GEOLOGIC AND HYDROLOGIC DATA COLLECTED DURING 1976-1984 AT THE SHEFFIELD LOW-LEVEL RADIOACTIVE-WASTE DISPOSAL SITE AND ADJACENT AREAS, SHEFFIELD, ILLINOIS

By J. B. Foster, George Garklavs, and G. W. Mackey

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CONVERSION FACTORS

INCH-POUND TO METRIC

Multiply inch-pound units	by	To obtain SI units
	Length	
inch (in.)	25.40	millimeter (mm)
feet (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
square foot (ft^2)	0.0929	square meter (m^2)
	Flow	
foot per second (ft/s)	0.3048	meter per second (m/s)
foot per second (ft/s)	18.29	meter per minute (m/min)
	Temperature	
degree Fahrenheit (°F)	°C = 5/9 (°F-32)	degree Celsius (°C)
	Radiometric	
picocuri (pCi)	0.037	becquerel (Bq)
nanocuri (nCi)	37	becquerel (Bq)

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ABSTRACT

Hydrogeologic studies were conducted at the low-level radioactive-waste disposal site near Sheffield, Illinois, from 1976-84. Data in this report include water levels in wells, lake stages, inorganic, organic, and radiometric chemical analyses of ground and surface water, hydraulic conductivities of glacial materials, grain-size distribution, clay and carbonate mineralogy, and cation exchange capacities of the glacial materials. Also included are results of petrographic analyses, physical measurements of wells, stratigraphy and lithology of cores collected from test wells, and horizontal coordinates of wells.

INTRODUCTION

The report contains geologic and hydrologic data collected for studies to determine the hydrogeology of a low-level radioactive-waste disposal site and adjacent areas near Sheffield, Illinois, in Bureau County (fig. 1). The studies include the following: (1) Hydrogeology of the site, (2) ground-water flow through a pebbly-sand extending northeast from the site to a strip-mine lake and east to where the water table intercepts a tributary to Lawson Creek, and (3) areal extent and rate of migration of tritium moving through two ground-water pathways east of the site.

The purpose of the report is to assemble most of the geologic and hydrologic data collected by the U.S. Geological Survey during these studies. The report contains data collected from October 1976 through July 1984. Additional data may be found in the reports listed below. Well records, ground-water quality data, and core descriptions for wells 501-533 and 535-537 are included in a report by Foster and Erickson (1980). Ground-water quality data were published in U.S. Geological Survey, Water Resoures Data for Illinois reports (1979-82). Water samples from wells and trenches were analyzed for inorganic, organic, and radioisotopes by the Brookhaven National Laboratory (Colombo, Weiss, and Francis, 1978; Weiss and Colombo, 1980; Pietrzak and Dayal, 1982).

Table 1 includes water level records for U.S. Geological Survey wells for the period of record, October 1976 through July 1984 (fig. 2).

