD OF RECORD.--June 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.85 ft below land-surface datum, April 23, 1997; lowest water level measured, 11.95 ft below land-surface datum, March 1, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 8	7.46	Apr. 23	3.85	July 8	5.94	Aug. 12	6.56
Oct. 9	8.02	May 29	5.22	Aug. 7	5.77	Sept. 17	7.25
Nov. 14	7.27	June 19	5.41				

131-053-10CCC



GROUND-WATER LEVELS

SHERIDAN COUNTY

472638100065901. Local number, 146-074-21CCC.

LOCATION.--Lat 47°26'38", long 100°06'59", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--Lower Hell Creek-Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 642 ft, cased with 399 ft of 2-in diameter steel pipe, No. 12 slot screen set 399 to 405 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,980 ft. Measuring point: Top of casing 3.10 ft above land-surface datum.

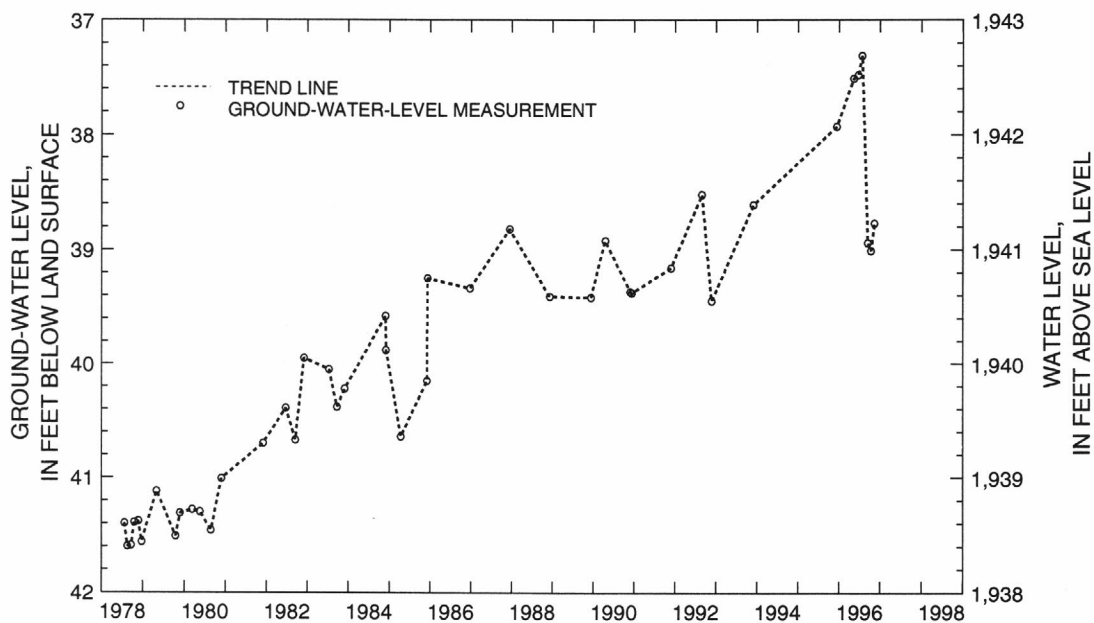
PERIOD OF RECORD.--July 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.31 ft below land-surface datum, July 24, 1996; lowest water level measured, 41.60 ft below land-surface datum, August 14, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 11	39.01	Nov. 12	38.77

146-074-21CCC



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

SHERIDAN COUNTY

474817100063801. Local number, 150-074-14CCC.

LOCATION.--Lat 47°48'17", long 100°06'38", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--Martin.

WELL CHARACTERISTICS.--Drilled observation well, depth 235 ft, cased with 130 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 130 to 133 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,630 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

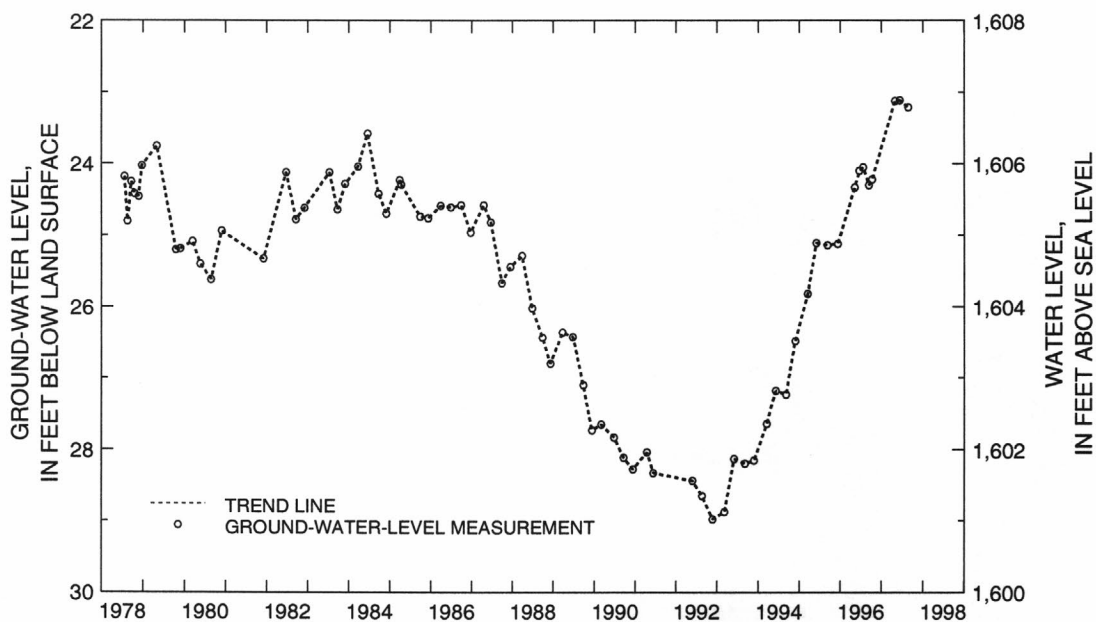
PERIOD OF RECORD.--July 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.11 ft below land-surface datum, June 11, 1997; lowest water level measured, 29.06 ft below land-surface datum, August 19, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 11	24.22	May 1	23.12	June 11	23.11	Aug. 25	23.21

150-074-14CCC



GROUND-WATER LEVELS

SIOUX COUNTY

460244101272701. Local number, 130-086-28CCC1.

LOCATION.--Lat 46°02'44", long 101°27'27", Hydrologic Unit 10130205. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 580 ft, cased with 406 ft of 2-in diameter steel pipe, No. 12 slot screen set 406 to 424 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,062 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

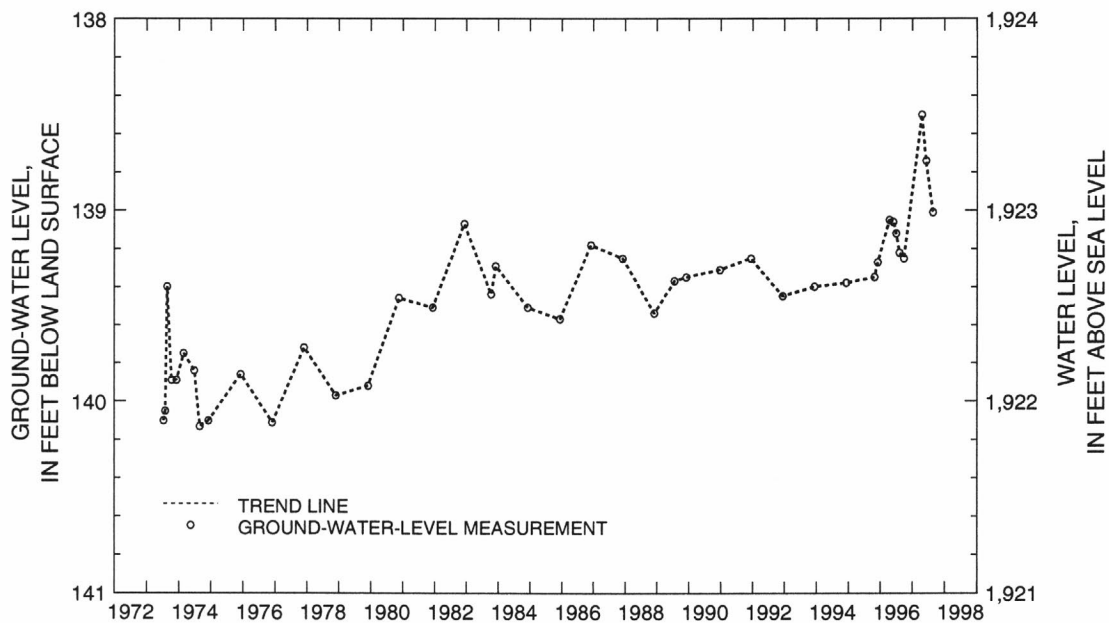
PERIOD OF RECORD.--July 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 138.50 ft below land-surface datum, April 18, 1997; lowest water level measured, 140.13 ft below land-surface datum, August 27, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr. 18	138.50	June 2	138.74	Aug. 19	139.10

130-086-28CCC1



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

SIOUX COUNTY

460244101272702. Local number, 130-086-28CCC2.

LOCATION.--Lat 46°02'44", long 101°27'27", Hydrologic Unit 10130205. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 210 ft, cased with 204 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 204 to 210 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,062 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

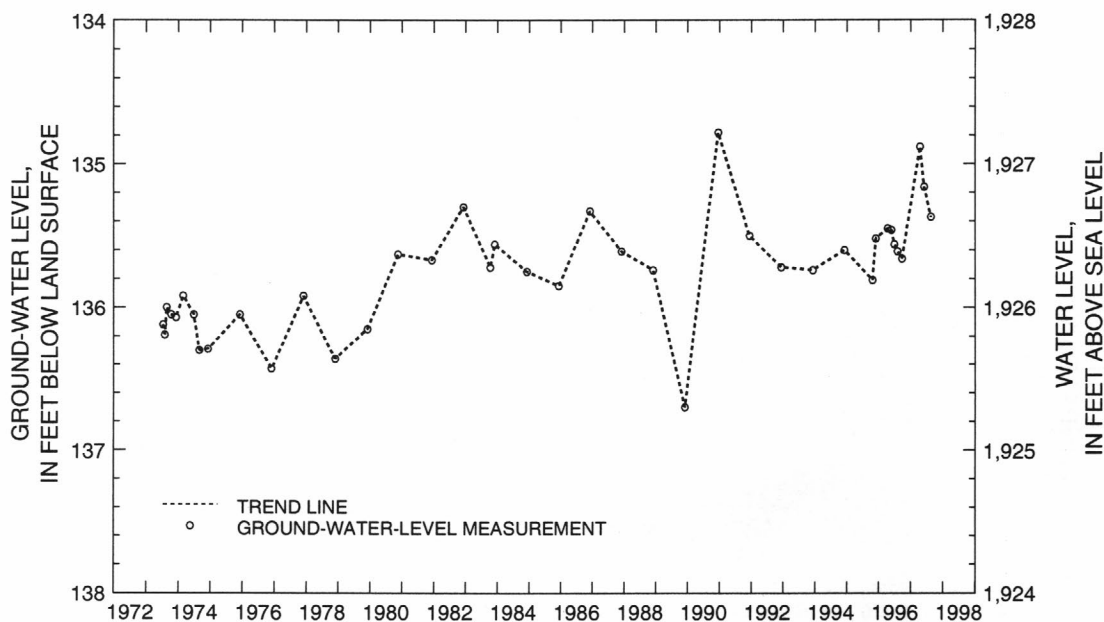
PERIOD OF RECORD.--July 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 134.78 ft below land-surface datum, December 18, 1990; lowest water level measured, 136.70 ft below land-surface datum, November 29, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr. 18	134.88	June 2	135.16	Aug. 19	135.37

130-086-28CCC2



GROUND-WATER LEVELS

SIOUX COUNTY

462239100375601. Local number, 134-079-32ADD.

LOCATION.--Lat 46°22'39", long 100°37'56", Hydrologic Unit 10130102. Owner: North Dakota State Water Commission.

AQUIFER.--Strasburg.

WELL CHARACTERISTICS.--Drilled observation well, depth 340 ft, cased with 282 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 282 to 288 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,690 ft. Measuring point: Top of casing 1.50 ft above land-surface datum.

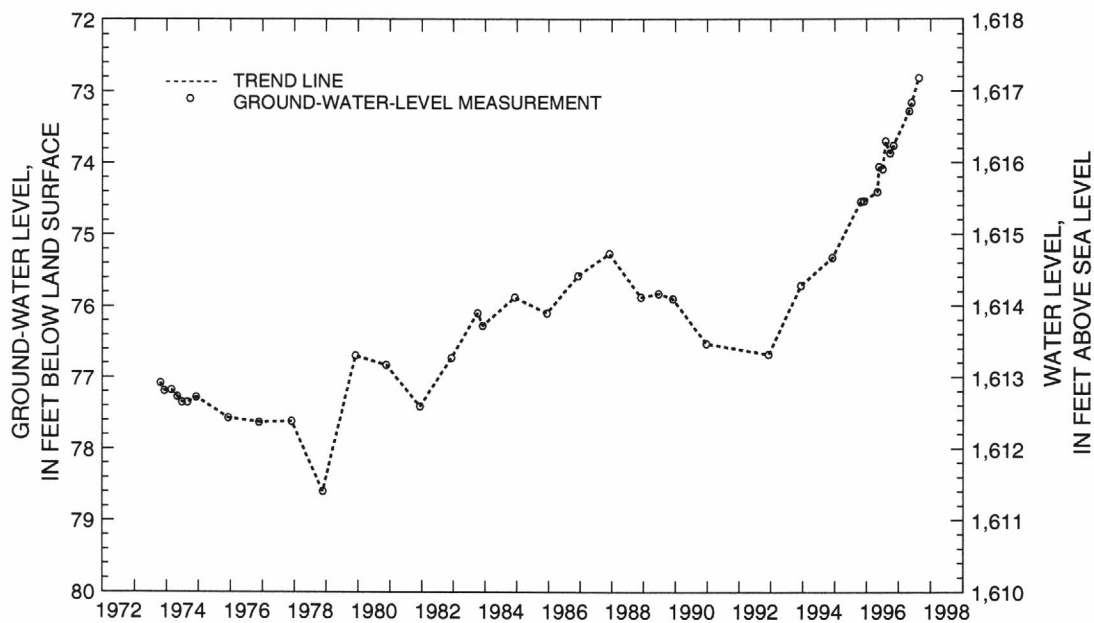
PERIOD OF RECORD.--October 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 72.82 ft below land-surface datum, August 19, 1997; lowest water level measured, 78.60 ft below land-surface datum, November 20, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 4	73.76	Apr. 30	73.28	May 30	73.16	Aug. 19	72.82

134-079-32ADD



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

STARK COUNTY

465755102410701. Local number, 140-095-08AAA.

LOCATION.--Lat 46°57'55", long 102°41'07", Hydrologic Unit 10130201. Owner: North Dakota State Water Commission.

AQUIFER.--Sentinel Butte.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 80 ft of 4-in diameter plastic pipe.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,419 ft. Measuring point: Top of casing 1.70 ft above land-surface datum.

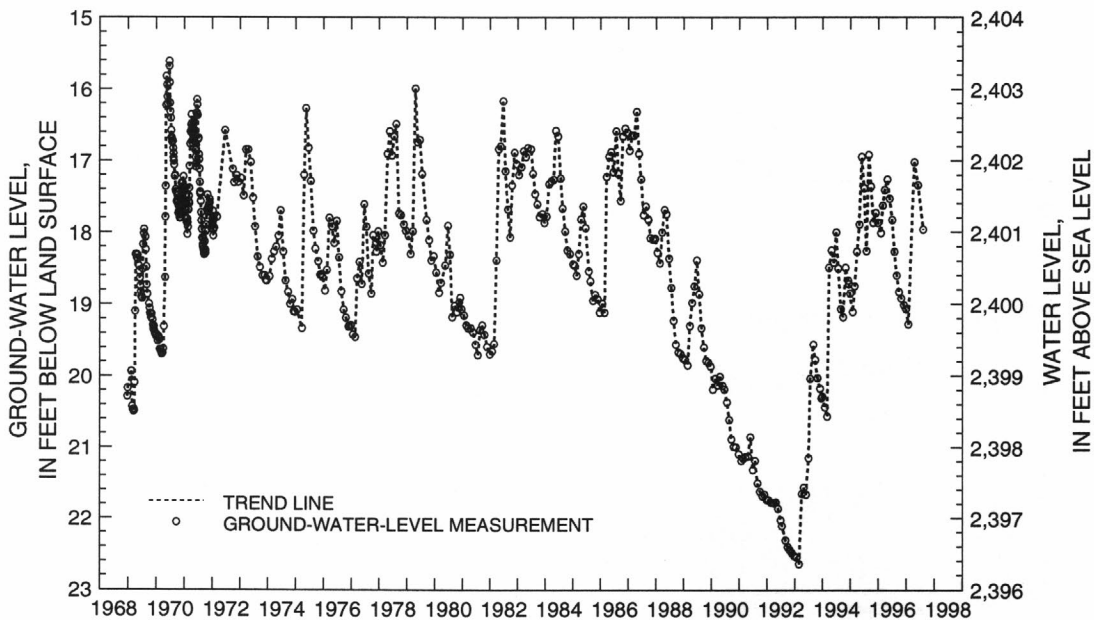
PERIOD OF RECORD.--December 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.61 ft below land-surface datum, June 19, 1970; lowest water level measured, 22.64 ft below land-surface datum, February 25, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 30	18.92	Dec. 28	19.01	Apr. 16	17.02	Aug. 11	17.96
Nov. 30	19.01	Jan. 28	19.28	June 3	17.34		

140-095-08AAA



GROUND-WATER LEVELS

STEELE COUNTY

472024097315201. Local number, 145-054-27CDC.

LOCATION.--Lat 47°20'24", long 97°31'52", Hydrologic Unit 09020109. Owner: North Dakota State Water Commission.

AQUIFER.--Dakota.

WELL CHARACTERISTICS.--Drilled observation well, depth 820 ft, cased from 0 to 273 ft with 4-in diameter steel pipe and from 273 to 640 ft with 2 in diameter steel pipe, No. 12 slot screen set 640 to 660 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,145 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

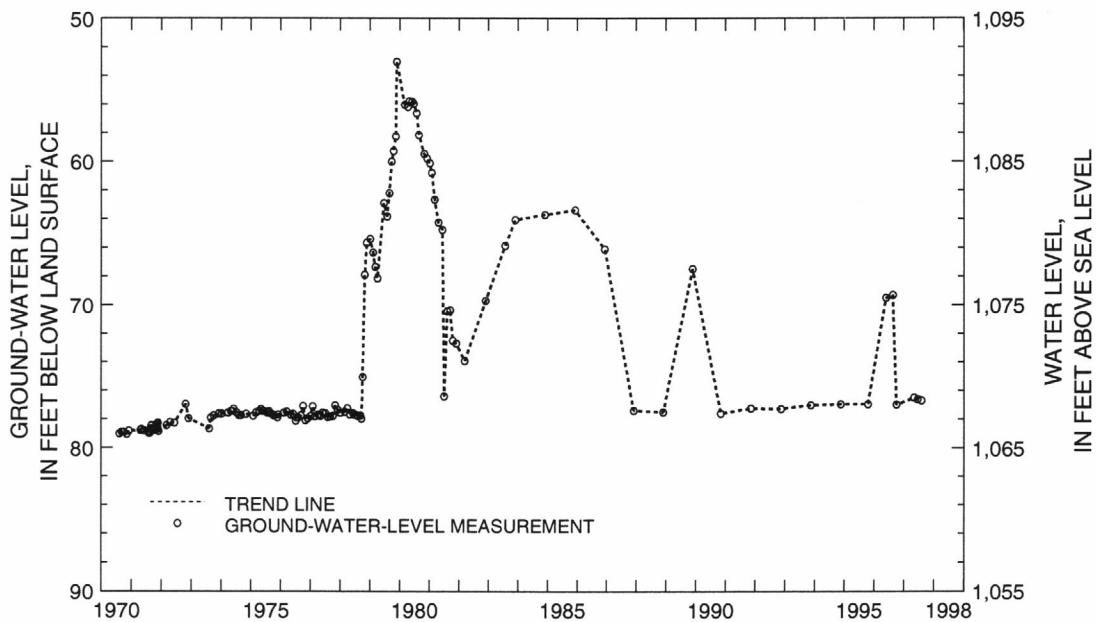
PERIOD OF RECORD.--August 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 53.01 ft below land-surface datum, November 27, 1979; lowest water level measured, 79.08 ft below land-surface datum, November 4, 1970.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 4	76.99	May 8	76.50	June 18	76.61	Aug. 6	76.68

145-054-27CDC



GROUND-WATER LEVELS

STUTSMAN COUNTY

463846098274101. Local number, 137-062-26DDD.

LOCATION.--Lat 46°38'46", long 98°27'41", Hydrologic Unit 10160003. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 240 ft, cased with 157 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 157 to 163 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,441.8 ft. Measuring point: Top of casing 1.92 ft above land-surface datum.