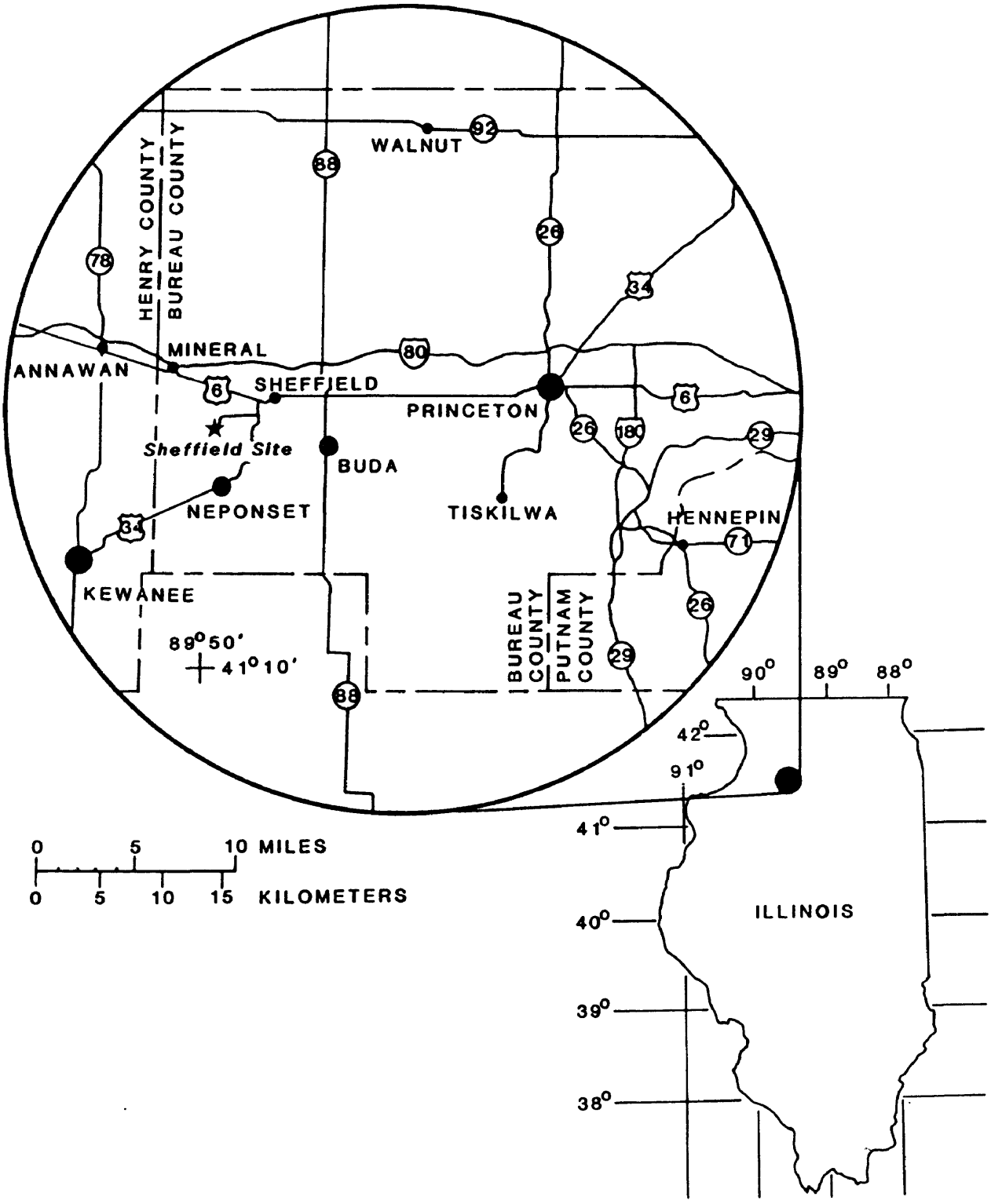

Figure 1.--Location of Sheffield low-level radioactive-waste disposal site.

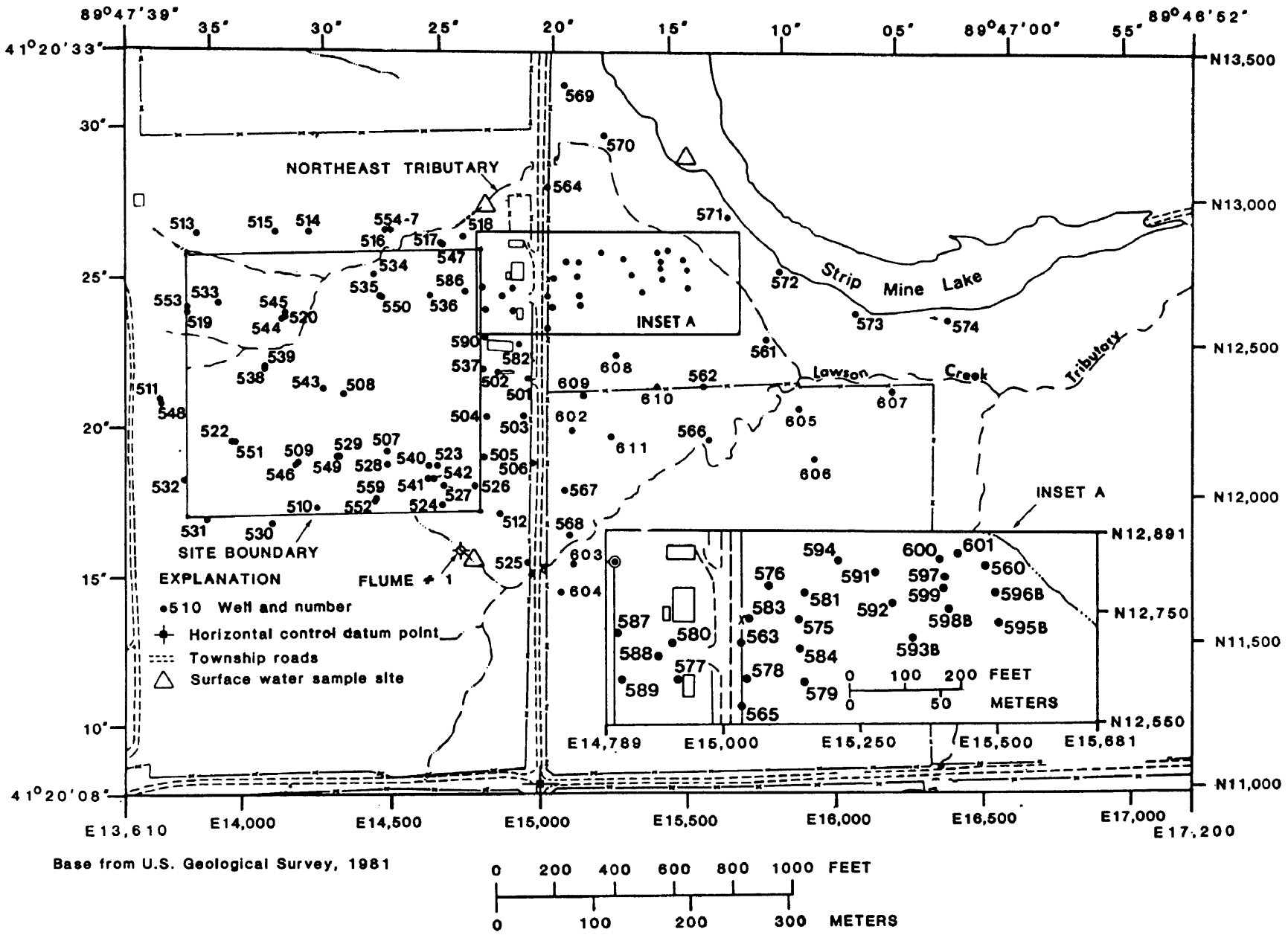

Figure 2.--Location of U.S. Geological Survey test wells and borings.

Periodic stage readings for the strip-mine lake, July 1982 through September 1982, are given in table 2.

Chemical analyses and temperature of water samples for 48 wells, the strip-mine lake, the creek at flume number 1, and the creek that drains the northeast part of the site are listed in table 3, parts A, B, C, D, and E.

Table 4 lists hydraulic conductivity data from both laboratory permeability tests and single-well aquifer tests. The table contains hydraulic conductivity values for 27 wells located on site and in the area east of the site. The hydraulic conductivities include values for the lithologic units encountered in the saturated zone. Some laboratory determinations were made on core samples of lithologic units in the unsaturated zone.

Table 5 lists laboratory analyses of grain-size distribution, clay and carbonate mineralogy, and cation exchange capacity for most lithologic units present on and east of the site. Samples were selected from core samples collected during drilling test wells 501-537, 560-574, and 577-584.

Petrographic analyses were completed on samples selected from core samples obtained from wells 560-574 east of the site. Results of the petrographic analyses are in table 6.

Well-construction details such as date drilled, total depth, casing depth, casing diameter, and altitude of top and bottom of screen are presented in table 7. Wells numbered 538 to 584, inclusive, were constructed in a two-step process. First, the casing was set and grouted. Second, the borehole was drilled to a depth necessary to accomodate the desired length of screen. The screen was then set in the casing using a packer. Wells 586 to 611 were constructed by drilling a borehole to the desired depth and placing a complete and continuous casing and screen assembly into the borehole. All wells have bentonite seals above the screened interval.

Stratigraphy and lithologic descriptions of sediments penetrated by wells are presented in table 8.

Table 9 lists the horizontal coordinates of each well. Coordinates are measured from an arbitrary reference point established for the site. The reference point is located at the intersection of the township roads southeast of the site (fig. 2). The northing and easting coordinates are found along the bottom and right edges of figure 2.

The authors wish to acknowledge the following persons and organizations for their work in analyzing water and lithologic samples. Water samples were analyzed in the laboratory of the Illinois Environmental Protection Agency; grain-size distribution and clay mineralogy were done by the Illinois State Geological Survey (ISGS). We are especially indebted to Thomas M. Johnson and Keros Cartwright of the ISGS for their assistance. Carbonate mineralogy, cation-exchange capacity, and petrographic studies were done in the Department of Geology at the University of Illinois at Urbana, Illinois. We are grateful to the late John Hower, former Chairman, Department of Geology for his assistance.

We are indebted to Philip Gustafson and David Ed of the Illinois Department of Nuclear Safety and Ronald K. Gaynor of US Ecology, Inc., for their advice and technical assistance, and David L. Siefken and Maxine Dunkelman of the Low-Level Waste Licensing Branch, U.S. Nuclear Regulatory Commission for their support and guidance.

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TABLES 1 - 9

Table 1.--Altitudes of water level in wells

[Datum is sea level]

Well No. 501

SITE IDENTIFICATION NO.--412022089472301

DATUM.--Altitude top of casing is 770.40 ft. Measuring point: Top of casing 3.20 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 729.02 ft above sea level, June 12, 1979; lowest water level, 727.86 ft above sea level, June 10, 1983.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		Aug. 30	728.89	1981	
Oct. 20	728.51	Sept. 14	728.85	May 19	728.02
Oct. 29	728.51	Nov. 9	728.69	July 23	728.16
				Nov. 29	728.65
1977		1979			
Apr. 27	728.26	Jan. 22	728.56	1982	
Dec. 21	728.05	Feb. 26	728.45	Jan. 20	727.88
		June 12	729.02	Mar. 16	728.61
1978		June 28	728.90	July 12	728.81
Jan. 18	728.31	July 5	728.71		
Feb. 9	728.29	Aug. 16	728.78	1983	
Mar. 4	728.49	Oct. 3	728.79	Feb. 8	728.72
Mar. 17	728.71	Nov. 16	728.82	June 10	727.86
May 1	728.79				
June 1	728.95	1980		1984	
June 14	728.86	Aug. 21	728.61	July 11	728.92
July 19	728.97	Nov. 18	728.50		
July 25	728.92				