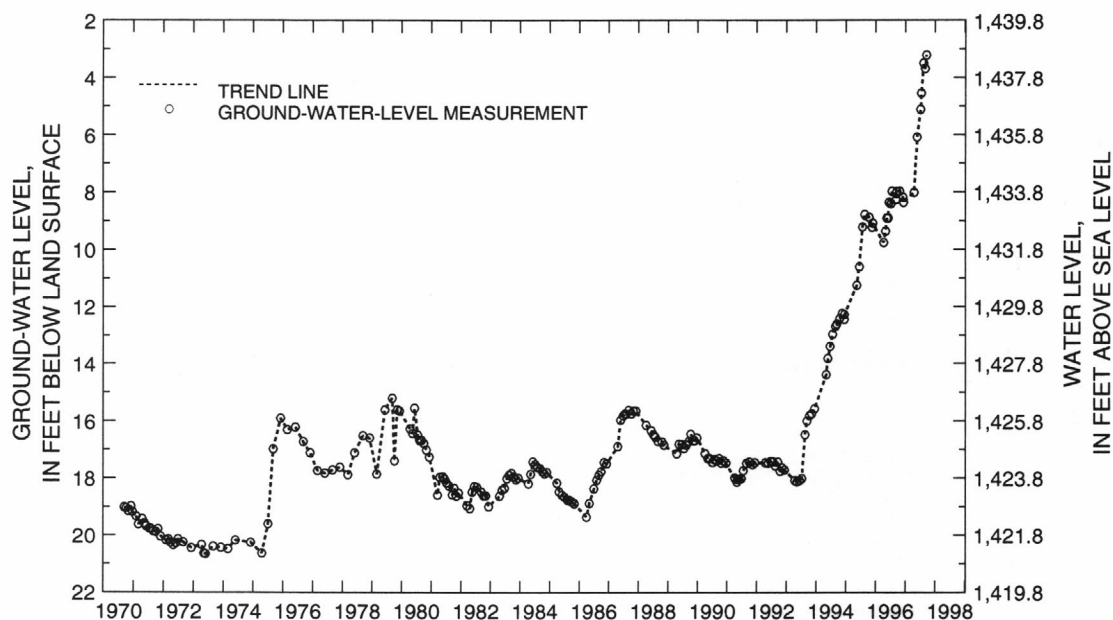
PERIOD OF RECORD.--September 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.21 ft below land-surface datum, Sept. 16, 1997; lowest water level measured, 20.67 ft below land-surface datum, May 28, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 23	7.97	Apr. 20	8.01	July 18	4.55	Sept. 2	3.68
Dec. 4	8.18	May 27	6.08	Aug. 12	3.49	Sept. 16	3.21
Dec. 11	8.36	July 9	5.11				

137-062-26DDD



GROUND-WATER LEVELS

STUTSMAN COUNTY

465243098284801. Local number, 139-062-02CCC.

LOCATION.--Lat 46°52'43", long 98°28'48", Hydrologic Unit 10160003. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 240 ft, cased with 210 ft of 4-in diameter steel pipe, slotted 195 to 210 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder May 1967 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for May 1967 to August 1973. From August 1973 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,466.1 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--May 1967 to current year.

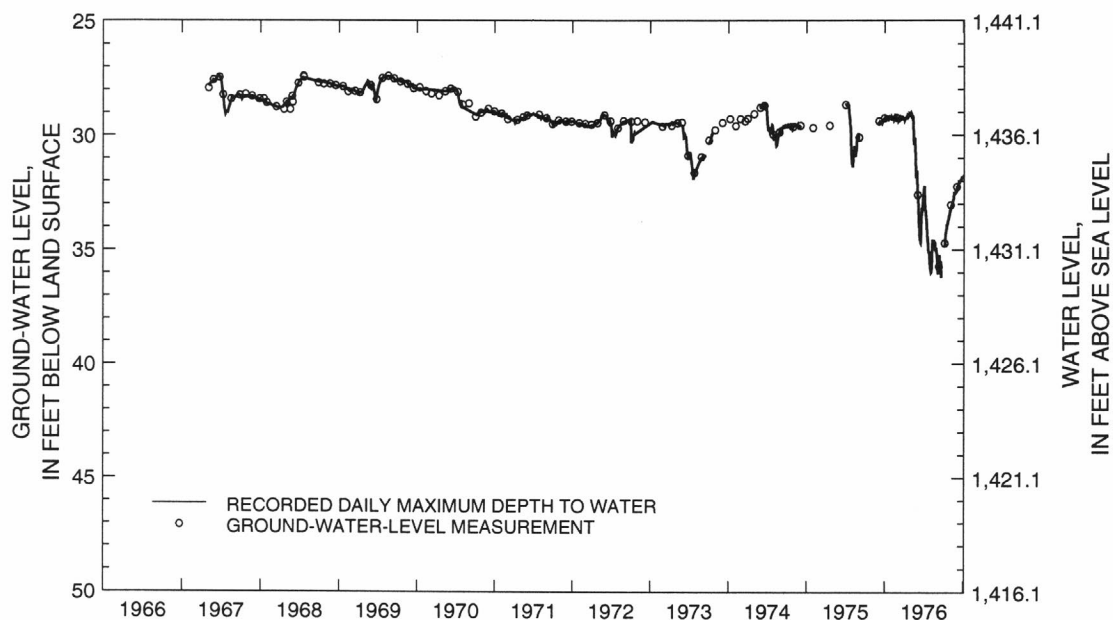
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 27.40 ft below land-surface datum, July 19, 1968; lowest daily water level, 45.85 ft below land-surface datum, August 17, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	34.04	33.36	33.13	33.09	33.13	33.19	32.94	31.99	31.68	31.77	31.56	31.94
10	33.88	33.40	33.10	33.10	33.14	33.20	32.97	31.95	31.91	31.62	31.75	31.82
15	33.72	33.35	33.11	33.10	33.14	33.21	32.94	31.77	32.50	31.40	31.57	31.77
20	33.58	33.28	33.08	33.11	33.18	33.21	32.45	31.78	32.48	31.35	31.52	31.68
25	33.50	33.24	33.08	33.12	33.18	33.23	32.38	31.72	32.19	31.26	32.57	31.61
EOM	33.36	33.13	33.09	33.12	33.19	33.22	32.18	31.87	32.09	31.25	32.69	31.47
MAX	34.14	33.45	33.16	33.12	33.19	33.23	33.22	32.08	32.51	32.03	32.96	32.16

WATER YEAR 1997 HIGHEST WATER LEVEL 31.17 JULY 26 LOWEST WATER LEVEL 34.14 OCTOBER 1

139-062-02CCC

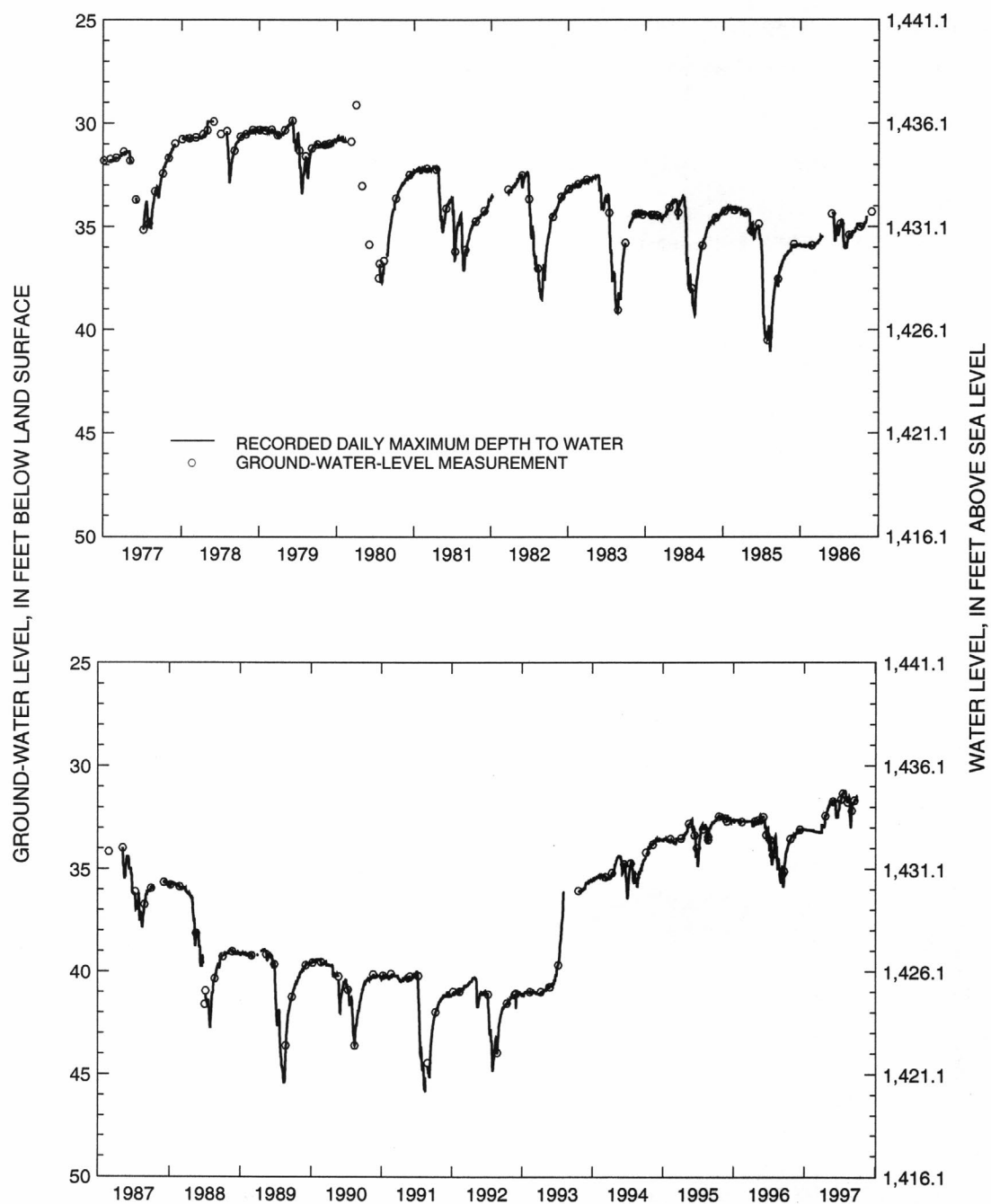


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

STUTSMAN COUNTY

139-062-02CCC--Continued



GROUND-WATER LEVELS

STUTSMAN COUNTY

465757098274401. Local number, 140-062-02DDD.

LOCATION.--Lat 46°57'57", long 98°27'44", Hydrologic Unit 10160003. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 263 ft, cased with 207 ft of 12-in diameter steel pipe, No. 8 slot screen set 207 to 257 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From July 1984 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,480 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

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

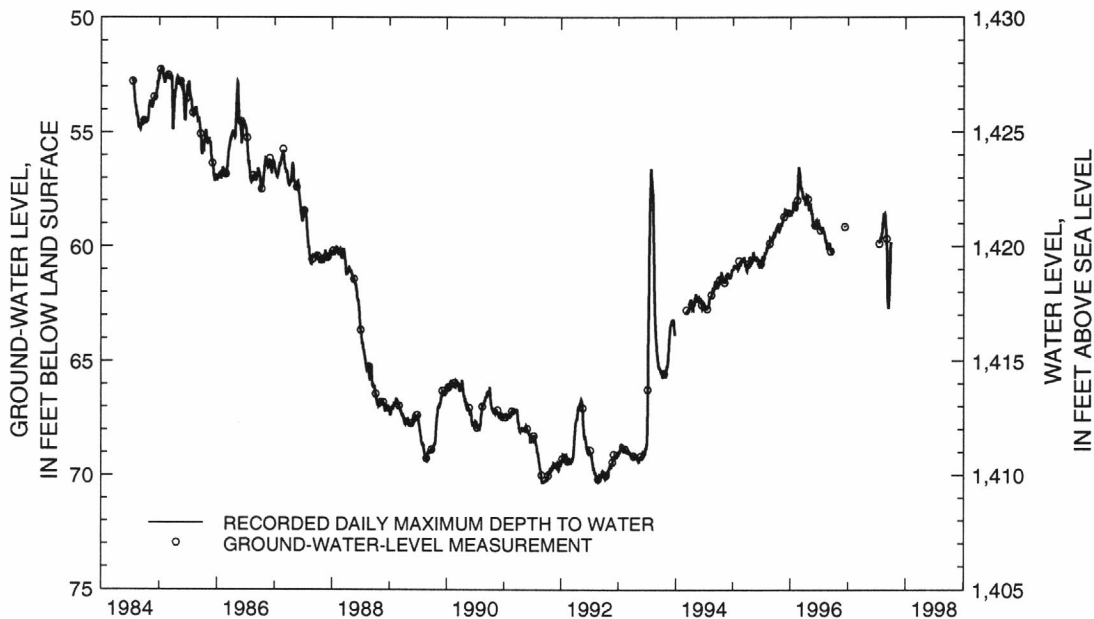
REMARKS.--Well house surrounded by water for part of year. Recorder tape destroyed by rodents.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 52.04 ft below land-surface datum, July 13 and 17, 1985; lowest daily water level, 70.37 ft below land-surface datum, September 3-4, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	59.45	60.30
10	---	---	---	---	---	---	---	---	---	---	59.00	62.34
15	---	---	---	---	---	---	---	---	---	---	58.54	62.70
20	---	---	---	---	---	---	---	---	---	59.79	58.58	62.09
25	---	---	---	---	---	---	---	---	---	59.69	58.77	60.81
EOM	---	---	---	---	---	---	---	---	---	59.57	59.40	59.83
MAX	---	---	---	---	---	---	---	---	---	---	59.47	62.70

140-062-02DDD



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

TOWNER COUNTY

482908099134601. Local number, 158-066-30BBB.

LOCATION.--Lat 48°29'08", long 99°13'46", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 322 ft, cased with 208 ft of 5-in diameter steel pipe, No. 40 slot screen set 208 to 213 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,481 ft. Measuring point: Top of casing 1.40 ft above land-surface datum.

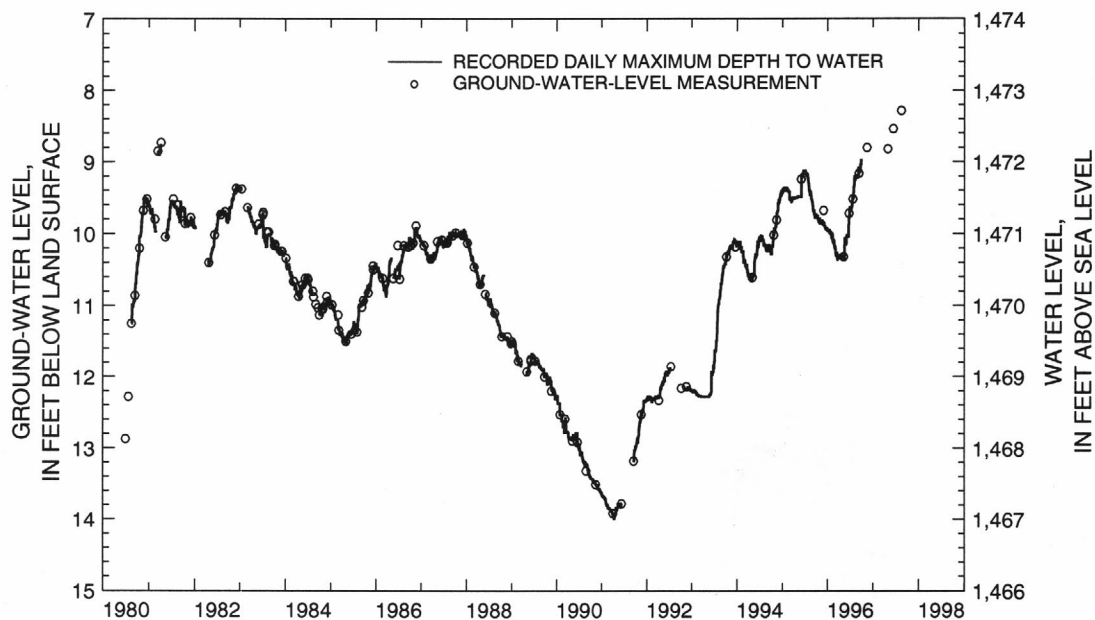
PERIOD OF RECORD.--June 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 8.28 ft below land-surface datum, Aug. 15, 1997; lowest daily water level, 13.99 ft below land-surface datum, April 11-13, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 13	8.80	May 1	8.82	June 11	8.54	Aug. 15	8.28

158-066-30BBB



GROUND-WATER LEVELS

TOWNER COUNTY

484209099174101. Local number, 160-067-10BBB1.

LOCATION.--Lat 48°42'09", long 99°17'41", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 402 ft, cased with 356 ft of 2-in diameter steel pipe, No. 12 slot screen set 356 to 362 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,570 ft. Measuring point: Top of casing 4.00 ft above land-surface datum.

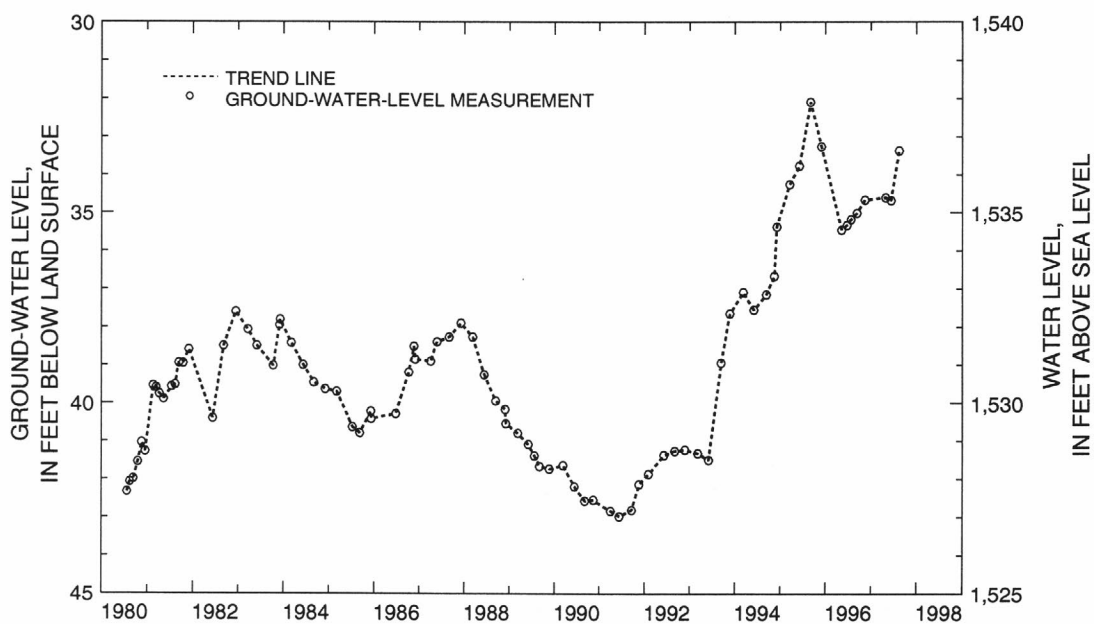
PERIOD OF RECORD.--July 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.09 ft below land-surface datum, September 3, 1995; lowest water level measured, 42.98 ft below land-surface datum, June 11, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 13	34.66	May 1	34.60	June 11	34.68	Aug. 15	33.37

160-067-10BBB1



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

TOWNER COUNTY

484209099174102. Local number, 160-067-10BBB2.

LOCATION.--Lat 48°42'09", long 99°17'41", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 62 ft, cased with 57 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 57 to 60 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,570 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

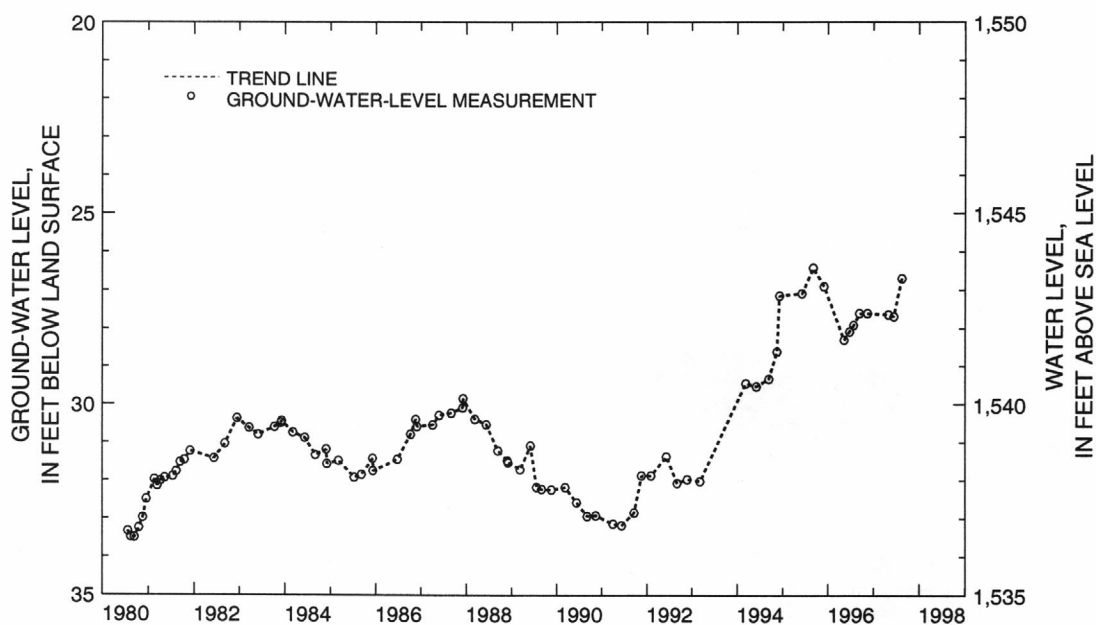
PERIOD OF RECORD.--July 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.42 ft below land-surface datum, September 3, 1995; lowest water level measured, 35.50 ft below land-surface datum, September 11, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 13	27.61	May 1	27.64	June 11	27.69	Aug. 15	26.70

160-067-10BBB2



GROUND-WATER LEVELS

TOWNER COUNTY

485659099222801. Local number, 163-067-18AAA1.

LOCATION.--Lat 48°56'59", long 99°22'28", Hydrologic Unit 09020313. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 282 ft, cased with 252 ft of 2-in diameter steel pipe, No. 18 slot screen set 252 to 258 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,582 ft. Measuring point: Top of casing 3.30 ft above land-surface datum.