Table 1.--Altitudes of water level in wells--Continued

Well No. 502

SITE IDENTIFICATION NO.--412022089472401

DATUM.--Altitude top of casing is 771.19 ft. Measuring point: Top of casing 3.79 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 732.04 ft above sea level, July 5, 1979; lowest water level, 728.89 ft above sea level, Mar. 17, 1978.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		July 25	731.62	Apr. 28	729.90
Oct. 20	730.38	Aug. 30	731.51	May 19	729.78
Oct. 29	730.33	Nov. 9	731.33	July 17	730.23
				July 23	730.49
1977		1979		Aug. 21	730.48
Apr. 11	730.01	Jan. 22	731.09		
Apr. 27	730.08	Feb. 26	730.89	1982	
June 29	729.66	May 23	731.80	Jan. 20	731.28
Aug. 24	729.35	June 12	731.63	Mar. 16	731.12
Oct. 20	729.27	June 28	731.57	Mar. 31	731.34
Dec. 20	729.29	July 5	732.04	June 22	731.51
		Aug. 16	731.45	July 12	731.49
1978		Oct. 3	731.40		
Jan. 18	729.06	Nov. 16	731.34	1983	
Feb. 9	729.05			Feb. 8	731.11
Mar. 4	728.99	1980		June 9	731.56
Mar. 17	728.89	Aug. 21	730.45		
May 1	728.95	Nov. 18	730.06	1984	
June 1	731.40			July 11	731.61
June 14	731.64	1981			
July 19	731.62	Mar. 12	730.06		

Table 1.--Altitudes of water level in wells--Continued

Well No. 503

SITE IDENTIFICATION NO.--412020089472101

DATUM.--Altitude top of casing is 782.71 ft. Measuring point: Top of casing 3.11 ft above land surface.

PERIOD OF RECORD.--October 1976 to June 1983.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 731.87 ft above sea level, July 20, 1978; lowest water level, below bottom of the screen.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		1980		1982	
Oct. 20	731.16	Aug. 21	731.47	Mar. 16	Dry
Oct. 29	Dry			July 12	Dry
		1981		Nov. 17	731.56
1978		May 19	Dry		
July 20	731.87	July 23	Dry	1983	
		Aug. 20	Dry	June 10	Dry
1979					
July 10	731.72				

Table 1.--Altitudes of water level in wells--Continued

Well No. 504

SITE IDENTIFICATION NO.--412020089472301

DATUM.--Altitude top of casing is 788.13 ft. Measuring point: Top of casing 3.23 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--No water levels have ever been measured in the well.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		1980		1982	
Oct. 29	Dry	Aug. 21	Dry	Mar. 16	Dry
				July 13	Dry
1978		1981			
July 19	Dry	July 23	Dry	1983	
		Aug. 20	Dry	Feb. 9	Dry
1979					
June 14	Dry			1984	
				July 10	Dry

Table 1.--Altitudes of water level in wells--Continued

Well No. 505

SITE IDENTIFICATION NO.--412019089472501

DATUM.--Altitude top of casing is 770.60 ft. Measuring point: Top of casing 2.60 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 743.28 ft above sea level, July 10, 1984; lowest water level, below the bottom of the screen.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		1981		1983	
Oct. 29	Dry	Mar. 11	Dry	Feb. 10	740.24
		May 21	Dry	June 10	742.28
1978		July 23	Dry		
July 19	742.28	Oct. 21	Dry	1984	
		Dec. 22	Dry	July 10	743.28
1979					
July 11	741.52	1982			
		Mar. 16	Dry		
1980		June 23	741.54		
Aug. 21	Dry	July 13	741.58		

Table 1.--Altitudes of water level in wells--Continued

Well No. 506

SITE IDENTIFICATION NO.--412018089472101

DATUM.--Altitude top of casing is 752.72 ft. Measuring point: Top of casing 3.22 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 735.10 ft above sea level, July 13, 1982; lowest water level, below the bottom of the screen.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		1981		1983	
Oct. 20	Dry	May 19	735.07	Feb. 8	Dry
Oct. 29	Dry	July 23	Dry		
		Aug. 20	Dry	1984	
1979				July 11	Dry
July 10	Dry	1982			
		Mar. 16	Dry		
1980		July 13	735.10		
Aug. 21	Dry				

Table 1.--Altitudes of water level in wells--Continued

Well No. 507

SITE IDENTIFICATION NO.--412019089472901

DATUM.--Altitude top of casing is 780.35 ft. Measuring point: Top of casing 4.00 ft above land surface. Prior to Dec. 18, 1978, altitude top of casing was 776.20 ft.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 745.24 ft above sea level, July 11, 1984; lowest water level, 741.15 ft above sea level, Mar. 10, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		Aug. 30	743.24	Oct. 17	743.22
Oct. 19	744.09	Sept. 22	742.94		
Oct. 29	744.09			1981	
		1979		Mar. 10	741.15
1977		Feb. 26	742.87	Apr. 29	741.45
Apr. 12	743.62	Apr. 10	744.30	May 21	742.75
Apr. 27	743.30	Apr. 12	744.42	Oct. 16	741.96
Oct. 20	743.47	May 23	744.75	Dec. 22	743.09
Nov. 18	743.50	June 13	744.77		
Dec. 20	743.14	June 15	744.85	1982	
		June 27	744.78	Jan. 20	742.44
1978		July 12	744.82	Mar. 16	742.05
Jan. 17	743.27	Aug. 16	744.42	June 23	743.14
Feb. 9	743.17	Oct. 3	744.31	July 13	743.12
Feb. 16	743.19	Nov. 16	744.08		
Feb. 28	743.18			1983	
Mar. 17	742.88	1980		Feb. 10	743.36
Apr. 3	743.02	Jan. 10	744.02	June 10	743.78
May 1	742.96	Mar. 25	742.93		
July 19	743.20	Aug. 21	743.31	1984	
July 25	743.12	Sept. 19	743.24	July 11	745.24

Table 1.--Altitudes of water level in wells--Continued

Well No. 508

SITE IDENTIFICATION NO.--412021089472901

DATUM.--Altitude top of casing is 788.04 ft. Measuring point: Top of casing 4.74 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--No water levels have ever been measured in the well.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		1980		1982	
Oct. 20	Dry	Aug. 22	Dry	Mar. 16	Dry
Oct. 29	Dry			July 13	Dry
		1981			
1978		May 21	Dry	1983	
July 20	Dry	July 23	Dry	Feb. 9	Dry
		Aug. 20	Dry		
1979				1984	
July 10	Dry			July 10	Dry

Table 1.--Altitudes of water level in wells--Continued

Well No. 509

SITE IDENTIFICATION NO.--412019089473301

DATUM.--Altitude top of casing is 781.53 ft. Measuring point: Top of casing 3.03 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 748.46 ft above sea level, July 10, 1984; lowest water level, 745.68 ft above sea level, May 21, July 23, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		Aug. 30	746.56	1981	
Oct. 19	746.71	Nov. 9	746.31	May 21	745.68
Oct. 29	746.70			July 23	745.68
		1979			
1977		Feb. 26	746.06	1982	
Apr. 21	746.34	May 23	747.23	Mar. 16	746.18
May 11	746.22	June 12	747.32	Mar. 31	745.96
June 29	745.95	June 27	747.37	July 13	746.08
Dec. 20	746.11	July 5	747.34	Nov. 18	745.96
		Aug. 16	747.28		
1978		Oct. 3	747.27	1983	
Feb. 9	746.26	Nov. 16	747.07	Feb. 9	746.12
Feb. 28	746.01			June 9	747.05
Mar. 17	746.03	1980			
May 1	746.44	Jan. 9	746.84	1984	
June 16	746.85	Mar. 11	746.58	July 10	748.46
July 20	746.84	Aug. 21	746.22		
July 25	746.81				

Table 1.--Altitudes of water level in wells--Continued

Well No. 510

SITE IDENTIFICATION NO.--412017089473201

DATUM.--Altitude top of casing is 782.14 ft. Measuring point: Top of casing 2.64 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 748.26 ft above sea level, July 10, 1984; lowest water level, 745.56 ft above sea level, Mar. 10, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		1979		Oct. 17	745.84
Oct. 19	746.49	Jan. 22	745.89	Nov. 19	745.74
Oct. 29	746.51	Feb. 26	745.94		
		Apr. 11	746.96	1981	
1977		May 23	747.18	Mar. 10	745.56
Apr. 26	746.17	June 15	747.23	Aug. 18	745.68
Oct. 20	745.66	June 27	747.16		
Nov. 18	745.92	July 5	747.11	1982	
Dec. 20	746.00	July 13	747.22	Mar. 16	745.96
		Aug. 16	747.02	Mar. 31	745.87
1978		Oct. 3	746.97	July 13	746.01
Feb. 9	745.81	Nov. 16	746.84	Nov. 18	745.84
Feb. 28	745.84				
Mar. 17	745.90	1980		1983	
May 1	746.42	Jan. 9	746.61	Feb. 9	746.03
July 20	746.63	Jan. 18	746.61	June 9	746.95
July 25	746.61	Mar. 24	746.27		
Aug. 30	746.36	Mar. 27	746.36	1984	
		Aug. 21	746.14	July 10	748.26
		Sept. 19	745.95		

Table 1.--Altitudes of water level in wells--Continued

Well No. 511

SITE IDENTIFICATION NO.--412021089473901

DATUM.--Altitude top of casing is 784.75 ft. Measuring point: Top of casing 2.55 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 752.03 ft above sea level, July 11, 1984; lowest water level, 746.89 ft above sea level, June 29, 1977.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		Aug. 30	749.24	Nov. 19	748.35
Oct. 20	749.17	Sept. 13	749.04		
Oct. 29	748.11	Nov. 9	748.22	1981	
				Mar. 10	747.94
1977		1979		Apr. 30	748.00
Apr. 12	747.21	Feb. 26	747.30	May 21	748.21
Apr. 27	747.22	Apr. 11	748.89	Aug. 19	748.68
June 29	746.89	Apr. 12	748.93	Aug. 21	748.76
Oct. 20	747.01	May 23	750.47	Dec. 22	748.63
Nov. 17	747.46	June 13	750.54		
Nov. 18	747.48	June 15	750.54	1982	
Dec. 20	747.91	June 28	750.42	Mar. 16	748.26
		July 5	750.16	Mar. 31	748.17
1978		Aug. 16	749.64	June 23	749.00
Feb. 9	747.95	Oct. 3	749.54	July 13	748.93
Feb. 28	747.94	Nov. 16	749.02		
Mar. 17	748.51			1983	
Apr. 1	748.92	1980		Feb. 9	748.55
June 2	750.20	Jan. 9	748.66	June 9	751.91
June 16	750.20	Jan. 18	748.65		
June 27	750.10	Mar. 27	748.55	1984	
July 20	749.94	Aug. 22	748.71	July 11	752.03
July 25	749.93	Sept. 19	748.81		
Aug. 18	749.52	Oct. 17	748.52		