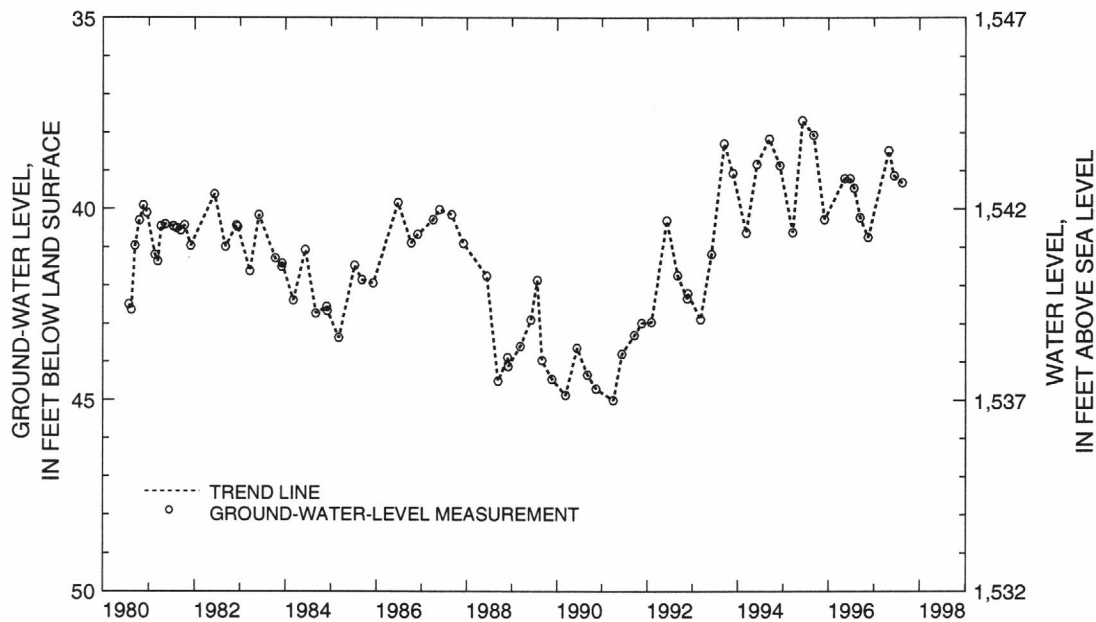
PERIOD OF RECORD.--July 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.69 ft below land-surface datum, June 5, 1995; lowest water level measured, 45.00 ft below land-surface datum, April 3, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 13	40.74	May 1	38.47	June 11	39.13	Aug. 15	39.31

163-067-18AAA1



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

TOWNER COUNTY

485659099222802. Local number, 163-067-18AAA2.

LOCATION.--Lat 48°56'59", long 99°22'28", Hydrologic Unit 09020313. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 142 ft, cased with 118 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 118 to 121 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,582 ft. Measuring point: Top of casing 2.80 ft above land-surface datum.

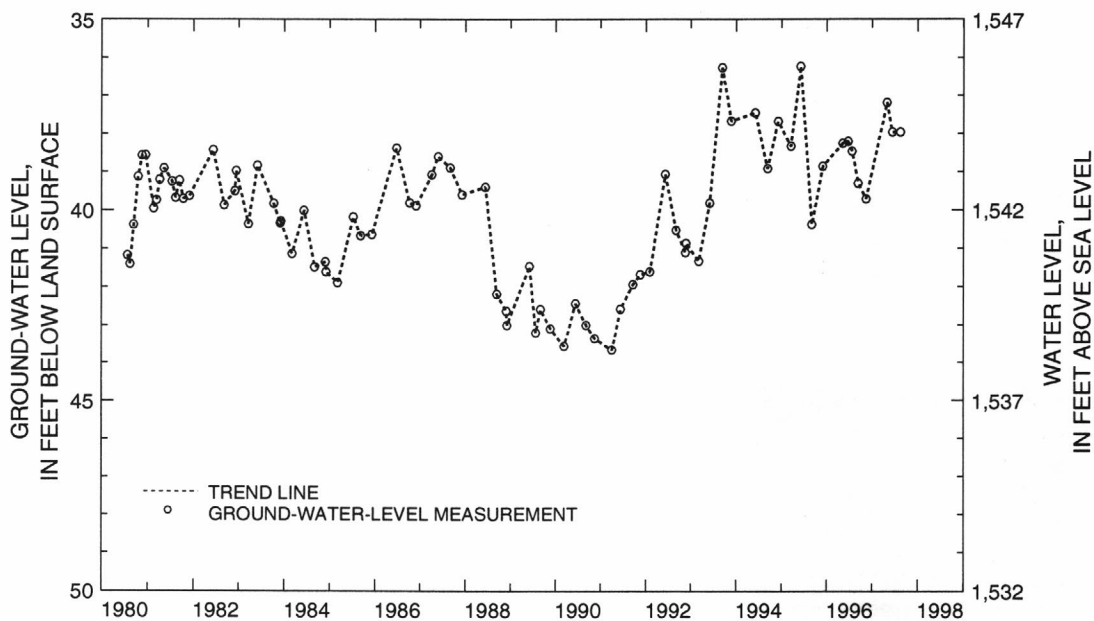
PERIOD OF RECORD.--July 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 36.22 ft below land-surface datum, June 5, 1995; lowest water level measured, 43.67 ft below land-surface datum, April 3, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 13	39.71	May 1	37.18	June 11	37.96	Aug. 15	37.96

163-067-18AAA2



GROUND-WATER LEVELS

WALSH COUNTY

481234097234604. Local number, 155-053-25CDD4.

LOCATION.--Lat 48°12'35", long 97°23'44", Hydrologic Unit 09020308. Owner: U.S. Geological Survey.

AQUIFER.--Glacial Clay.

WELL CHARACTERISTICS.--Drilled observation well, depth 85 ft, cased with 80 ft of 2-in diameter plastic pipe, screen set 80 to 85 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 834 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

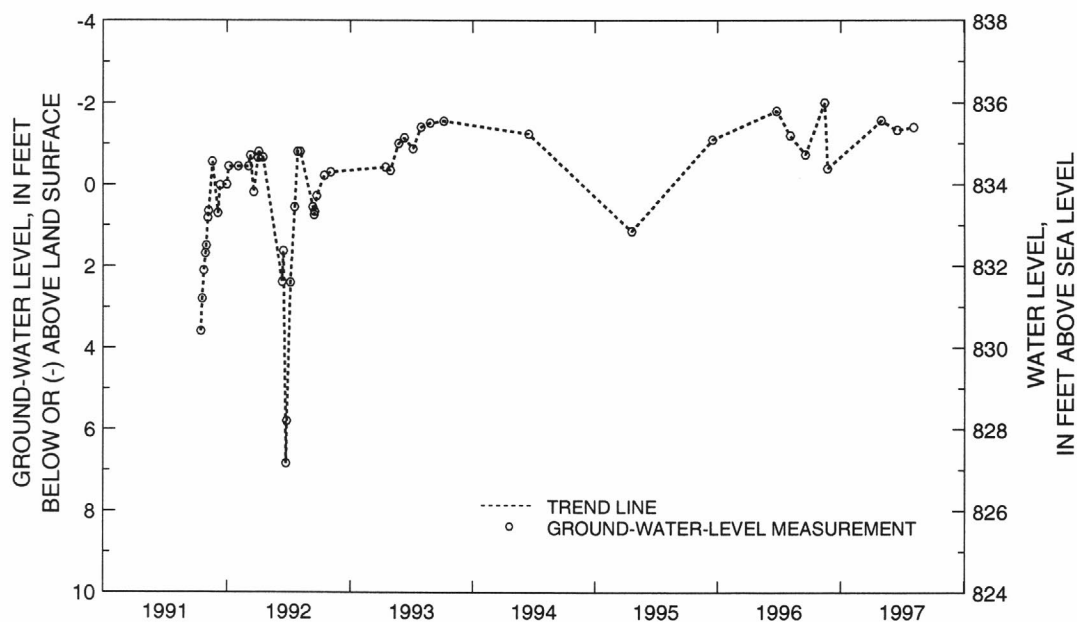
PERIOD OF RECORD.--October 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, -2.00 ft below land-surface datum, Nov. 15, 1996; lowest water level measured, 6.84 ft below land-surface datum, June 24, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 15	-2.00	May 2	-1.56	June 18	-1.33	Aug. 6	-1.40
Nov. 24	-0.39						

155-053-25CDD4



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

WALSH COUNTY

481234097234605. Local number, 155-053-25CDD5.

LOCATION.--Lat 48°12'35", long 97°23'44", Hydrologic Unit 09020308. Owner: U.S. Geological Survey.

AQUIFER.--Glacial Clay.

WELL CHARACTERISTICS.--Drilled observation well, depth 25 ft, cased with 20 ft of 2-in diameter plastic pipe, screen set 20 to 25 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 834 ft. Measuring point: Top of casing 2.25 ft above land-surface datum.

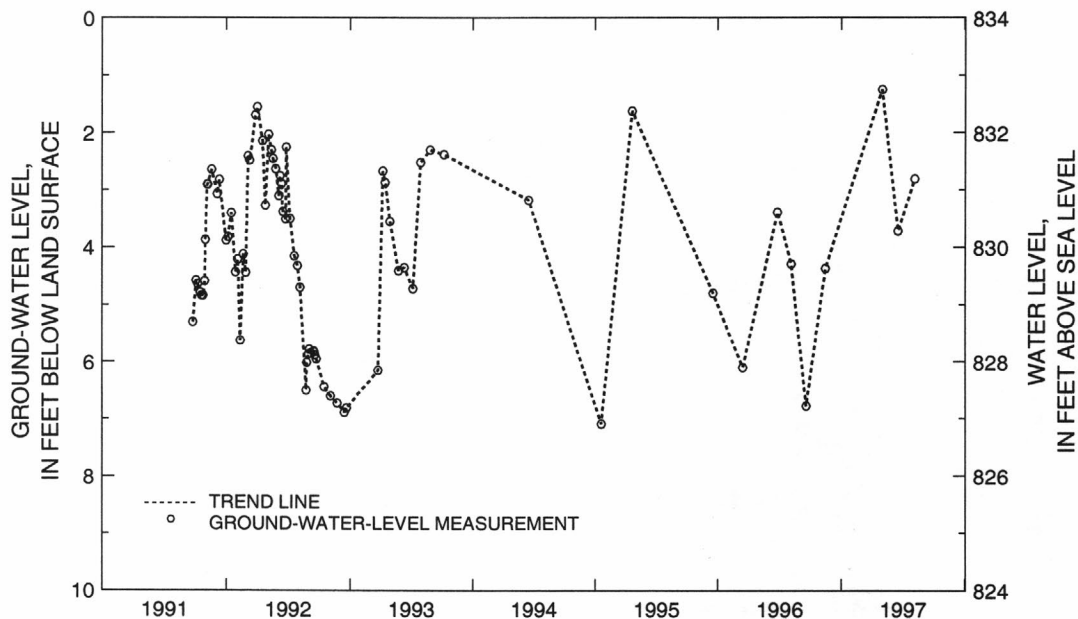
PERIOD OF RECORD.--September 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.25 ft below land-surface datum, May 2, 1997; lowest water level measured, 7.09 ft below land-surface datum, January 19, 1995.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 15	4.37	May 2	1.25	June 18	3.72	Aug. 6	2.81

155-053-25CDD5



GROUND-WATER LEVELS

WALSH COUNTY

481841097490301. Local number, 156-056-22DDD.

LOCATION.--Lat 48°18'41", long 97°49'03", Hydrologic Unit 09020308. Owner: North Dakota State Water Commission.

AQUIFER.--Fordville.

WELL CHARACTERISTICS.--Drilled observation well, depth 280 ft, cased with 52 ft of 4-in diameter plastic pipe, screen set 52 to 57 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder August 1968 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for August 1968 to September 1970. From October 1970 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,170 ft. Measuring point: Top of casing 1.90 ft above land-surface datum.

PERIOD OF RECORD.--October 1970 to current year.

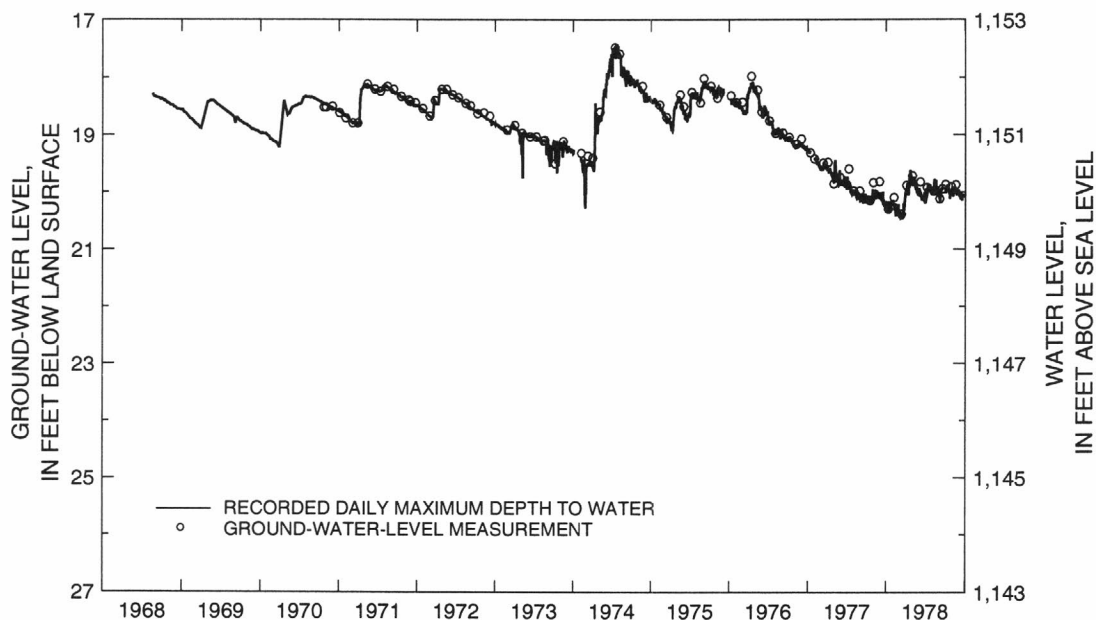
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 17.35 ft below land-surface datum, July 22, 1974; lowest daily water level, 24.21 ft below land-surface datum, June 7, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.59	21.61	21.79	21.93	22.03	22.23	21.58	20.85	20.74	20.83	20.59	20.71
10	21.54	21.52	21.89	21.97	22.10	22.30	21.58	20.80	20.70	20.69	20.60	20.77
15	21.59	21.57	21.89	21.97	22.11	22.25	21.66	20.72	20.75	20.57	20.60	20.79
20	21.52	21.77	21.91	21.94	22.17	22.30	21.25	20.66	21.02	20.57	20.65	20.84
25	21.56	21.77	21.95	21.96	22.15	22.26	21.11	20.70	21.00	20.52	20.67	20.87
EOM	21.59	21.81	21.95	22.03	22.21	21.91	20.76	20.73	20.93	20.59	20.73	20.91
MAX	21.60	21.83	21.98	22.05	22.21	22.34	21.85	20.86	21.05	20.92	20.77	20.91

WATER YEAR 1997 HIGHEST WATER LEVEL 20.41 JULY 22, 29, and AUGUST 12
LOWEST WATER LEVEL 22.34 MARCH 13

156-056-22DDD

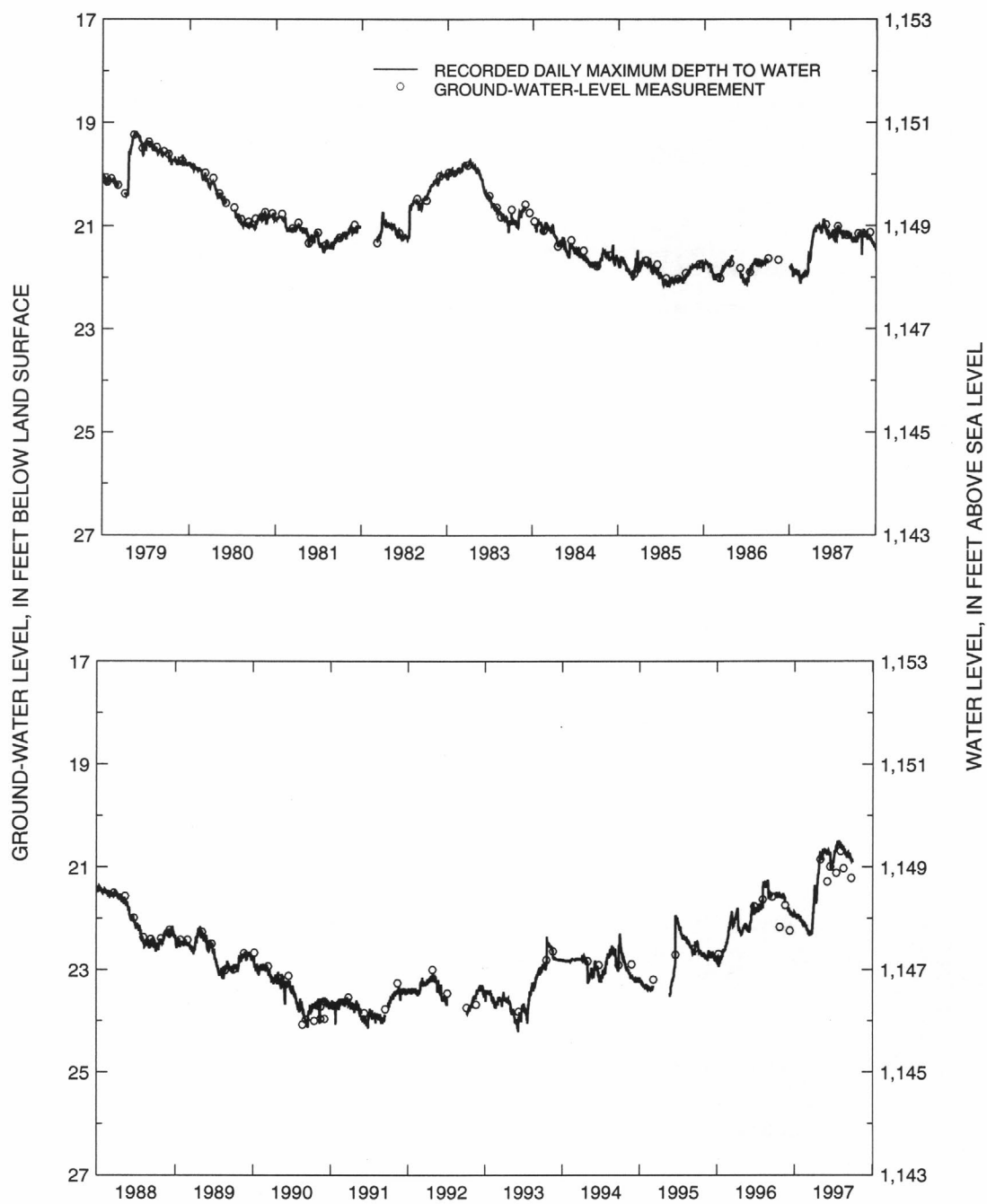


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

WALSH COUNTY

156-056-22DDD--Continued



GROUND-WATER LEVELS

WALSH COUNTY

482408097443201. Local number, 157-055-21DBC.

LOCATION.--Lat 48°24'08", long 97°44'32", Hydrologic Unit 09020310. Owner: North Dakota State Water Commission.

AQUIFER.--Dakota.

WELL CHARACTERISTICS.--Drilled observation well, depth 496 ft, cased with 491 ft of 4-in diameter steel pipe, screen set 491 to 496 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 975 ft. Measuring point: Top of casing 0.00 ft above land-surface datum.