Table 1.--Altitudes of water level in wells--Continued

Well No. 512

SITE IDENTIFICATION NO.--412017089472401

DATUM.--Altitude top of casing is 737.65 ft. Measuring point: Top of casing 3.15 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 723.89 ft above sea level, Apr. 10, 1979; lowest water level, 717.79 ft above sea level, June 28, 1977.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		Aug. 17	719.60	1981	
Oct. 20	718.23	Aug. 30	719.08	Mar. 9	719.99
Oct. 29	718.37	Sept. 21	718.42	Apr. 28	722.06
				May 19	722.46
1977		1979		July 16	720.41
Apr. 13	719.64	Feb. 26	719.53	Aug. 14	718.45
Apr. 27	719.52	Apr. 10	723.89	Aug. 20	721.08
May 11	719.30	May 23	723.57	Oct. 23	719.58
June 27	717.90	June 15	722.37	Dec. 22	719.64
June 28	717.79	June 27	721.82		
Aug. 26	718.41	July 12	721.16	1982	
Oct. 19	719.97	Aug. 16	719.87	Jan. 20	720.35
Dec. 20	722.71	Oct. 3	719.86	Mar. 16	721.45
				Mar. 31	722.33
1978		1980		June 22	720.92
Jan. 11	721.73	Jan. 8	720.33	July 13	721.89
Feb. 16	720.84	Jan. 10	720.33		
Mar. 1	720.38	Mar. 25	720.74	1983	
Mar. 17	722.24	Mar. 27	720.80	Feb. 8	720.68
Apr. 3	722.74	May 25	721.33	June 10	721.04
May 1	723.16	Aug. 20	718.83		
June 12	722.62	Aug. 21	718.89	1984	
June 16	722.28	Sept. 18	719.30	July 11	722.24
July 11	721.19	Oct. 17	718.67		
July 20	720.79				

Well No. 513

SITE IDENTIFICATION NO.--412027089473701

DATUM.--Altitude top of casing is 767.46 ft. Measuring point: Top of casing 2.86 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 746.94 ft above sea level, Apr. 3, 1979; lowest water level, 740.61 ft above sea level, Mar. 16, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		Nov. 9	742.09	Sept. 18	742.14
Oct. 19	742.02			Oct. 17	741.83
Oct. 29	742.03	1979			
		Feb. 26	742.00	1981	
1977		Apr. 3	746.94	Mar. 12	741.18
Apr. 12	741.49	Apr. 12	746.67	Apr. 30	742.54
Oct. 19	741.49	May 23	746.57	May 19	742.93
Nov. 17	741.95	June 15	745.77	July 16	742.68
Nov. 18	741.72	June 28	745.41	Oct. 22	741.58
Dec. 21	741.85	July 5	745.17	Dec. 22	741.13
		Aug. 16	744.31		
1978		Oct. 3	743.83	1982	
Feb. 9	741.36	Nov. 16	743.06	Mar. 16	740.61
Feb. 28	741.07			Mar. 31	740.92
Mar. 17	741.09	1980		June 23	741.94
May 1	742.34	Jan. 9	742.50		
June 2	744.43	Jan. 18	742.46	1983	
June 16	744.21	Mar. 25	741.70	Feb. 10	741.11
July 25	743.72	Mar. 27	741.72		
Aug. 30	743.04	June 2	742.48	1984	
Sept. 13	742.99	Aug. 22	741.66	July 11	744.06
Sept. 20	742.83				

Table 1.--Altitudes of water level in wells--Continued

Well No. 514

SITE IDENTIFICATION NO.--412027089473201

DATUM.--Altitude top of casing is 763.99 ft. Measuring point: Top of casing 3.29 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 733.70 ft above sea level, July 11, 1984; lowest water level, below the bottom of the screen.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		1979		July 23	731.43
Oct. 19	729.76	Apr. 11	731.26	Aug. 21	731.63
Oct. 29	729.72	May 23	732.94		
		June 13	732.92	1982	
1977		July 12	732.54	Mar. 16	730.87
Apr. 12	Dry			Mar. 31	730.99
Apr. 27	Dry	1980		July 12	731.92
June 28	Dry	Jan. 9	731.06		
Oct. 20	Dry	Aug. 22	730.72	1983	
		Nov. 18	730.49	Feb. 10	731.62
1978		1981		1984	
Feb. 28	728.28	May 19	730.57	July 11	733.70
June 16	731.79				
July 19	731.53				

Well No. 515

SITE IDENTIFICATION NO.--412027089473401

DATUM.--Altitude top of casing is 767.44 ft. Measuring point: Top of casing 2.84 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 735.08 ft above sea level, May 23, 1979; lowest water level, 730.27 ft above sea level, June 28, 1977.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		July 19	732.95	Nov. 18	733.24
Oct. 19	731.34	July 25	732.92		
Oct. 29	731.34	Sept. 12	732.18	1981	
		Nov. 9	731.53	May 19	732.54
1977				July 23	733.21
Apr. 12	730.57	1979			
Apr. 27	730.43	Feb. 26	731.74	1982	
June 28	730.27	Apr. 11	734.07	Mar. 16	731.93
Oct. 20	730.44	May 23	735.08	Mar. 31	731.94
Nov. 17	731.26	June 13	734.76	July 12	733.23
Dec. 21	731.62	June 28	734.56		
		July 5	734.18	1983	
1978		Aug. 16	733.63	Feb. 10	732.92
Feb. 9	731.30	Oct. 3	733.82		
Feb. 28	731.11	Nov. 16	733.23	1984	
Mar. 17	731.49			July 11	735.05
May 1	732.05	1980			
May 31	733.36	Jan. 9	732.77		
June 16	733.34	Aug. 22	732.15		