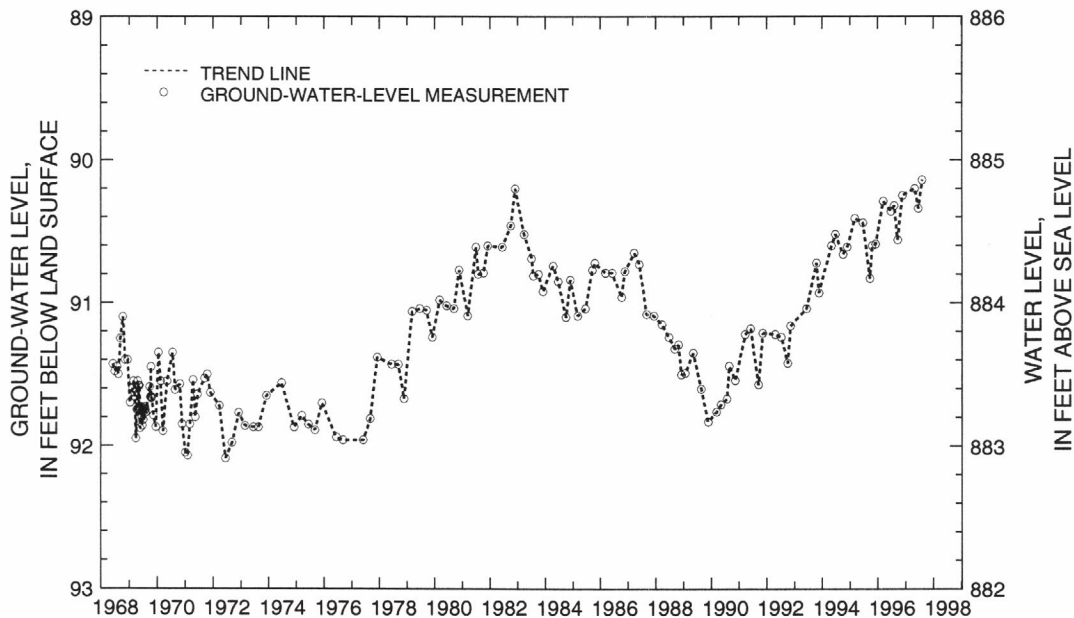
PERIOD OF RECORD.--May 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 90.14 ft below land-surface datum, August 6, 1997; lowest water level measured, 92.09 ft below land-surface datum, June 15, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 20	90.25	May 2	90.20	June 18	90.34	Aug. 6	90.14

157-055-21DBC



GROUND-WATER LEVELS

WALSH COUNTY

482449098095801. Local number, 157-058-18DDD.

LOCATION.--Lat 48°24'49", long 98°09'58", Hydrologic Unit 09020308. Owner: North Dakota State Water Commission.

AQUIFER.--Pierre Shale.

WELL CHARACTERISTICS.--Drilled observation well, depth 140 ft, cased with 80 ft of 4-in diameter plastic pipe, screen set 80 to 100 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,580 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

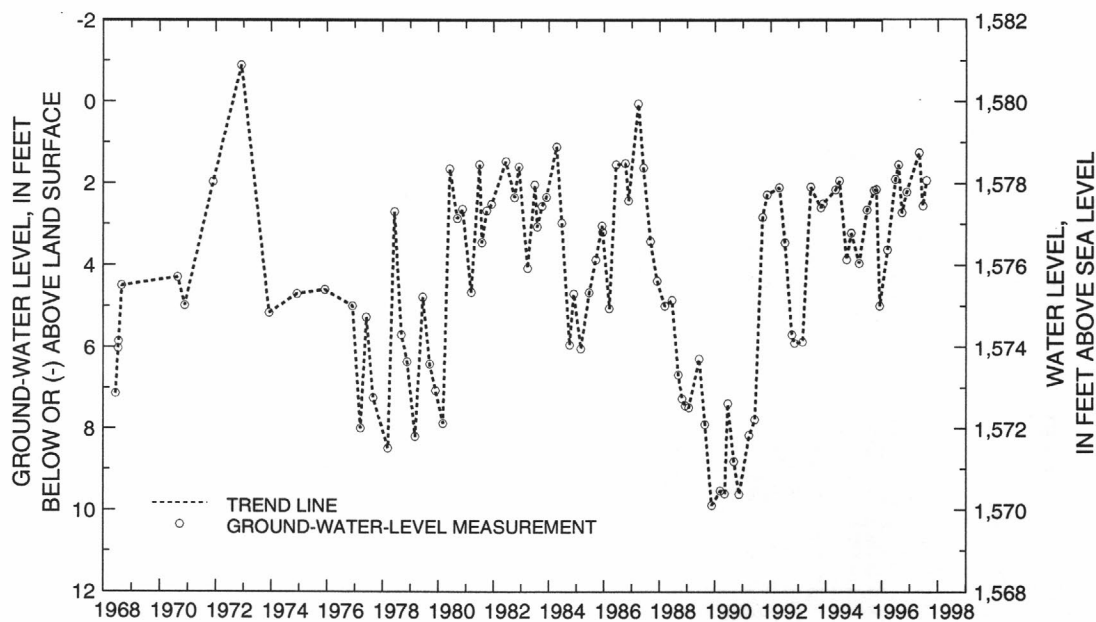
PERIOD OF RECORD.--June 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.89 ft below land-surface datum, December 5, 1972; lowest water level measured, 9.89 ft below land-surface datum, November 21, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 20	2.21	May 2	1.25	June 17	2.55	Aug. 5	1.93

157-058-18DDD



GROUND-WATER LEVELS

WARD COUNTY

481058101120403. Local number, 154-082-03CDC3.

LOCATION.--Lat 48°10'58", long 101°12'04", Hydrologic Unit 09010001. Owner: North Dakota State Water Commission.

AQUIFER.--Sundre Buried Channel.

WELL CHARACTERISTICS.--Drilled observation well, depth 220 ft, cased with 170 ft of 12-in diameter steel pipe, screen set 170 to 220 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape December 1968 to June 1973. From November 1976 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,544 ft. Measuring point: Top of casing 1.45 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 8.73 ft below land-surface datum, June 9, 1970; lowest daily water level, 61.89 ft below land-surface datum, September 11, 1994.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

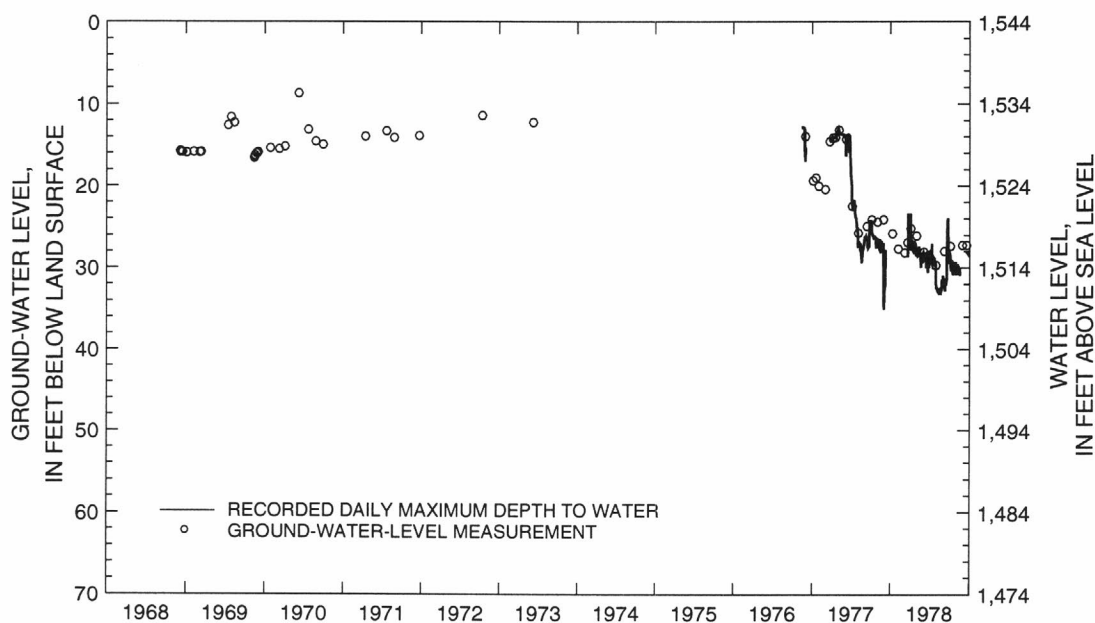
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	54.65	55.32	56.23	52.28	50.90	49.45	46.32	42.72	45.28	50.06	54.86	56.97
10	54.40	55.60	56.30	52.04	50.54	49.16	47.80	42.21	47.42	50.40	55.59	57.10
15	53.91	55.81	55.05	51.86	50.21	49.16	46.45	40.37	48.09	50.83	56.18	57.31
20	53.52	55.95	53.23	51.52	49.76	48.85	46.09	40.43	48.35	51.25	56.52	55.53
25	54.61	56.28	53.13	51.40	49.68	48.37	44.20	41.71	49.00	53.31	57.05	55.13
EOM	55.16	56.08	52.67	50.83	49.45	47.28	43.67	43.14	49.48	53.95	56.85	---
MAX	55.16	56.28	56.42	52.46	50.92	49.46	49.12	43.49	49.48	53.98	57.31	---

WATER YEAR 1997

HIGHEST WATER LEVEL 39.20 MAY 15

LOWEST WATER LEVEL 57.31 AUGUST 28 and SEPTEMBER 15

154-082-03CDC3

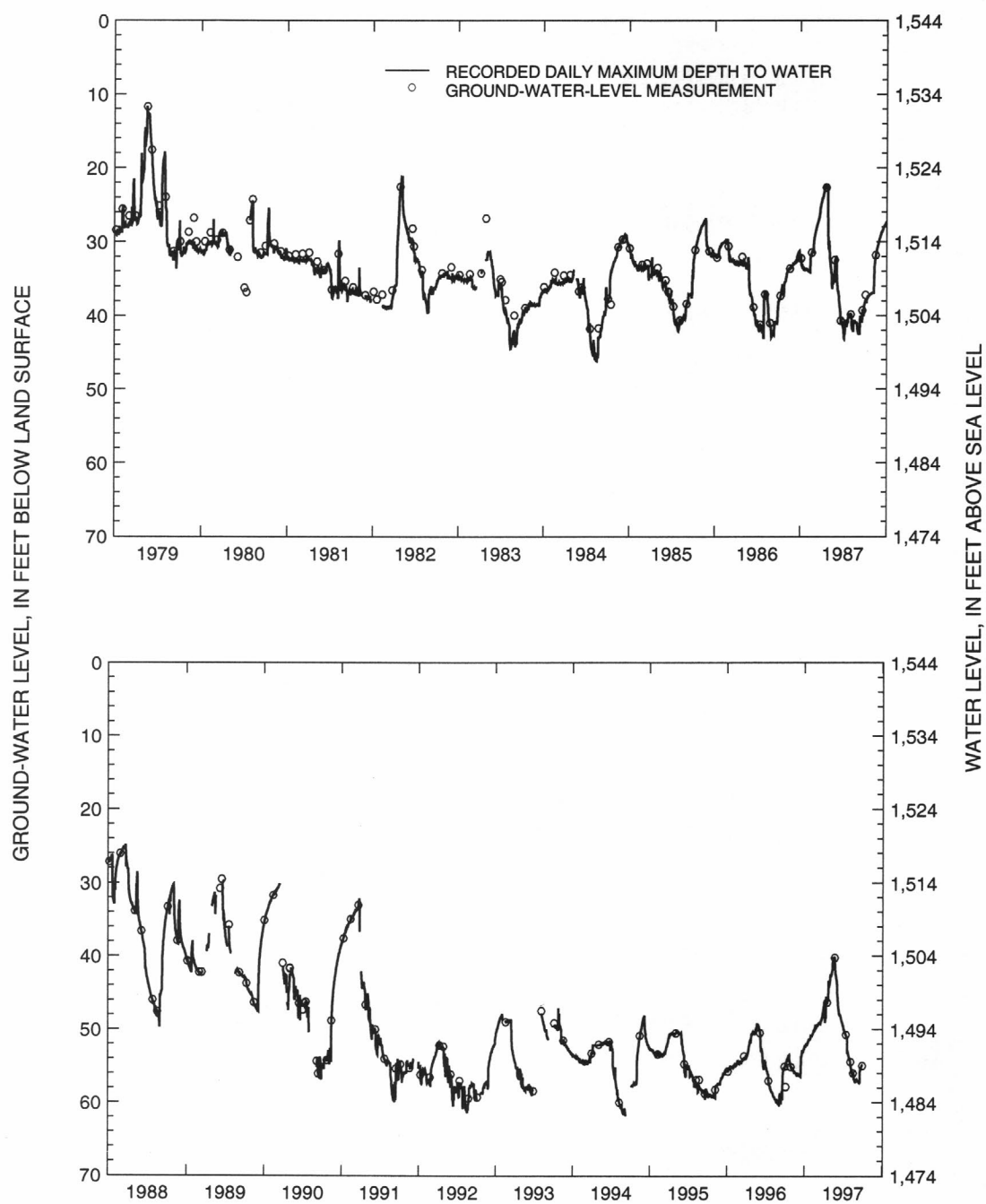


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

WARD COUNTY

154-082-03CDC3--Continued



GROUND-WATER LEVELS

WELLS COUNTY

472329099194401. Local number, 145-068-10BCC.

LOCATION.--Lat 47°23'29", long 99°19'44", Hydrologic Unit 10160002. Owner: North Dakota State Water Commission.

AQUIFER.--Pipestem Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 52 ft, cased with 25 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 25 to 27 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,630 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

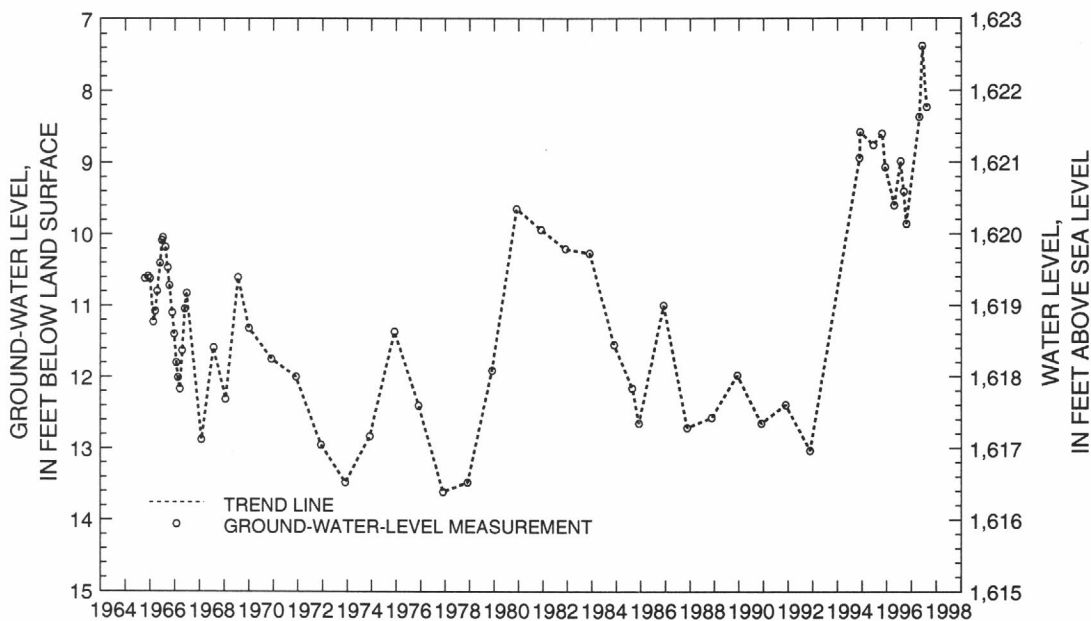
PERIOD OF RECORD.--October 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.38 ft below land-surface datum, June 10, 1997; lowest water level measured, 13.61 ft below land-surface datum, November 30, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 17	9.86	Apr. 30	8.37	June 10	7.38	Aug. 14	8.23

145-068-10BCC



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

WELLS COUNTY

474419099371201. Local number, 149-070-09DAA1.

LOCATION.--Lat 47°44'19", long 99°37'12", Hydrologic Unit 10160001. Owner: North Dakota State Water Commission.

AQUIFER.--New Rockford.

WELL CHARACTERISTICS.--Drilled observation well, depth 283 ft, cased with 197 ft of 1.25-in diameter plastic pipe, slotted 177 to 197 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,613.06 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

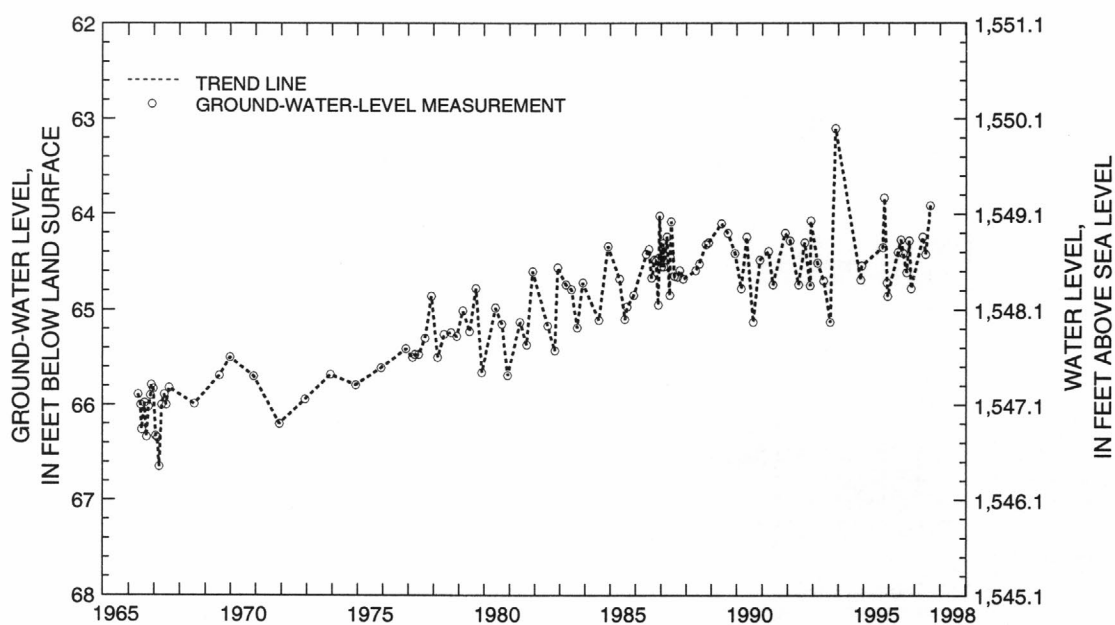
PERIOD OF RECORD.--May 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 63.10 ft below land-surface datum, November 21, 1993; lowest water level measured, 66.65 ft below land-surface datum, March 15, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 17	64.28	Apr. 30	64.24	June 10	64.42	Aug. 14	63.91
Nov. 14	64.78						

149-070-09DAA1



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

157

GROUND-WATER LEVELS

WILLIAMS COUNTY

480010103490902. Local number, 152-103-11ADD2.

LOCATION.--Lat 48°00'10", long 103°49'09", Hydrologic Unit 10110101. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 16 ft, cased with 14 ft of 1.25-in diameter steel pipe, No 18 slot screen set 14 to 16 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,864.07 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

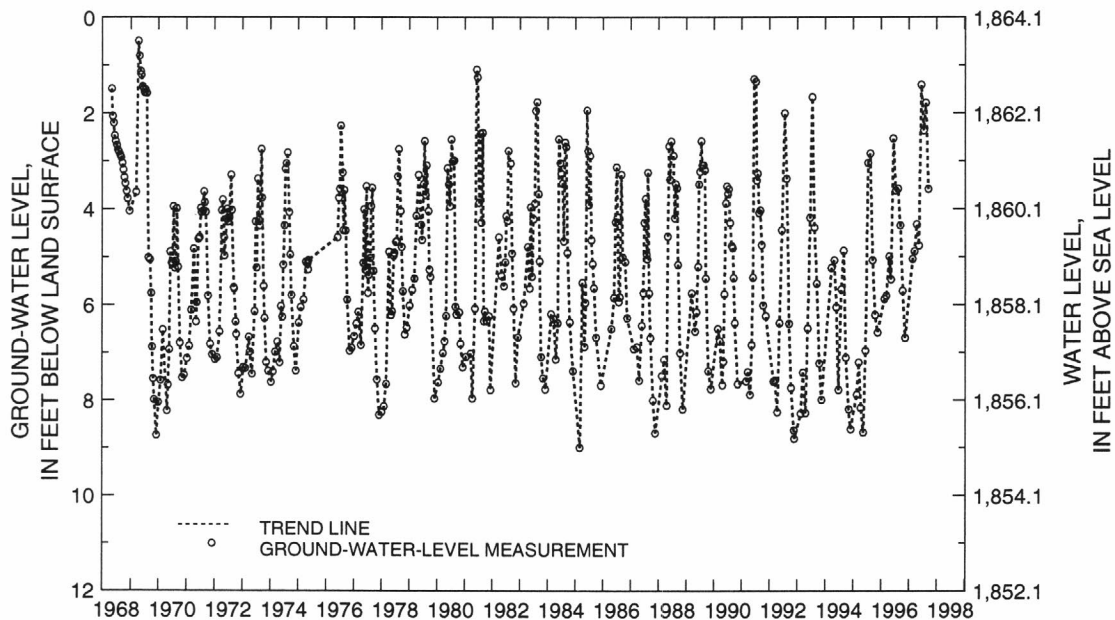
PERIOD OF RECORD.--April 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.49 ft below land-surface datum, April 11, 1969; lowest water level measured, 9.00 ft below land-surface datum, February 28, 1985.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	5.71	Mar. 19	4.88	June 14	1.41	Aug. 14	1.79
Nov. 15	6.69	Apr. 16	4.32	July 15	2.36	Sept. 15	3.59
Feb 21	5.04	May 15	4.76				

152-103-11ADD2



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

WILLIAMS COUNTY

475930103523001. Local number, 152-103-16BAC.

LOCATION.--Lat 47°59'30", long 103°52'30", Hydrologic Unit 10110101. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 18 ft, cased with 1.25-in diameter steel pipe.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,869.4 ft. Measuring point: Top of casing 0.70 ft above land-surface datum.

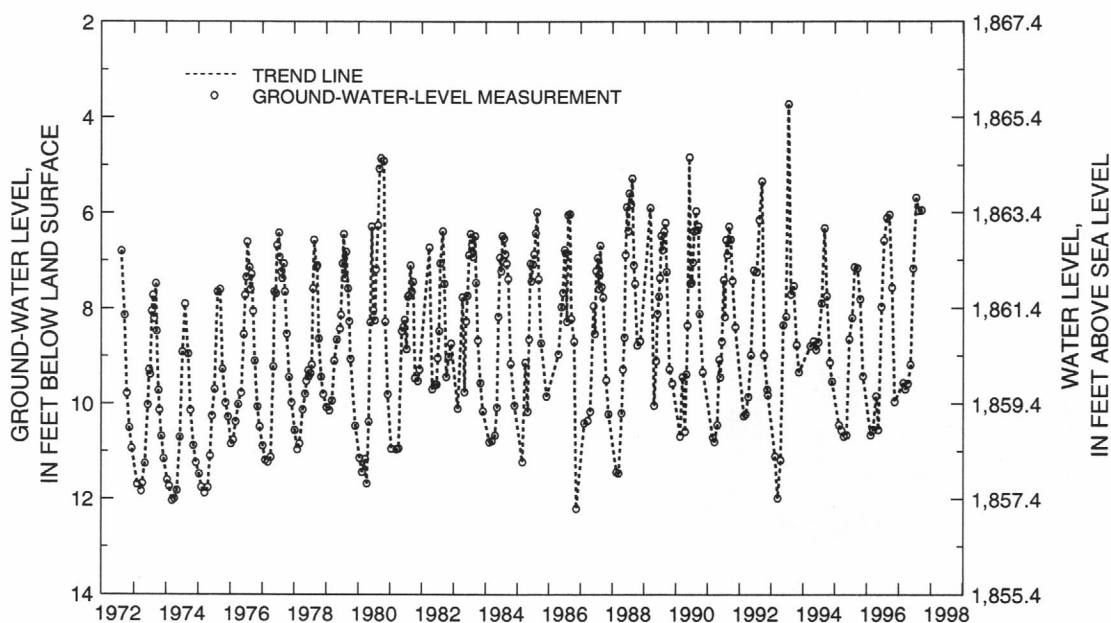
PERIOD OF RECORD.--August 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.73 ft below land-surface datum, July 14, 1993; lowest water level measured, 12.21 ft below land-surface datum, November 13, 1986.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	7.57	Mar. 19	9.70	June 14	7.17	Aug. 14	5.96
Nov. 15	9.96	Apr. 16	9.58	July 15	5.69	Sept. 15	5.95
Feb 21	9.57	May 15	9.19				

152-103-16BAC



GROUND-WATER LEVELS

WILLIAMS COUNTY

475904103531801. Local number, 152-103-17DBD.

LOCATION.--Lat 47°59'04", long 103°53'18", Hydrologic Unit 10110101. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 14 ft, cased with 1.25-in diameter plastic pipe.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,868.1 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

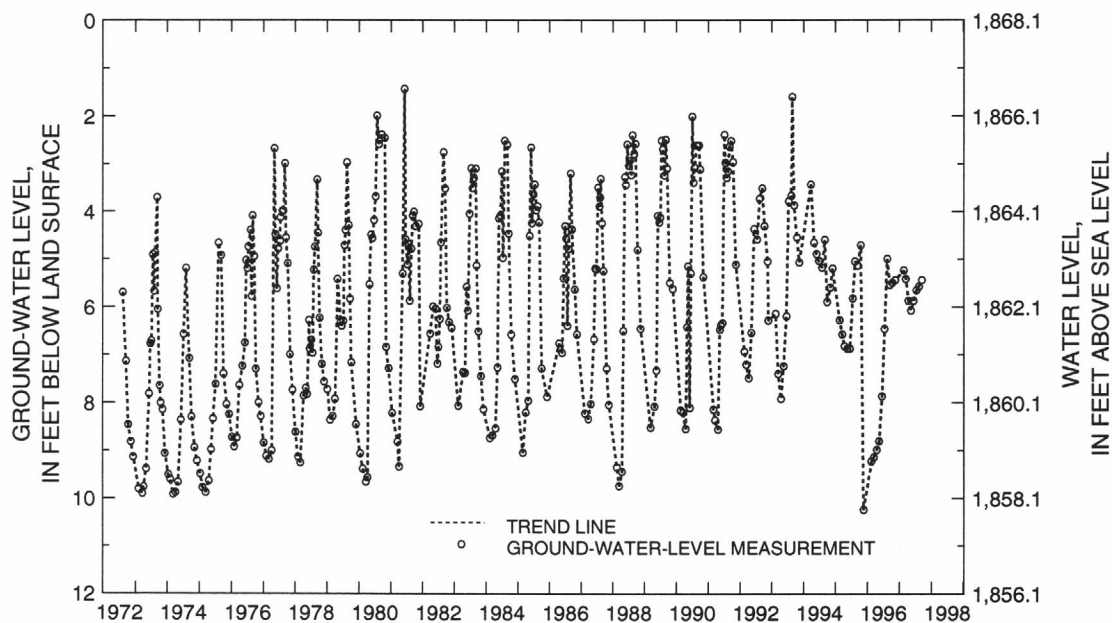
PERIOD OF RECORD.--August 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.44 ft below land-surface datum, June 4, 1981; lowest water level measured, 10.24 ft below land-surface datum, November 18, 1995.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	5.49	Mar. 19	5.41	June 14	5.87	Aug. 14	5.57
Nov. 15	5.44	Apr. 16	5.87	July 15	5.65	Sept. 15	5.44
Feb 21	5.23	May 15	6.08				

152-103-17DBD



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

WILLIAMS COUNTY

475850103552301. Local number, 152-103-18CCC.

LOCATION.--Lat 47°58'50", long 103°55'23", Hydrologic Unit 10110101. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 19.9 ft, cased with 1.25-in diameter steel pipe.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,865.3 ft. Measuring point: Top of casing 1.40 ft above land-surface datum.

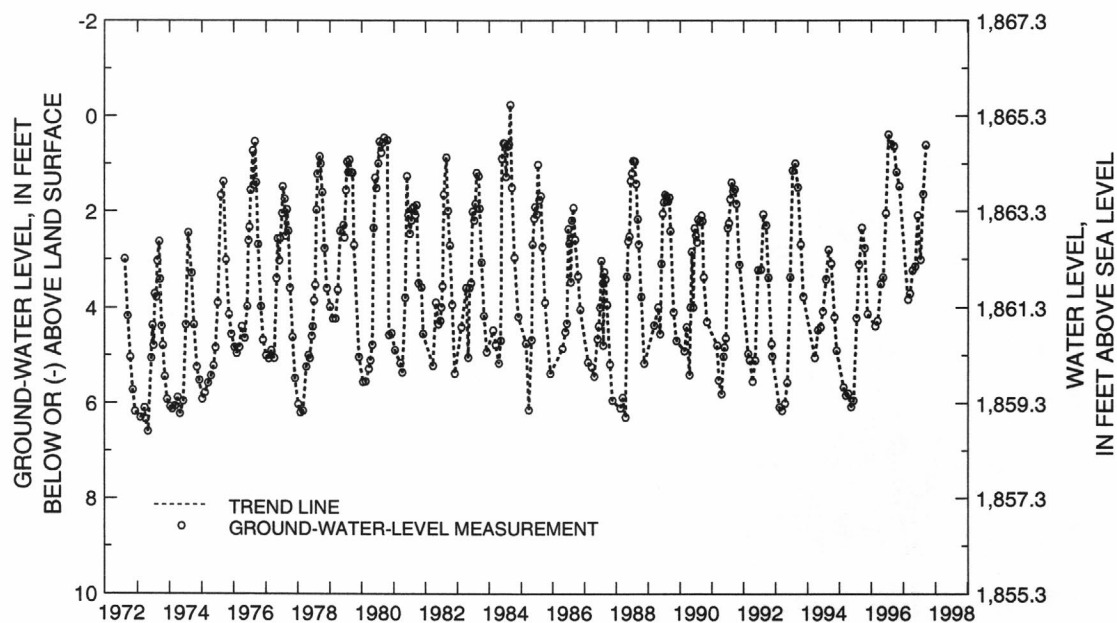
PERIOD OF RECORD.--August 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, -0.23 ft below land-surface datum, August 30, 1984; lowest water level measured, 6.60 ft below land-surface datum, May 3, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	1.17	Mar. 19	3.71	June 14	2.09	Aug. 14	1.64
Nov. 15	1.47	Apr. 16	3.23	July 15	3.01	Sept. 15	0.61
Feb 21	3.83	May 15	3.15				

152-103-18CCC



GROUND-WATER LEVELS

WILLIAMS COUNTY

475750103551401. Local number, 152-103-30BBA.

LOCATION.--Lat 47°57'50", long 103°55'14", Hydrologic Unit 10110101. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 16.4 ft, cased with 1.25-in diameter steel pipe.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,872.4 ft. Measuring point: Top of casing 0.70 ft above land-surface datum.

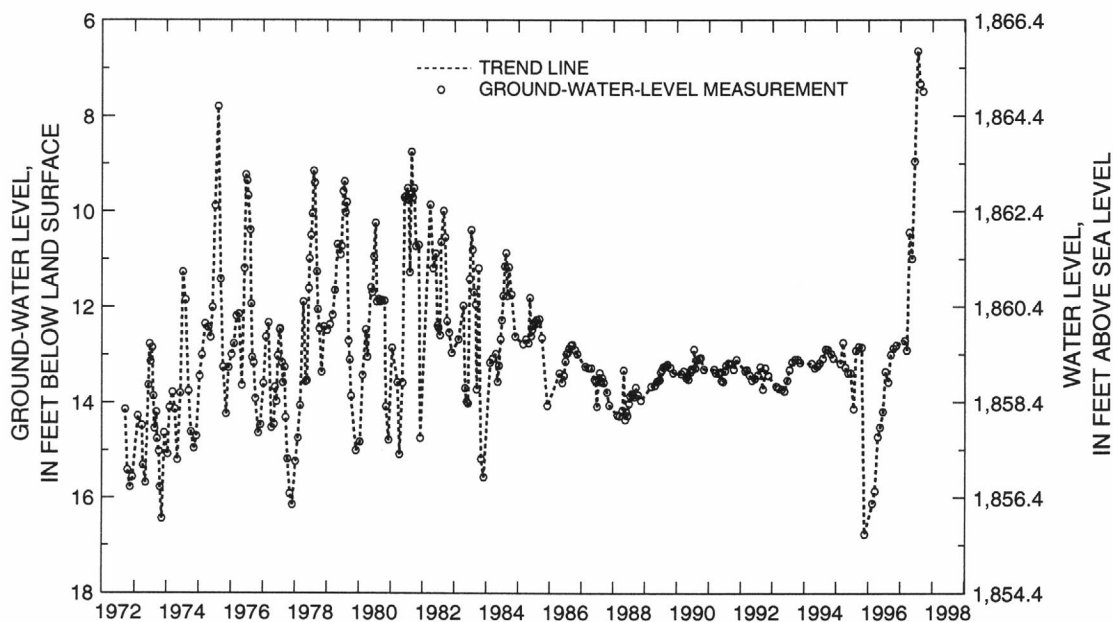
PERIOD OF RECORD.--September 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.65 ft below land-surface datum, July 15, 1997; lowest water level measured, 16.77 ft below land-surface datum, November 18, 1995.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	12.87	Mar. 19	12.91	June 14	8.95	Aug. 14	7.34
Nov. 15	12.81	Apr. 16	10.44	July 15	6.65	Sept. 15	7.49
Feb 21	12.71	May 15	10.99				

152-103-30BBA



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

WILLIAMS COUNTY

475923103564001. Local number, 152-104-13BCB.

LOCATION.--Lat 47°59'23", long 103°56'40", Hydrologic Unit 10110101. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 17 ft, cased with 1.25-in diameter plastic pipe.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,868.6 ft. Measuring point: Top of casing 1.10 ft above land-surface datum.

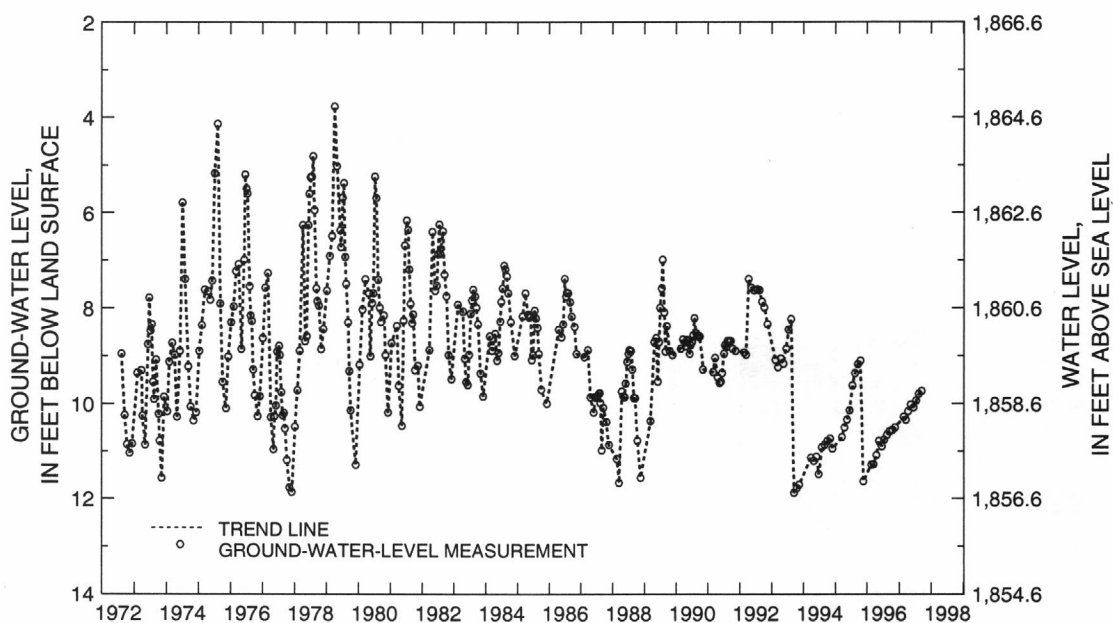
PERIOD OF RECORD.--August 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.77 ft below land-surface datum, April 3, 1979; lowest water level measured, 11.88 ft below land-surface datum, September 13, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	10.56	Mar. 19	10.35	June 14	10.09	Aug. 14	9.80
Nov. 15	10.51	Apr. 16	10.17	July 15	9.94	Sept. 15	9.74
Feb 21	10.29	May 15	10.03				

152-104-13BCB



GROUND-WATER LEVELS

WILLIAMS COUNTY

475843104001101. Local number, 152-104-21BAB.

LOCATION.--Lat 47°58'43", long 104°00'11", Hydrologic Unit 10110102. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 30 ft, cased with 26.1 ft of 1.25-in diameter plastic pipe, screen set 26.1 to 28.1 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,874.7 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

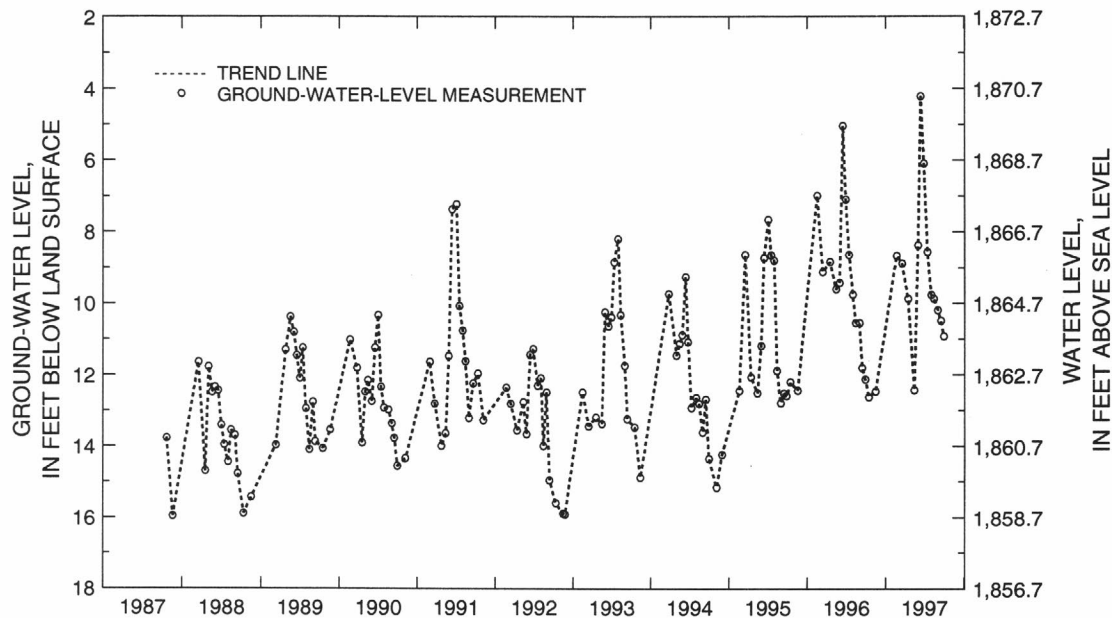
PERIOD OF RECORD.--October 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.21 ft below land-surface datum, June 14, 1997; lowest water level measured, 15.95 ft below land-surface datum, November 19, 1987.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	12.62	Apr. 16	9.87	June 28	6.09	Sept. 1	10.19
Nov. 15	12.46	May 15	12.43	July 15	8.56	Sept. 15	10.49
Feb. 21	8.67	June 1	8.38	Aug. 1	9.77	Sept. 29	10.93
Mar. 19	8.88	June 14	4.21	Aug. 14	9.87		

152-104-21BAB



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

WILLIAMS COUNTY

475823103553302. Local number, 152-104-24ADD2.

LOCATION.--Lat 47°58'23", long 103°55'33", Hydrologic Unit 10110102. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 16 ft, cased with 1.25-in diameter steel pipe.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,870.3 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

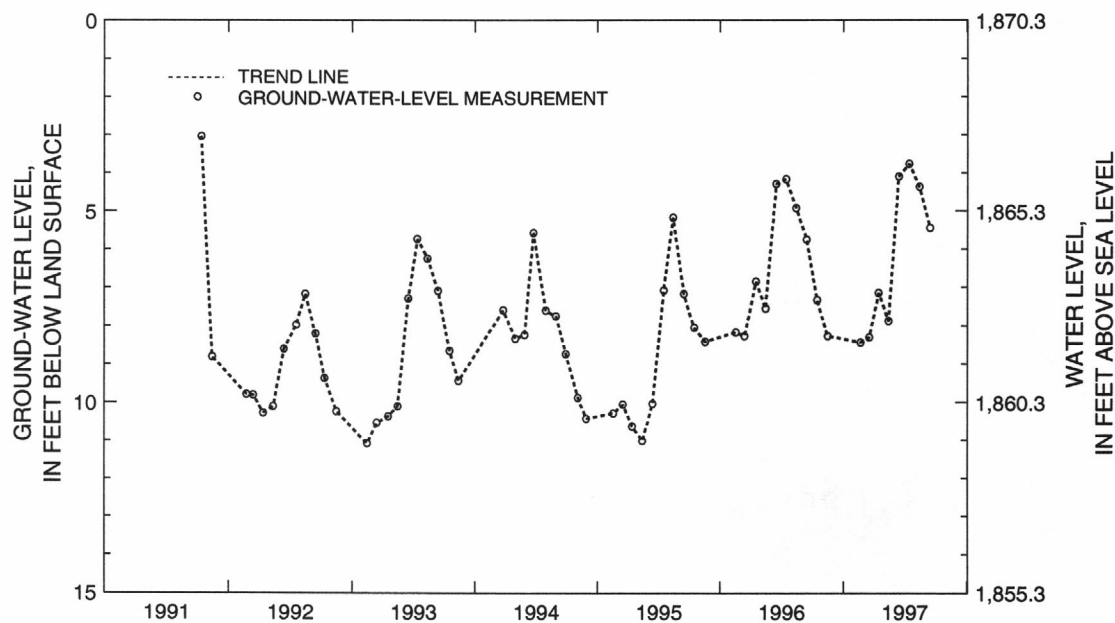
PERIOD OF RECORD.--October 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.04 ft below land-surface datum, October 12, 1991; lowest water level measured, 11.09 ft below land-surface datum, February 14, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	7.33	Mar. 19	8.31	June 14	4.10	Sept. 15	5.44
Nov. 15	8.27	Apr. 16	7.15	July 15	3.77		
Feb. 21	8.44	May 15	7.87	Aug. 14	4.37		

152-104-24ADD2



GROUND-WATER LEVELS

WILLIAMS COUNTY

480406103480001. Local number, 153-102-16DDD.

LOCATION.--Lat 48°04'06", long 103°48'00", Hydrologic Unit 10110101. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 21 ft, cased with 1.25-in diameter steel pipe.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,856.17 ft. Measuring point: Top of casing 1.20 ft above land-surface datum.