Well No. 516

SITE IDENTIFICATION NO.--412027089472901

DATUM.--Altitude top of casing is 752.53 ft. Measuring point: Top of casing 4.03 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 731.05 ft above sea level, July 11, 1984; lowest water level, 725.08 ft above sea level, Oct. 20, 1977.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		June 2	727.23	1981	
Oct. 19	727.81	June 15	728.83	May 16	728.94
Oct. 29	727.12	July 19	728.61	May 19	728.50
		July 25	728.59	Aug. 20	729.34
1977		Aug. 30	727.97		
Apr. 27	725.76	Sept. 12	727.77	1982	
June 28	725.11	Nov. 9	727.31	Jan. 20	729.69
Oct. 20	725.08			Mar. 16	729.29
Nov. 17	725.92	1979		Mar. 31	729.68
Dec. 21	727.26	Feb. 26	726.58	July 12	730.29
		Apr. 11	728.26		
1978		May 23	729.70	1983	
Feb. 9	726.35	June 13	729.70	Feb. 10	730.03
Feb. 28	726.35	June 28	729.74		
Mar. 17	726.47	July 5	729.47	1984	
May 1	727.21	July 31	729.25	July 11	731.05
1978		1980			
May 31	728.72	Aug. 22	728.49		

Well No. 517

SITE IDENTIFICATION NO.--412027089472701

DATUM.--Altitude top of casing is 740.28 ft. Measuring point: Top of casing 3.38 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 728.58 ft above sea level, June 9, 1983; lowest water level, 722.85 ft above sea level, May 27, 1977.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		July 19	726.10	1981	
Oct. 19	724.53	July 25	726.02	May 19	726.39
Oct. 29	724.49	Aug. 30	725.50	July 23	726.26
		Sept. 12	725.26	Aug. 21	726.75
1977		Nov. 9	724.86	Nov. 20	726.56
Apr. 27	723.66				
May 11	723.12	1979		1982	
May 27	722.85	Feb. 26	724.95	Jan. 20	725.66
Oct. 20	723.13	Apr. 11	726.98	Mar. 16	726.60
Nov. 17	724.20	May 23	727.58	Mar. 31	726.81
Dec. 21	724.40	June 28	727.14	July 12	727.26
		July 5	726.82		
1978		Aug. 16	726.46	1983	
Feb. 9	724.22	Oct. 3	726.80	Feb. 8	726.94
Feb. 28	724.24	Nov. 16	726.65	June 9	728.58
Mar. 17	724.57				
May 1	725.31	1980		1984	
June 1	726.35	Aug. 22	726.11	July 10	728.09
June 15	726.44				

Well No. 518

SITE IDENTIFICATION NO.--412027089472501

DATUM.--Altitude top of casing is 738.72 ft. Measuring point: Top of casing 3.02 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 723.87 ft above sea level, June 9, 1983; lowest water level, 718.32 ft above sea level, July 27, 1977.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		July 25	721.30	Oct. 17	721.33
Oct. 19	720.04	Aug. 18	720.87		
Oct. 29	720.00	Aug. 30	720.65	1981	
		Sept. 20	720.52	Mar. 11	720.04
1977		Nov. 9	720.36	Apr. 30	719.37
Apr. 11	719.41			May 19	721.84
May 11	719.06	1979		July 16	721.54
June 29	718.43	Feb. 26	720.50	Aug. 7	721.66
July 7	718.43	Apr. 11	722.61	Oct. 22	720.80
July 27	718.32	May 23	723.19	Dec. 22	721.73
Aug. 26	718.37	June 15	723.03		
Oct. 18	718.83	June 28	722.81	1982	
Nov. 17	719.70	July 9	722.64	Jan. 20	722.09
Dec. 21	719.81	Aug. 16	722.06	Mar. 16	721.73
		Oct. 3	722.24	Mar. 31	722.26
1978		Nov. 16	721.99	June 23	722.16
Jan. 11	719.89			July 12	722.27
Feb. 9	719.68	1980			
Feb. 28	719.77	Jan. 9	721.91	1983	
Mar. 17	720.03	Jan. 18	722.52	June 9	723.87
May 1	720.51	Mar. 25	721.86		
May 31	721.90	Mar. 27	721.92	1984	
June 16	721.69	June 2	722.46	July 10	723.69
June 26	721.73	Aug. 22	721.31		
July 19	721.41	Sept. 18	721.76		