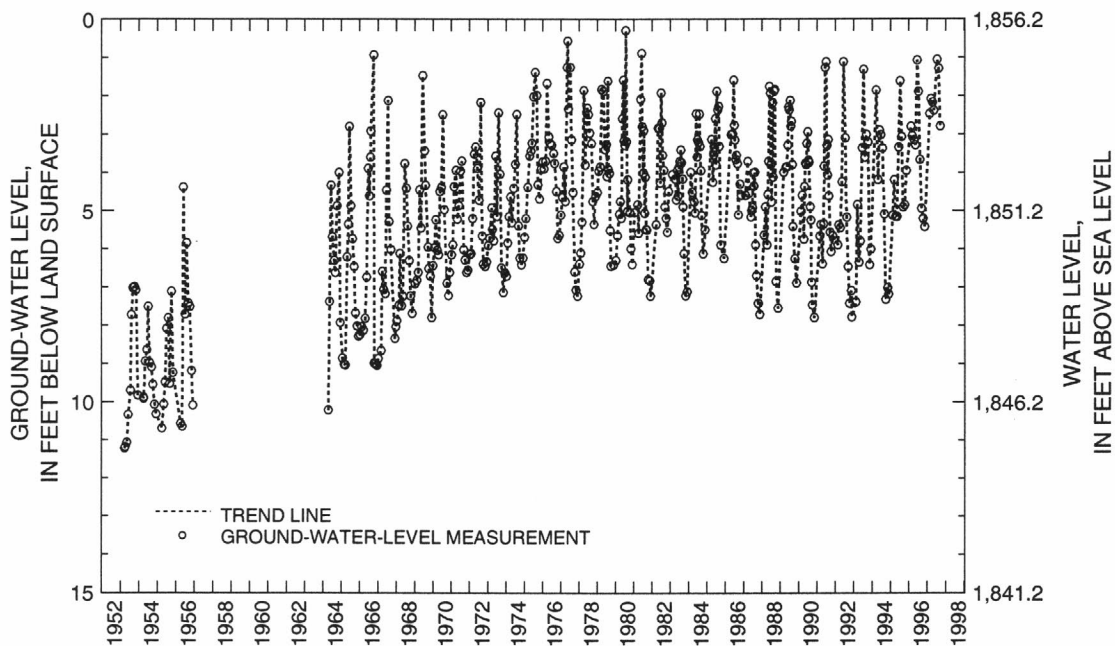
PERIOD OF RECORD.--March 1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.29 ft below land-surface datum, July 24, 1980; lowest water level measured, 11.23 ft below land-surface datum, March 18, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	5.20	Mar. 19	2.08	May 15	2.38	Aug. 14	1.29
Nov. 15	5.42	Apr. 16	2.17	July 15	1.05	Sept. 15	2.79
Feb. 21	2.47						

153-102-16DDD



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

WILLIAMS COUNTY

480129103511501. Local number, 153-102-31CDC.

LOCATION.--Lat 48°01'29", long 103°51'15", Hydrologic Unit 10110101. Owner: North Dakota State Water Commission.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 94 ft, cased with 83 ft of 1.25-in diameter steel pipe, No. 18 slot screen set 83 to 86 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,872.61 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

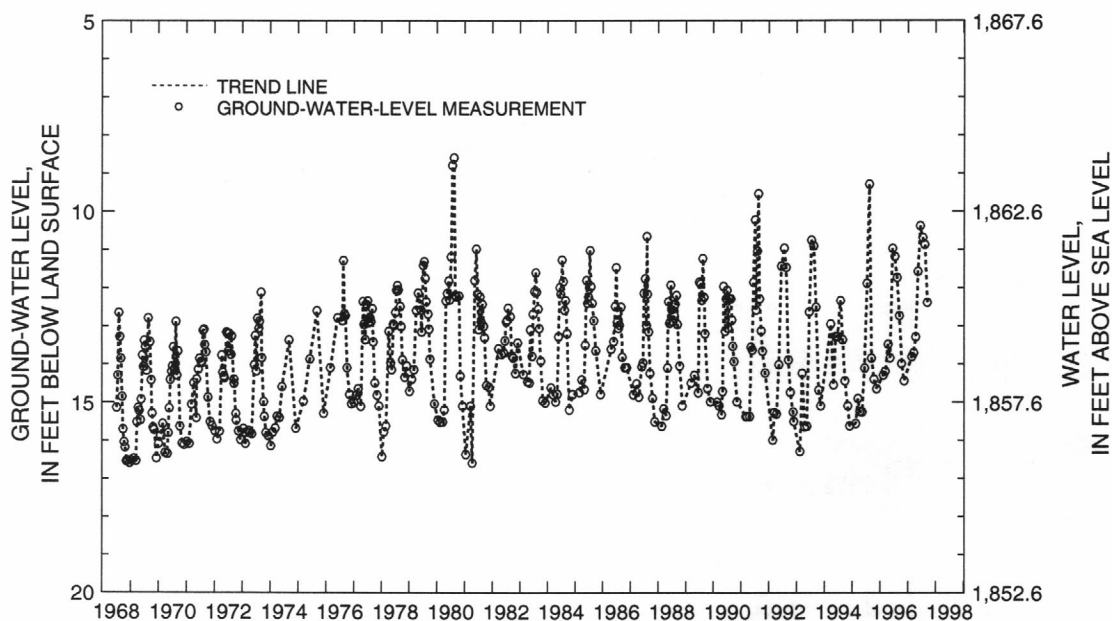
PERIOD OF RECORD.--July 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.59 ft below land-surface datum, August 13, 1980; lowest water level measured, 16.59 ft below land-surface datum, December 17, 1968 and April 10, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	13.99	Mar. 19	13.71	June 14	10.38	Aug. 14	10.87
Nov. 15	14.44	Apr. 16	13.29	July 15	10.69	Sept. 15	12.39
Feb. 21	13.81	May 15	11.58				

153-102-31CDC



GROUND-WATER LEVELS

WILLIAMS COUNTY

481056103024201. Local number, 154-096-08AAA.

LOCATION.--Lat 48°10'56", long 103°02'42", Hydrologic Unit 10110101. Owner: North Dakota State Water Commission.

AQUIFER.--Hofflund.

WELL CHARACTERISTICS.--Drilled observation well, depth 120 ft, cased with 77 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 77 to 83 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,883 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

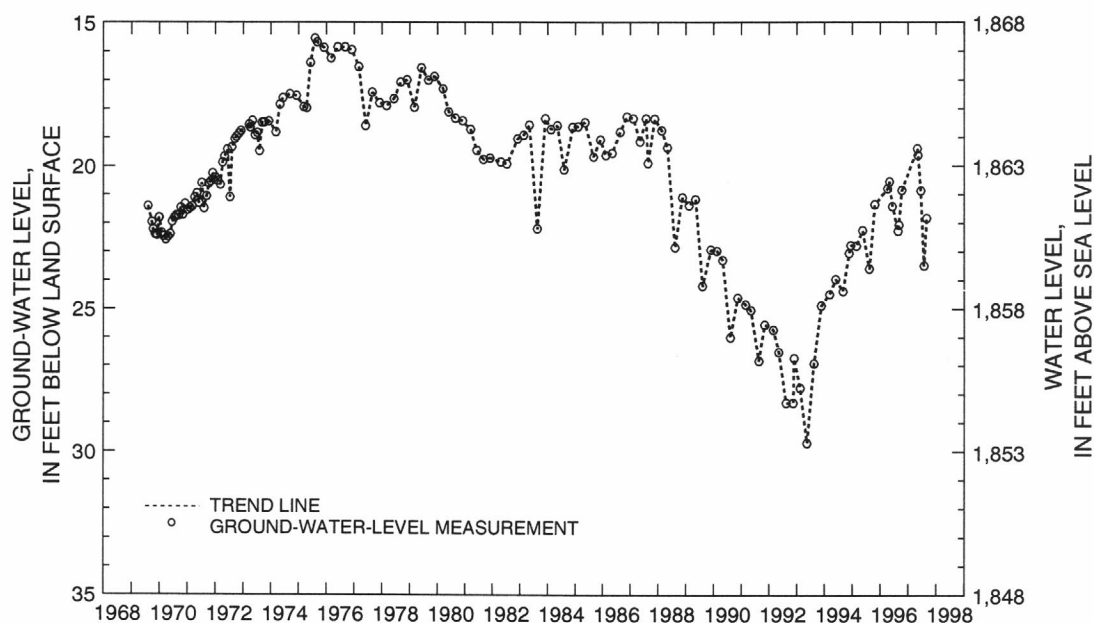
PERIOD OF RECORD.--August 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.55 ft below land-surface datum, August 4, 1975; lowest water level measured, 29.69 ft below land-surface datum, May 15, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	20.83	May 15	19.62	July 30	23.49	Sept. 4	21.82
May 7	19.38	June 18	20.86				

154-096-08AAA



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

WILLIAMS COUNTY

483016103242801. Local number, 158-099-13DDD.

LOCATION.--Lat 48°30'16", long 103°24'28", Hydrologic Unit 10110102. Owner: North Dakota State Water Commission.

AQUIFER.--Ray.

WELL CHARACTERISTICS.--Drilled observation well, depth 294 ft, cased with 255 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 255 to 257 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,243 ft. Measuring point: Top of casing 1.90 ft above land-surface datum.

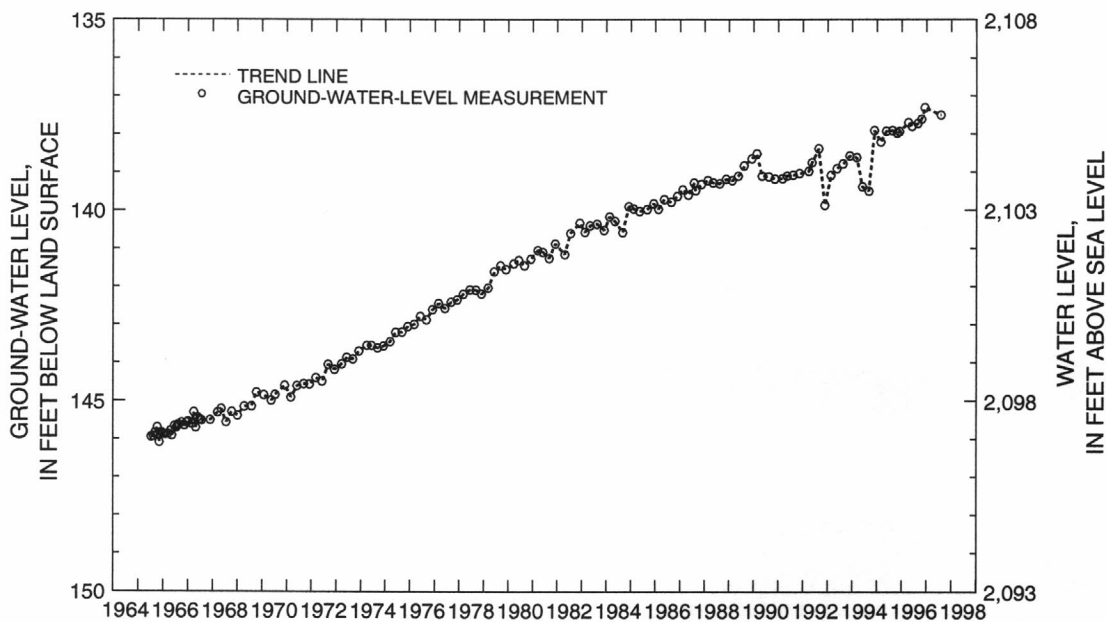
PERIOD OF RECORD.--July 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 137.31 ft below land-surface datum, December 9, 1996; lowest water level measured, 146.09 ft below land-surface datum, November 8, 1965.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 17	137.61	Dec. 9	137.31	May 27	137.52	July 29	137.50

158-099-13DDD



GROUND-WATER LEVELS

WILLIAMS COUNTY

483127103373102. Local number, 158-100-08DAA2.

LOCATION.--Lat 48°31'27", long 103°37'31", Hydrologic Unit 10110102. Owner: North Dakota State Water Commission.

AQUIFER.--Little Muddy.

WELL CHARACTERISTICS.--Drilled observation well, depth 94 ft, cased with 78 ft of 4-in diameter plastic pipe, slotted 68 to 78 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From August 1966 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,997.8 ft. Measuring point: Top of casing 1.43 ft above land-surface datum.

PERIOD OF RECORD.--August 1966 to current year.

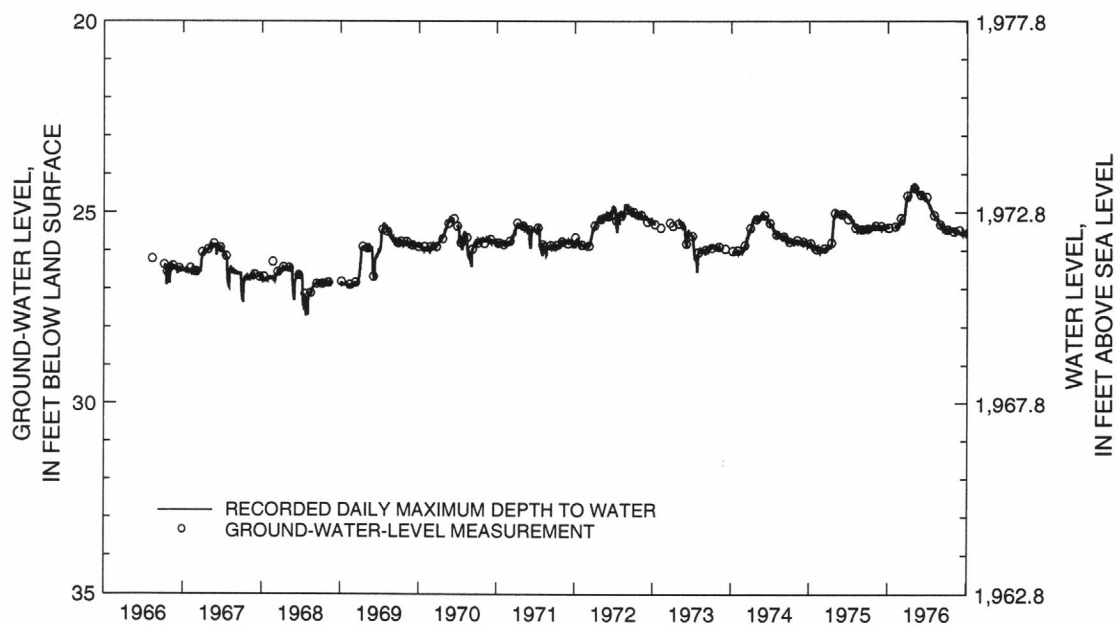
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 24.24 ft below land-surface datum, May 4, 1976; lowest daily water level, 30.44 ft below land-surface datum, August 14-15, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	27.08	26.96	26.83	26.81	26.83	26.74	25.88	25.85	26.99	26.32	27.26	27.15
10	27.04	26.97	26.82	26.84	26.81	26.72	25.94	25.96	27.39	25.68	27.61	27.00
15	26.97	26.94	26.87	26.82	26.71	26.77	25.89	25.93	27.31	25.53	27.77	26.86
20	27.05	26.92	26.84	26.84	26.78	26.77	25.86	25.98	27.21	26.34	27.12	26.86
25	27.04	26.90	26.80	26.85	26.77	26.53	25.87	25.97	27.12	26.69	27.31	27.27
EOM	27.01	26.86	26.77	26.83	26.72	26.14	25.84	26.26	27.41	26.80	27.01	26.82
MAX	27.16	26.99	26.89	26.87	26.84	26.77	26.05	26.26	27.77	27.21	27.78	27.27

WATER YEAR 1997 HIGHEST WATER LEVEL 25.37 JULY 14-15 LOWEST WATER LEVEL 27.78 AUGUST 23

158-100-08DAA2

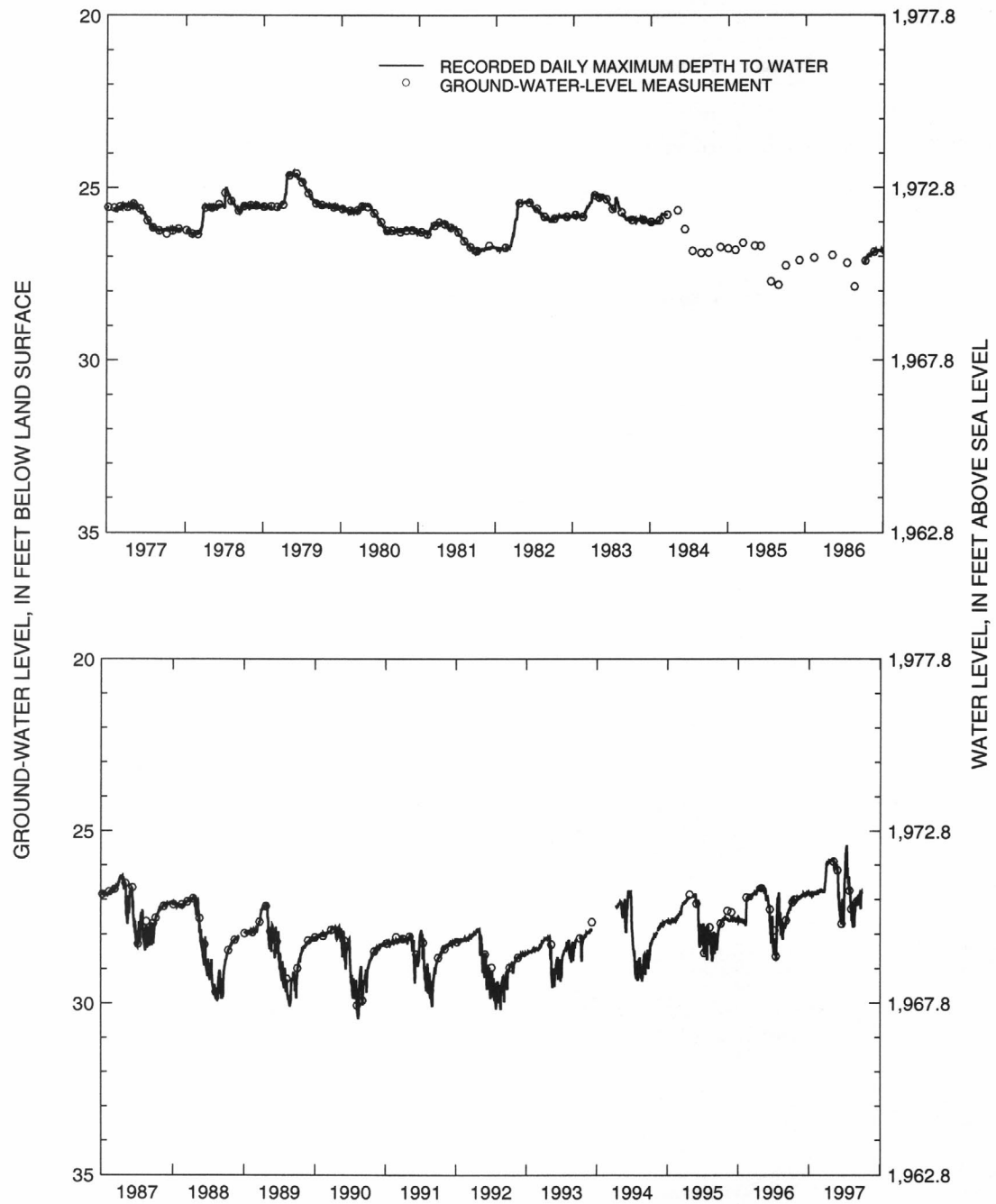


WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

WILLIAMS COUNTY

158-100-08DAA2--Continued



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

171

GROUND-WATER LEVELS

WILLIAMS COUNTY

483700103191501. Local number, 159-098-10AAD.

LOCATION.--Lat 48°37'00", long 103°19'15", Hydrologic Unit 10110102. Owner: North Dakota State Water Commission.

AQUIFER.--West Wildrose.

WELL CHARACTERISTICS.--Drilled observation well, depth 260 ft, cased with 214 ft of 1.25-in diameter plastic pipe, slotted 200 to 214 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,225 ft. Measuring point: Top of casing 3.30 ft below land-surface datum.

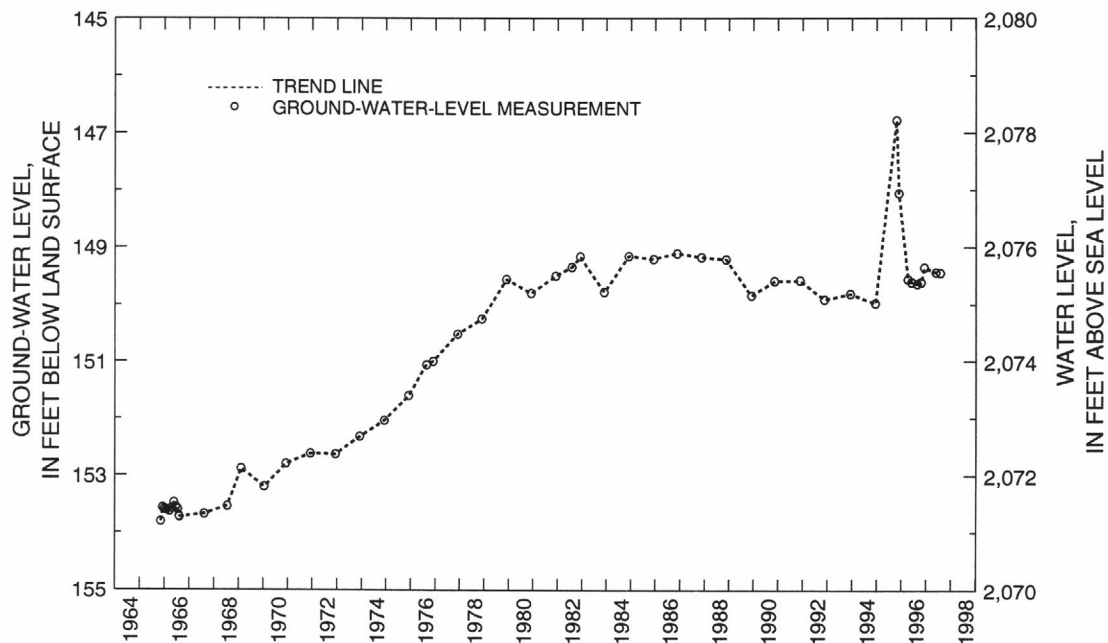
PERIOD OF RECORD.--November 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 146.78 ft below land-surface datum, October 25, 1995; lowest water level measured, 153.81 ft below land-surface datum, November 8, 1965.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 17	149.61	Dec. 9	149.35	May 27	149.44	July 29	149.45

159-098-10AAD



WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

GROUND-WATER LEVELS

RICHLAND COUNTY, MONTANA

475916104030201. Local number, 26-059-24CBC.

LOCATION.--Lat 47°59'16", long 104°03'02", Hydrologic Unit 10060005. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Trenton.

WELL CHARACTERISTICS.--Drilled observation well, depth 30 ft, cased with 26.6 ft of 1.25-in diameter plastic pipe, screen set 26.6 to 28.6 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,878.2 ft. Measuring point: Top of casing 3.00 ft below land-surface datum.

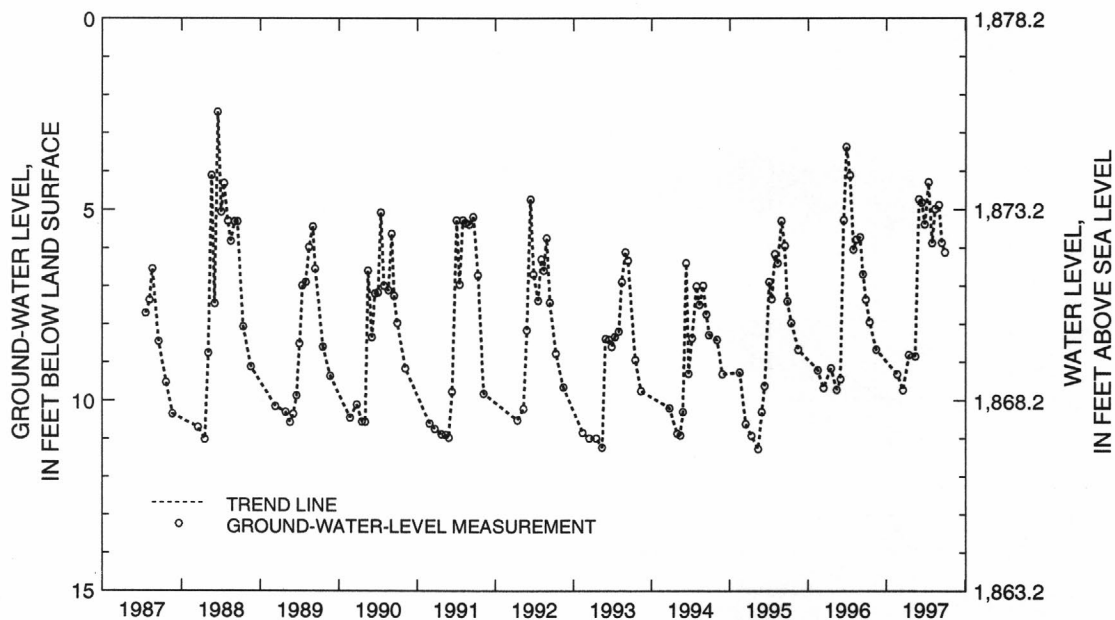
PERIOD OF RECORD.--July 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.44 ft below land-surface datum, June 16, 1988; lowest water level measured, 11.27 ft below land-surface datum, May 15, 1995.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	7.95	Apr. 16	8.81	June 28	5.38	Sept. 1	4.88
Nov. 15	8.67	May 15	8.84	July 15	4.29	Sept. 15	5.86
Feb. 21	9.31	June 1	4.73	Aug. 1	5.87	Sept. 29	6.11
Mar. 19	9.72	June 14	4.81	Aug. 14	4.99		

026-059-24CBC



MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475329098351401. Local number 151-062-15CCC.

LOCATION.--Lat 47°53'29", long 98°35'14", Hydrologic Unit 09020203. Owner: Bureau of Reclamation.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 25 ft, cased with 16 ft of 2-in diameter plastic pipe, screen set 16 to 21 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,479.1 ft. Measuring point: Top of casing 2.96 ft above land-surface datum.

PERIOD OF RECORD.--October 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.67 ft below land-surface datum, April 30, 1997; lowest measured, 10.82 ft below land-surface datum, September 27, 1990 and October 28, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	8.11	June 4	4.55	July 9	5.90	July 22	5.85
Apr. 30	2.67						

BENSON COUNTY

475258098375001. Local number 151-062-19ADD1.

LOCATION.--Lat 47°52'58", long 98°37'50", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 33 ft of 4-in diameter plastic pipe, screen set 33 to 38 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From July 1997 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,482.6 ft. Measuring point: Top of casing 1.60 ft above land-surface datum.

PERIOD OF RECORD.--November 1967 to current year.

REMARKS.--Recorder installed July 10, 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.67 ft below land-surface datum, August 10, 1993; lowest measured, 19.47 ft below land-surface datum, March 29, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	15.80	June 4	14.70	July 9	15.05	July 23	15.13
Apr. 30	14.49						

WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475339098391201. Local number 151-063-13ADD.

LOCATION.--Lat 47°53'39", long 98°39'12", Hydrologic Unit 09020201. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 40 ft, cased with 33 ft of 2-in diameter plastic pipe, screen set 33 to 38 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,486 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.49 ft below land-surface datum, April 30, 1997; lowest measured, 17.79 ft below land-surface datum, December 8, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	15.38	Apr. 30	14.49	June 4	14.62	July 9	14.74

BENSON COUNTY

475236098455901. Local number 151-063-19DDCC.

LOCATION.--Lat 47°52'36", long 98°45'59", Hydrologic Unit 09020201. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 30 ft, cased with 25 ft of 2-in diameter plastic pipe, screen set 25 to 30 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,484.17 ft. Measuring point: Top of casing 2.25 ft above land-surface datum.

PERIOD OF RECORD.--July 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.73 ft below land-surface datum, June 4, 1997; lowest measured, 24.98 ft below land-surface datum, July 22, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	23.03	June 4	21.73	July 10	21.90	July 22	22.42
Apr. 30	22.00						

MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475258098445802. Local number 151-063-20CAA2.

LOCATION.--Lat 47°52'58", long 98°44'58", Hydrologic Unit 09020201. Owner: Spirit Lake Sioux Nation.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 145 ft, cased with 128 ft of 2-in diameter plastic pipe, screen set 128 to 133 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,474.8 ft. Measuring point: Top of casing 2.64 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.76 ft below land-surface datum, April 30, 1997; lowest measured, 19.48 ft below land-surface datum, October 14, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	15.97	Apr. 30	14.76	June 4	15.65	July 10	14.86

BENSON COUNTY

475308098424801. Local number 151-063-22CBBB.

LOCATION.--Lat 47°53'08", long 98°42'48", Hydrologic Unit 09020201. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 16 ft, cased with 10 ft of 2-in diameter plastic pipe, screen set 10 to 15 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,465 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

PERIOD OF RECORD.--July 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.92 ft below land-surface datum, April 30, 1997; lowest measured, 11.40 ft below land-surface datum, July 22, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	10.30	June 4	9.00	July 9	9.40	July 23	9.72
Apr. 10	8.92						

WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475224098443202. Local number 151-063-29AAC2.

LOCATION.--Lat 47°52'24", long 98°44'32", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 67 ft, cased with 67 ft of 6-in diameter steel pipe, slotted 57 to 67 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,483 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1951 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.29 ft below land-surface datum, November 5, 1957; lowest measured, 26.90 ft below land-surface datum, September 17, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	22.90	Apr. 30	22.23	June 4	22.08	July 10	21.88

BENSON COUNTY

475212098430701. Local number 151-063-29ADDB.

LOCATION.--Lat 47°52'12", long 98°43'07", Hydrologic Unit 09020201. Owner: Spirit Lake Sioux Nation.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 193 ft, cased with 165 ft of 2-in diameter plastic pipe, screen set 165 to 170 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,476.3 ft. Measuring point: Top of casing 2.09 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.12 ft below land-surface datum, July 10, 1997; lowest measured, 26.31 ft below land-surface datum, November 1, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	19.70	June 4	19.06	July 10	18.12	July 22	18.91
Apr. 30	18.41						

MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475510098515502. Local number 151-064-04CCC2.

LOCATION.--Lat 47°55'10", long 98°51'55", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Tokio.

WELL CHARACTERISTICS.--Drilled observation well, depth 40 ft, cased with 34 ft of 2-in diameter plastic pipe, screen set 34 to 39 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From June 1997 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,556.1 ft. Measuring point: Top of casing 1.91 ft above land-surface datum.

PERIOD OF RECORD.--November 1986 to current year.

REMARKS.--Recorder installed June 5, 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.19 ft below land-surface datum, August 14, 1997; lowest measured, 29.92 ft below land-surface datum, April 15, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	27.09	June 5	26.35	July 9	26.28	July 23	26.27
Apr. 30	26.53						

BENSON COUNTY

475509098542502. Local number 151-064-06CCC2.

LOCATION.--Lat 47°55'09", long 98°54'25", Hydrologic Unit 09020203. Owner: North Dakota State Water Commission.

AQUIFER.--Tokio.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 73 ft of 2-in diameter plastic pipe, screen set 73 to 78 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,583.5 ft. Measuring point: Top of casing 2.03 ft above land-surface datum.

PERIOD OF RECORD.--November 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.53 ft below land-surface datum, April 30, 1997; lowest measured, 31.13 ft below land-surface datum, December 9, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	27.88	June 5	26.21	July 9	26.46	July 23	26.56
Apr. 30	25.53						

WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475658098571901. Local number 152-065-27DDD.

LOCATION.--Lat 47°56'58", long 98°57'19", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--Tokio.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 36.5 ft of 2-in diameter plastic pipe, screen set 36.5 to 41.5 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,567.2 ft. Measuring point: Top of casing 2.28 ft above land-surface datum.

PERIOD OF RECORD.--November 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.52 ft below land-surface datum, April 30, 1997; lowest measured, 19.56 ft below land-surface datum, October 15, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	16.74	June 4	15.74	July 9	15.92	July 23	16.06
Apr. 30	15.52						

BENSON COUNTY

475827099061501. Local number 152-066-21AAD1.

LOCATION.--Lat 47°58'27", long 99°06'15", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 240 ft, cased with 140 ft of 4-in diameter plastic pipe, screen set 140 to 145 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From June 1997 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,495 ft. Measuring point: Top of casing 0.87 ft above land-surface datum.

PERIOD OF RECORD.--November 1967 to current year.

REMARKS.--Recorder installed June 10, 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.70 ft below land-surface datum, August 14 and September 15, 1997; lowest measured, 46.84 ft below land-surface datum, December 15, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	37.03	June 5	35.24	July 9	35.08	July 24	34.91
May 1	35.64	June 10	35.23				

MISCELLANEOUS GROUND-WATER LEVELS

EDDY COUNTY

474911098375601. Local number 150-062-07DDA.

LOCATION.--Lat 47°49'11", long 98°37'56", Hydrologic Unit 09020203. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 51 ft of 2-in diameter plastic pipe, screen set 51 to 56 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,475 ft. Measuring point: Top of casing 2.10 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.48 ft below land-surface datum, September 15, 1993; lowest measured, 13.02 ft below land-surface datum, December 8, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	10.68	June 4	9.33	July 9	9.70	July 22	9.80
Apr. 30	9.53						

EDDY COUNTY

474839098352401. Local number 150-062-16ADD.

LOCATION.--Lat 47°48'39", long 98°35'24", Hydrologic Unit 09020203. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 40 ft, cased with 15 ft of 2-in diameter plastic pipe, screen set 15 to 20 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,475 ft. Measuring point: Top of casing 1.30 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.75 ft below land-surface datum, August 17, 1993; lowest measured, 15.73 ft below land-surface datum, December 8, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	13.83	June 4	11.71	July 9	12.30	July 22	12.47
Apr. 30	11.98						

WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

MISCELLANEOUS GROUND-WATER LEVELS

EDDY COUNTY

474943098402001. Local number 150-063-12BBC.

LOCATION.--Lat 47°49'43", long 98°40'20", Hydrologic Unit 09020203. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 34 ft of 2-in diameter plastic pipe, screen set 34 to 39 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,470 ft. Measuring point: Top of casing 1.60 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.18 ft below land-surface datum, April 30, 1997; lowest measured, 8.68 ft below land-surface datum, April 14, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	6.10	Apr. 30	5.18	June 4	5.37	July 9	5.55

EDDY COUNTY

474817098304001. Local number 150-063-16DDA.

LOCATION.--Lat 47°48'17", long 98°30'40", Hydrologic Unit 09020203. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 55 ft of 2-in diameter plastic pipe, screen set 55 to 60 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,428 ft. Measuring point: Top of casing 1.70 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.51 ft below land-surface datum, August 10, 1993; lowest measured, 26.66 ft below land-surface datum, October 13, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	26.25	June 4	26.05	July 9	26.17	July 22	26.21
Apr. 30	25.54						

MISCELLANEOUS GROUND-WATER LEVELS

EDDY COUNTY

475044098531301. Local number 150-064-05BBB.

LOCATION.--Lat 47°50'44", long 98°53'13", Hydrologic Unit 09020203. Owner: North Dakota State Water Commission.

AQUIFER.--Tokio.

WELL CHARACTERISTICS.--Drilled observation well, depth 70 ft, cased with 63 ft of 2-in diameter plastic pipe, screen set 63 to 68 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,567.3 ft. Measuring point: Top of casing 1.90 ft above land-surface datum.

PERIOD OF RECORD.--November 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.28 ft below land-surface datum, April 30 and July 9, 1997; lowest measured, 34.04 ft below land-surface datum, December 9, 1992, and April 15, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	32.51	Apr. 30	31.28	June 5	31.35	July 9	31.28

NELSON COUNTY

474714098290201. Local number 150-061-29AAA.

LOCATION.--Lat 47°47'14", long 98°29'02", Hydrologic Unit 09020203. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 110 ft, cased with 65 ft of 2-in diameter plastic pipe, screen set 65 to 70 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,457 ft. Measuring point: Top of casing 1.60 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.24 ft below land-surface datum, July 9, 1996; lowest measured, 19.01 ft below land-surface datum, October 13, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 29	15.78	June 4	15.48	July 9	15.40	July 21	15.46
Apr. 30	15.65						

GROUND-WATER QUALITY

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

COUNTY	STATION	NUMBER	LOCAL IDENT- I- FIER	GEO- LOGIC UNIT	DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	TEMPER- ATURE AIR (DEG C) (00020)
BENSON	475329098351401		151-062-15CCC	112WRCK	07-22-97	0930	680	7.4	7.6	27.0
BENSON	475258098375001		151-062-19ADD1	112WRCK	07-23-97	1530	590	7.3	7.5	28.0
BENSON	475236098455901		151-063-19DDCC	112WRCK	07-22-97	1445	610	7.4	7.6	22.0
BENSON	475308098424801		151-063-22CBBB	112WRCK	07-23-97	0915	140	7.1	7.5	22.0
BENSON	475212098430701		151-063-29ADDB	112WRCK	07-22-97	1630	615	7.4	7.6	27.0
BENSON	475510098515502		151-064-04CCC02	112TOKO	07-23-97	1045	640	7.2	7.4	24.0
BENSON	475509098542502		151-064-06CCC02	112TOKO	07-23-97	1330	586	7.1	7.4	25.0
BENSON	475658098571901		152-065-27DDD	112TOKO	07-23-97	1230	600	7.2	7.5	25.0
BENSON	475827099061501		152-066-21AAD1	112SPRD	07-24-97	1030	1640	7.3	7.4	28.0
EDDY	474911098375601		150-062-07DDA	112WRCK	07-22-97	1200	460	7.3	7.4	27.0
EDDY	474839098352401		150-062-16ADD	112WRCK	07-22-97	1045	440	7.3	7.6	27.0
EDDY	474817098304001		150-063-16DDA	112WRCK	07-22-97	1345	475	7.4	7.6	26.0
NELSON	474714098290201		150-061-29AAA	112WRCK	07-21-97	1430	1100	7.7	7.5	25.0

LOCAL IDENT- I- FIER	DATE	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	
151-062-15CCC	07-22-97	8.0	340	88	29	4.9	3	0.1	2.8	239	95	6.9
151-062-19ADD1	07-23-97	10.0	260	71	21	15	11	0.4	2.9	175	100	11
151-063-19DDCC	07-22-97	11.0	260	69	21	26	18	0.7	4.0	204	110	1.9
151-063-22CBBB	07-23-97	9.0	64	17	5.2	1.4	4	0.1	2.3	68	0.51	0.36
151-063-29ADDB	07-22-97	10.0	250	71	17	29	20	0.8	4.9	273	37	2.4
151-064-04CCC02	07-23-97	9.0	350	89	30	2.8	2	0.1	2.0	335	4.3	1.2
151-064-06CCC02	07-23-97	9.0	270	78	17	15	10	0.4	9.4	269	31	1.7
152-065-27DDD	07-23-97	9.0	270	76	20	6.0	5	0.2	3.5	216	49	0.71
152-066-21AAD1	07-24-97	9.0	580	110	75	145	35	3	17	464	360	41
150-062-07DDA	07-22-97	10.0	210	56	17	4.4	4	0.1	2.5	221	7.3	0.59
150-062-16ADD	07-22-97	10.0	220	61	16	1.6	2	0.0	0.86	213	10	2.0
150-063-16DDA	07-22-97	11.0	210	59	16	13	11	0.4	2.1	212	30	1.1
150-061-29AAA	07-21-97	10.0	210	53	19	157	60	5	8.4	409	140	2.5

LOCAL IDENT- I- FIER	DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, TOTAL ORGANIC (MG/L AS N) (00605)
151-062-15CCC	07-22-97	0.25	22	400	429	0.58	0.085	1.74	1.82	<0.015	--
151-062-19ADD1	07-23-97	0.15	28	356	374	0.51	<0.010	--	<0.050	0.074	--
151-063-19DDCC	07-22-97	0.15	26	381	394	0.54	<0.010	--	1.14	<0.015	--
151-063-22CBBB	07-23-97	<0.10	25	93	100	0.14	<0.010	--	0.154	<0.015	--
151-063-29ADDB	07-22-97	0.14	28	355	367	0.50	<0.010	--	<0.050	0.718	0.17
151-064-04CCC02	07-23-97	0.12	29	368	377	0.51	0.017	1.89	1.91	<0.015	--
151-064-06CCC02	07-23-97	0.19	40	356	361	0.49	<0.010	--	<0.050	0.578	0.01
152-065-27DDD	07-23-97	0.21	22	347	370	0.50	0.135	8.88	9.02	<0.015	--
152-066-21AAD1	07-24-97	0.16	30	1060	1120	1.52	<0.010	--	<0.050	1.27	0.64
150-062-07DDA	07-22-97	0.15	30	256	272	0.37	<0.010	--	<0.050	0.156	0.09
150-062-16ADD	07-22-97	<0.10	26	253	270	0.37	<0.010	--	2.00	<0.015	--
150-063-16DDA	07-22-97	0.13	29	280	291	0.40	<0.010	--	<0.050	0.121	--
150-061-29AAA	07-21-97	0.34	35	668	698	0.95	<0.010	--	<0.050	1.75	0.46

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

LOCAL IDENT- I- FIER	DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ANTI- MONY, DIS- SOLVED (UG/L AS SB) (01095)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)
151-062-15CCC	07-22-97	<0.20	--	<0.010	0.010	--	--	--	--	--	--
151-062-19ADD1	07-23-97	<0.20	--	0.024	0.032	--	--	--	--	--	--
151-063-19DDCC	07-22-97	<0.20	--	0.064	0.053	--	--	--	--	--	--
151-063-22CBBB	07-23-97	<0.20	--	0.108	0.104	--	--	--	--	--	--
151-063-29ADDB	07-22-97	0.89	0.89	0.064	0.070	<1.0	3.6	180	<1.0	<1.0	5.2
151-064-04CCC02	07-23-97	<0.20	--	<0.010	0.023	--	--	--	--	--	--
151-064-06CCC02	07-23-97	0.59	0.59	0.079	0.050	--	--	--	--	--	--
152-065-27DDD	07-23-97	<0.20	--	<0.010	0.018	--	--	--	--	--	--
152-066-21AAD1	07-24-97	1.9	1.9	0.041	0.030	--	--	--	--	--	--
150-062-07DDA	07-22-97	0.25	0.25	0.071	0.045	--	--	--	--	--	--
150-062-16ADD	07-22-97	<0.20	--	0.036	0.039	--	--	--	--	--	--
150-063-16DDA	07-22-97	<0.20	--	0.050	0.045	--	--	--	--	--	--
150-061-29AAA	07-21-97	2.2	2.2	0.407	0.298	--	--	--	--	--	--

LOCAL IDENT- I- FIER	DATE	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)
151-062-15CCC	07-22-97	--	--	<3.0	--	376	--	--	--	--	--
151-062-19ADD1	07-23-97	--	--	420	--	471	--	--	--	--	--
151-063-19DDCC	07-22-97	--	--	<3.0	--	4.7	--	--	--	--	--
151-063-22CBBB	07-23-97	--	--	68	--	3.4	--	--	--	--	--
151-063-29ADDB	07-22-97	<1.0	<1.0	72	<1.0	801	1.1	<1	<1.0	1.9	<1.0
151-064-04CCC02	07-23-97	--	--	<3.0	--	2.8	--	--	--	--	--
151-064-06CCC02	07-23-97	--	--	540	--	443	--	--	--	--	--
152-065-27DDD	07-23-97	--	--	<3.0	--	255	--	--	--	--	--
152-066-21AAD1	07-24-97	--	--	5000	--	445	--	--	--	--	--
150-062-07DDA	07-22-97	--	--	3000	--	488	--	--	--	--	--
150-062-16ADD	07-22-97	--	--	<3.0	--	46	--	--	--	--	--
150-063-16DDA	07-22-97	--	--	1100	--	386	--	--	--	--	--
150-061-29AAA	07-21-97	--	--	1300	--	38	--	--	--	--	--

GROUND-WATER QUALITY

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

COUNTY	STATION NUMBER	LOCAL IDENT- I- FIER	GEO- LOGIC UNIT	DATE	TIME	DEPTH OF WELL, TOTAL (FEET) (72008)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)
BENSON	475601099264701	151-069-01BBB	112MDCK	10-16-96	1115	103.00	1990
BENSON	475515099292101	151-069-03CCC	112MDCK	10-16-96	0945	143.00	1860
BENSON	480958099154801	154-067-15BBB	112SPRD	10-15-96	1430	153.00	3120
BOTTINEAU	483333101135402	159-082-35BBB2	112GLNB	10-09-96	1330	181.00	2220
BURLEIGH	470556100142501	142-075-19CCB	112WGCL	10-07-96	1400	210.00	2140
DICKEY	460830098224701	131-062-24DDD1	112NRVL	10-18-96	1000	196.00	1640
DICKEY	460830098224702	131-062-24DDD2	112ELDL	10-18-96	1100	81.00	1540
EMMONS	462539100061101	134-075-15BBB	211FXHL	10-01-96	1430	103.00	1010
GRAND FORKS	475646097372201	152-054-31BBB	112ELKV	07-24-97	1245	60.00	643
KIDDER	470638099324301	142-070-16DDD	112LGLK	10-07-96	1130	73.00	530
LOGAN	463240099483801	136-073-35DDD1	112NPLN	10-01-96	1030	171.00	1260
LOGAN	463240099483802	136-073-35DDD2	112NPLN	10-01-96	1145	121.00	1020
McHENRY	480722100444202	154-078-31BAA2	211FXHL	10-09-96	1630	300.00	4010
McHENRY	481948100305901	156-077-13CCB1	112DNBH	10-10-96	1215	126.00	2380
McHENRY	481948100305902	156-077-13CCB2	112DNBH	10-10-96	1330	56.00	465
McINTOSH	455807099450701	129-072-30BBB	112ZLND	10-02-96	1400	126.00	1000
McINTOSH	460411099200701	130-069-21BBB1	112SPCK	10-03-96	1200	180.00	1320
McINTOSH	460411099200702	130-069-21BBB2	112SPCK	10-03-96	1030	100.00	1490
McINTOSH	461446099312801	132-071-14DDD1	112WSHK	10-02-96	1200	121.00	638
McINTOSH	461446099312802	132-071-14DDD2	112WSHK	10-02-96	1100	41.00	642
MOUNTRAIL	480120101571901	152-088-04BBBD1	125SNLB	10-08-96	1300	71.00	2250
MOUNTRAIL	480120101571902	152-088-04BBBD2	125SNLB	10-08-96	1400	87.00	2380
PIERCE	482033099594901	156-073-12CCC	211FXHL	10-10-96	1045	77.00	1400
PIERCE	483054100071901	158-073-17BBB	112LCSR	10-10-96	1630	59.00	4270
RAMSEY	480449099002402	153-065-09DDD2	112SPRD	10-15-96	1545	120.00	1650
RAMSEY	480817099013201	154-065-21CCC	112SPRD	10-16-96	1730	133.00	1740
RAMSEY	481929098392601	156-062-20BBB	211PIRR	10-16-96	1530	58.00	1090
RENVILLE	484500101294901	161-084-24DDD	211FXHL	10-09-96	1030	488.00	13500
ROLETTE	485707100053701	163-073-11CCC1	211FXHL	07-08-97	1509	412.00	991
ROLETTE	485707100053702	163-073-11CCC2	211HLCK	07-08-97	1617	275.00	1370
SHERIDAN	472638100065901	146-074-21CCC	211FXHL	10-11-96	1300	405.00	6030
SHERIDAN	474817100063801	150-074-14CCC	112MRTN	10-11-96	1030	133.00	2070
WELLS	474419099371201	149-070-09DAA1	112NRKF	10-17-96	1030	197.00	2600

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

LOCAL IDENT- I- FIER	DATE	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	PH WATER FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
151-069-01BBB	10-16-96	1970	7.9	7.5	780	285	200	69	170	31
151-069-03CCC	10-16-96	1850	7.9	6.5	150	434	42	12	380	83
154-067-15BBB	10-15-96	3060	8.0	7.5	490	565	130	40	560	70
159-082-35BBB2	10-09-96	2210	8.1	8.0	230	721	58	21	420	79
142-075-19CCB	10-07-96	2030	8.6	11.0	1100	943	160	170	140	22
131-062-24DDD1	10-18-96	1620	8.1	8.0	340	336	100	22	210	56
131-062-24DDD2	10-18-96	1510	8.2	8.5	490	388	140	35	170	42
134-075-15BBB	10-01-96	973	8.1	8.0	160	399	35	18	170	68
152-054-31BBB	07-24-97	675	--	12.0	370	294	88	37	4.0	2
142-070-16DDD	10-07-96	550	8.0	11.5	280	226	70	25	11	8
136-073-35DDD1	10-01-96	1220	8.1	7.5	340	504	76	36	170	51
136-073-35DDD2	10-01-96	942	8.0	7.5	360	447	94	30	100	37
154-078-31BAA2	10-09-96	3960	8.4	9.0	36	656	10	2.5	900	98
156-077-13CCB1	10-10-96	2380	8.4	8.0	65	447	16	6.0	500	94
156-077-13CCB2	10-10-96	464	7.8	7.5	240	242	71	15	7.0	6
129-072-30BBB	10-02-96	960	8.0	10.0	320	392	80	29	110	42
130-069-21BBB1	10-03-96	1260	8.2	8.0	380	393	92	37	150	45
130-069-21BBB2	10-03-96	1390	8.1	7.5	620	368	160	54	110	27
132-071-14DDD1	10-02-96	601	8.5	8.0	200	315	49	19	68	41
132-071-14DDD2	10-02-96	609	8.2	7.0	340	289	96	24	7.5	5
152-088-04BBBD1	10-08-96	2220	7.7	7.0	640	686	110	87	320	52
152-088-04BBBD2	10-08-96	2300	8.2	7.5	270	674	40	40	460	78
156-073-12CCC	10-10-96	1420	8.9	7.0	12	624	3.0	1.0	350	98
158-073-17BBB	10-10-96	4290	7.8	10.0	1400	303	330	130	620	49
153-065-09DDD2	10-15-96	1700	8.2	9.5	690	502	160	70	140	30
154-065-21CCC	10-16-96	1710	8.0	7.0	830	489	200	80	110	22
156-062-20BBB	10-16-96	1100	8.9	7.0	56	555	14	5.0	250	89
161-084-24DDD	10-09-96	13400	7.9	8.5	290	169	80	20	2800	95
163-073-11CCC1	07-08-97	1280	--	7.5	510	365	130	46	120	33
163-073-11CCC2	07-08-97	2100	--	8.0	1300	407	300	140	45	7
146-074-21CCC	10-11-96	6020	8.6	9.0	2300	275	50	530	870	45
150-074-14CCC	10-11-96	2080	7.9	9.0	520	487	120	52	310	56
149-070-09DAA1	10-17-96	2590	7.9	6.5	530	828	140	43	440	64

GROUND-WATER QUALITY

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

LOCAL IDENT- I- FIER	DATE	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
151-069-01BBB	10-16-96	3	18	750	72	0.30	1560	<1	4600	<1.0
151-069-03CCC	10-16-96	13	8.8	450	74	0.40	1260	<1	280	<1.0
154-067-15BBB	10-15-96	11	17	910	190	0.50	2170	12	810	<1.0
159-082-35BBB2	10-09-96	12	10	2.9	340	0.60	1330	5	90	<1.0
142-075-19CCB	10-07-96	2	6.1	470	7.7	0.20	1530	8	130	<1.0
131-062-24DDD1	10-18-96	5	16	140	250	0.40	965	13	740	<1.0
131-062-24DDD2	10-18-96	3	16	460	21	0.20	1040	3	200	<1.0
134-075-15BBB	10-01-96	6	11	160	8.8	0.30	665	<1	40	<1.0
152-054-31BBB	07-24-97	0.1	1.9	88	7.1	0.30	425	--	130	--
142-070-16DDD	10-07-96	0.3	3.1	75	9.8	0.20	347	2	1500	<1.0
136-073-35DDD1	10-01-96	4	8.8	200	25	0.30	812	1	20	<1.0
136-073-35DDD2	10-01-96	2	8.0	130	8.6	0.10	625	1	30	<1.0
154-078-31BAA2	10-09-96	66	3.9	6.6	930	0.60	2190	<1	30	<1.0
156-077-13CCB1	10-10-96	27	4.3	3.3	520	0.70	1370	14	410	<1.0
156-077-13CCB2	10-10-96	0.2	1.8	9.5	6.2	0.20	291	17	1300	<1.0
129-072-30BBB	10-02-96	3	11	170	14	0.30	635	<1	20	<1.0
130-069-21BBB1	10-03-96	3	13	290	49	0.40	860	2	80	<1.0
130-069-21BBB2	10-03-96	2	9.1	470	23	0.30	1070	1	80	<1.0
132-071-14DDD1	10-02-96	2	8.1	36	9.1	0.20	394	<1	10	<1.0
132-071-14DDD2	10-02-96	0.2	4.8	65	13	0.10	387	1	30	<1.0
152-088-04BBBD1	10-08-96	6	14	620	13	0.20	1630	<1	570	<1.0
152-088-04BBBD2	10-08-96	12	14	580	60	0.20	1600	<1	30	<1.0
156-073-12CCC	10-10-96	45	2.8	130	31	0.90	942	1	40	<1.0
158-073-17BBB	10-10-96	7	17	2200	85	0.30	3730	3	5200	<1.0
153-065-09DDD2	10-15-96	2	14	460	15	0.20	1110	2	60	<1.0
154-065-21CCC	10-16-96	2	13	570	14	0.20	1270	1	1200	<1.0
156-062-20BBB	10-16-96	15	8.1	89	8.5	0.50	729	1	130	<1.0
161-084-24DDD	10-09-96	73	12	2.5	4400	0.30	7770	<1	1200	3.0
163-073-11CCC1	07-08-97	2	8.1	410	19	0.30	887	--	40	--
163-073-11CCC2	07-08-97	0.5	8.0	1000	11	0.50	1840	--	5600	--
146-074-21CCC	10-11-96	8	8.2	3700	15	0.30	5470	<1	60	1.0
150-074-14CCC	10-11-96	6	12	660	43	0.30	1510	9	660	<1.0
149-070-09DAA1	10-17-96	8	13	330	200	0.20	1620	9	170	<1.0

GROUND-WATER QUALITY

187

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

LOCAL IDENT- I- FIER	DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)
151-069-01BBB	10-16-96	150	3100	0.2	16	<1	1000
151-069-03CCC	10-16-96	120	630	0.1	12	<1	280
154-067-15BBB	10-15-96	280	450	0.2	8.0	<1	930
159-082-35BBB2	10-09-96	40	90	<0.1	13	<1	560
142-075-19CCB	10-07-96	180	430	<0.1	2.0	<1	1200
131-062-24DDD1	10-18-96	150	740	<0.1	12	<1	620
131-062-24DDD2	10-18-96	180	1300	<0.1	13	<1	780
134-075-15BBB	10-01-96	180	210	<0.1	<1.0	<1	230
152-054-31BBB	07-24-97	--	680	--	--	--	--
142-070-16DDD	10-07-96	20	430	<0.1	8.0	<1	340
136-073-35DDD1	10-01-96	170	1900	<0.1	<1.0	<1	530
136-073-35DDD2	10-01-96	100	1600	<0.1	1.0	<1	590
154-078-31BAA2	10-09-96	120	10	<0.1	<1.0	<1	270
156-077-13CCB1	10-10-96	80	40	<0.1	64	<1	270
156-077-13CCB2	10-10-96	9	210	<0.1	9.0	<1	260
129-072-30BBB	10-02-96	100	1400	<0.1	10	<1	560
130-069-21BBB1	10-03-96	140	750	<0.1	3.0	<1	660
130-069-21BBB2	10-03-96	140	120	<0.1	3.0	<1	900
132-071-14DDD1	10-02-96	70	750	<0.1	3.0	<1	380
132-071-14DDD2	10-02-96	20	1300	<0.1	2.0	<1	430
152-088-04BBBD1	10-08-96	180	340	0.1	<1.	<1	2600
152-088-04BBBD2	10-08-96	160	80	<0.1	<1.	<1	1300
156-073-12CCC	10-10-96	80	20	<0.1	13	<1	90
158-073-17BBB	10-10-96	400	720	0.1	22	<1	1600
153-065-09DDD2	10-15-96	170	130	0.1	2.0	<1	1000
154-065-21CCC	10-16-96	200	320	0.1	<1.0	<1	1200
156-062-20BBB	10-16-96	110	50	<0.1	3.0	<1	210
161-084-24DDD	10-09-96	320	80	<0.1	5.0	2	2900
163-073-11CCC1	07-08-97	--	1100	--	--	--	--
163-073-11CCC2	07-08-97	--	720	--	--	--	--
146-074-21CCC	10-11-96	190	280	0.1	8.0	<1	980
150-074-14CCC	10-11-96	150	160	0.1	4.0	<1	1000
149-070-09DAA1	10-17-96	90	250	0.1	3.0	1	1100

INDEX

189

	Page		Page
A		Ground-water level data, by counties:	
Access to USGS water data	5	Bottineau County	20
Adams County, ground-water levels for	10	Bowman County	21
Aquifer, definition of	5	Burke County	23
Availability of data, ground-water levels	3	Burleigh County	24
Availability of data, ground-water quality	5	Cass County	29
B		Cavalier County	35
Benson County, ground-water levels for	12	Dickey County	37
miscellaneous ground-water levels for	173	Divide County	39
Bottineau County, ground-water levels for	20	Dunn County	41
Bowman County, ground-water levels for	21	Eddy County	45
Burke County, ground-water levels for	23	Emmons County	46
Burleigh County, ground-water levels for	24	Foster County	47
C		Golden Valley County	48
Cass County, ground-water levels for	29	Grand Forks County	49
Cavalier County, ground-water levels for	35	Grant County	51
Cooperation	1	Griggs County	53
D		Hettinger County	57
Data collection and computation, ground-water levels	3	Kidder County	58
ground-water quality	5	LaMoure County	61
Data presentation, ground-water levels	3	Logan County	65
Data presentation, ground-water quality	5	McHenry County	68
Definition of terms	5	McIntosh County	73
Dickey County, ground-water levels for	37	McKenzie County	78
Dissolved, definition of	5	McLean County	89
Dissolved-solids concentration, definition of	6	Mercer County	91
Divide County, ground-water levels for	39	Morton County	92
Dunn County, ground-water levels for	41	Mountrail County	99
E		Nelson County	101
Eddy County, ground-water levels for	45	Oliver County	104
miscellaneous ground-water levels for	179	Pembina County	105
Emmons County, ground-water levels for	46	Pierce County	106
Explanation of the records	1	Ramsey County	110
Records of ground-water levels	3	Ransom County	115
Records of ground-water quality	3	Renville County	118
F		Richland County	119
Foster County, ground-water levels for	47	Richland County, Montana	172
G		Rolette County	125
Golden Valley County, ground-water levels for	48	Sargent County	129
Grand Forks County, ground-water levels for	49	Sheridan County	131
Grant County, ground-water levels for	51	Sioux County	133
Griggs County, ground-water levels for	53	Stark County	136
Ground-water level data, by counties:		Steele County	137
Adams County	10	Stutsman County	138
Benson County	12	Towner County	142
		Walsh County	147
		Ward County	153
		Wells County	155
		Williams County	157
		Ground-water levels, records of	3
		Ground-water quality analyses	182
		Ground-water quality, records of	3
H			
		Hardness, definition of	6
		Hettinger County, ground-water levels for	57

	Page		Page
I		Publications on Techniques of Water-Resources Investigations	6
Introduction	1		
K		R	
Kidder County, ground-water levels for	58	Ramsey County, ground-water levels for	110
		Ransom County, ground-water levels for	115
L		Records, explanation of	1
LaMoure County, ground-water levels for	61	Ground-water levels	3
Land-surface datum, definition of	6	Availability of data	3
Latitude-longitude system	3	Data collection and computation	3
Local well numbers	3	Data presentation	3
Logan County, ground-water levels for	65	Ground-water quality	3
		Availability of data	5
M		Data collection and computation	5
Map showing location of, ground-water observation wells	2	Data presentation	5
McHenry County, ground-water levels for	68	Onsite measurements and sample collection	3
McIntosh County, ground-water levels for	73	Renville County, ground-water levels for	118
McKenzie County, ground-water levels for	78	Richland County Montana, ground-water levels for	172
McLean County, ground-water levels for	89	Richland County, ground-water levels for	119
Mercer County, ground-water levels for	91	Rolette County, ground-water levels for	125
Micrograms per liter (UG/L, µg/L), definition of	6		
Microsiemens per centimeter at 25 degrees Celsius (US/CM, µS/cm), definition of	6	S	
Milligrams per liter (MG/L, mg/L), definition of	6	SAR (sodium-adsorption-ratio), definition of	6
Miscellaneous ground-water level data, by counties:		Sargent County, ground-water levels for	129
Benson County	173	Sea level, definition of	6
Eddy County	179	Sheridan County, ground-water levels for	131
Nelson County	181	Sioux County, ground-water levels for	133
Morton County, ground-water levels for	92	Sodium-adsorption-ratio (SAR), definition of	6
Mountrail County, ground-water levels for	99	Solute, definition of	6
		Specific conductance, definition of	6
N		Stark County, ground-water levels for	136
National Geodetic Vertical Datum of 1929 (NGVD of 1929), definition of	6	Steele County, ground-water levels for	137
Nelson County, ground-water levels for	101	Stutsman County, ground-water levels for	138
miscellaneous ground-water levels for	181	Summary of hydrologic conditions	1
NGVD of 1929 (National Geodetic Vertical Datum of 1929), definition of	6	System for numbering wells	4
O		T	
Oliver County, ground-water levels for	104	Terms, definition of	5
Onsite measurements and sample collection, ground-water quality	3	Total, definition of	6
		Towner County, ground-water levels for	142
P		TWRI (Techniques of Water-Resources Investigations), list of	6
Parameter Code, definition of	6		
Pembina County, ground-water levels for	105	U	
pH, definition of	6	USGS water data, access to	5
Pierce County, ground-water levels for	106		
		W	
		Walsh County, ground-water levels for	147
		Ward County, ground-water levels for	153
		Water year, definition of	6
		Well identification numbers	1
		Wells County, ground-water levels for	155
		Williams County, ground-water levels for	157

CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
<i>Length</i>		
inch (in.)	2.54×10^1	millimeter
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter
mile (mi)	1.609×10^0	kilometer
<i>Area</i>		
acre	4.047×10^3	square meter
	4.047×10^{-1}	square hectometer
	4.047×10^{-3}	square kilometer
square mile (mi ²)	2.590×10^0	square kilometer
<i>Volume</i>		
gallon (gal)	3.785×10^0	liter
	3.785×10^0	cubic decimeter
	3.785×10^{-3}	cubic meter
million gallons (Mgal)	3.785×10^3	cubic meter
	3.785×10^{-3}	cubic hectometer
cubic foot (ft ³)	2.832×10^1	cubic decimeter
	2.832×10^{-2}	cubic meter
cubic-foot-per-second day [(ft ³ /s) d]	2.447×10^3	cubic meter
	2.447×10^{-3}	cubic hectometer
acre-foot (acre-ft)	1.233×10^3	cubic meter
	1.233×10^{-3}	cubic hectometer
	1.233×10^{-6}	cubic kilometer
<i>Flow</i>		
cubic foot per second (ft ³ /s)	2.832×10^1	liter per second
	2.832×10^1	cubic decimeter per second
	2.832×10^{-2}	cubic meter per second
gallon per minute (gal/min)	6.309×10^{-2}	liter per second
	6.309×10^{-2}	cubic decimeter per second
	6.309×10^{-5}	cubic meter per second
million gallons per day (Mgal/d)	4.381×10^1	cubic decimeter per second
	4.381×10^{-2}	cubic meter per second
<i>Mass</i>		
ton (short)	9.072×10^{-1}	megagram or metric ton

Sea level: In this report “sea level” refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

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