Well No. 519

SITE IDENTIFICATION NO.--412024089473801

DATUM.--Altitude top of casing is 766.76 ft. Measuring point: Top of casing 4.06 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 748.47 ft above sea level, Oct. 29, 1976; lowest water level, 743.69 ft above sea level, Nov. 9, 1978.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		July 25	744.11	1981	
Oct. 19	748.26	Aug. 30	744.69	May 21	746.75
Oct. 29	748.47	Sept. 13	744.93	July 23	747.02
		Nov. 9	743.69	Nov. 20	747.07
1977				Dec. 1	747.07
Apr. 26	748.31	1979			
Oct. 20	745.38	Apr. 10	745.69	1982	
Nov. 17	746.19	May 23	745.86	Mar. 16	746.62
Dec. 21	746.03	June 12	746.17	Mar. 31	746.33
		July 5	746.49	July 12	746.85
1978		Aug. 16	746.81		
Feb. 9	746.76	Oct. 3	747.17	1983	
Feb. 28	746.94	Nov. 16	747.36	Feb. 8	743.73
Mar. 17	747.10			June 9	744.30
May 1	747.89	1980			
May 9	748.05	Jan. 9	747.55	1984	
May 31	746.31	Mar. 11	746.50	July 10	748.14
June 16	745.34	Aug. 22	746.49		
June 27	745.57	Nov. 19	746.76		
July 20	744.03				

Table 1.--Altitudes of water level in wells--Continued

Well No. 520

SITE IDENTIFICATION NO.--412024089473301

DATUM.--Altitude top of casing is 759.65 ft. Measuring point: Top of casing 3.75 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 740.82 ft above sea level, Apr. 12, 1979; lowest water level, 734.24 ft above sea level, July 27, 1977.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		July 25	737.62	Sept. 19	735.94
Oct. 19	734.83	Aug. 30	736.67	Oct. 17	735.99
Oct. 29	734.92	Sept. 13	736.59		
		Nov. 9	735.94	1981	
1977				Mar. 10	735.25
Apr. 27	735.45	1979		May 21	736.18
May 11	735.34	Apr. 10	740.55	July 23	735.65
June 30	734.62	Apr. 12	740.82	Aug. 19	735.68
July 27	734.24	May 23	740.57	Nov. 20	735.29
Oct. 20	735.12	June 13	739.78	Dec. 1	735.52
Nov. 17	736.15	June 15	739.79		
Dec. 21	736.68	June 28	739.62	1982	
		July 5	739.03	Mar. 16	734.97
1978		July 13	738.98	Mar. 31	735.09
Feb. 9	736.00	Aug. 16	738.13	July 12	735.88
Feb. 28	735.75	Oct. 3	737.68	Nov. 18	734.74
Mar. 17	736.60	Nov. 16	737.14		
May 1	737.43			1983	
May 15	738.59	1980		Feb. 8	735.77
May 24	738.75	Jan. 9	736.85	June 9	738.53
June 1	738.62	Mar. 27	736.29		
June 16	738.33	June 2	737.03	1984	
June 28	738.08	Aug. 22	735.93	July 10	739.66
July 20	737.73				

Well No. 522

SITE IDENTIFICATION NO.--412020089473601

DATUM.--Altitude top of casing is 791.24 ft. Measuring point: Top of casing 2.24 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 748.72 ft above sea level, July 10, 1984; lowest water level, 745.57 ft above sea level, Dec. 20, 1977.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		July 25	747.00	June 2	746.69
Oct. 19	747.00	Aug. 30	746.82	Aug. 21	746.42
Oct. 29	746.80	Sept. 22	746.69	Sept. 19	746.26
		Nov. 9	746.50	Oct. 17	746.28
1977					
Apr. 26	746.43	1979		1981	
May 11	746.31	Feb. 26	746.07	Mar. 10	745.91
June 28	746.05	Apr. 11	746.88	Aug. 19	746.04
July 27	745.84	May 23	747.33		
Aug. 26	745.80	June 13	747.51	1982	
Oct. 20	745.74	June 15	747.54	Mar. 16	746.29
Nov. 18	746.02	June 28	747.54	Mar. 31	746.08
Dec. 20	745.57	July 5	747.54	July 12	746.29
		Aug. 16	747.48	Nov. 18	746.15
1978		Oct. 3	747.42		
Feb. 9	746.11	Nov. 16	747.20	1983	
Feb. 28	746.07			Feb. 9	746.31
Mar. 17	746.00	1980		June 9	747.34
May 1	746.52	Jan. 9	746.99		
June 16	746.88	Jan. 18	746.97	1984	
June 28	746.97	Mar. 27	746.69	July 10	748.72
July 20	747.06				

Well No. 523

SITE IDENTIFICATION NO.--412019089472701

DATUM.--Altitude top of casing is 772.96 ft. Measuring point: Top of casing 4.26 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 743.40 ft above sea level, July 10, 1984; lowest water level, below the bottom of the screen.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		Aug. 30	742.20	Nov. 19	741.11
Oct. 19	741.53	Sept. 21	742.06		
Oct. 29	741.22	Nov. 9	742.15	1981	
				May 21	740.04
1977		1979		July 23	Dry
Apr. 12	742.02	Jan. 22	741.86	Aug. 21	Dry
Apr. 27	740.55	Feb. 26	741.77		
Oct. 20	Dry	Apr. 3	741.80	1982	
Nov. 18	Dry	Apr. 10	741.82	Jan. 20	741.36
Dec. 20	740.06	Apr. 12	741.54	Mar. 16	741.16
		May 23	742.05	Mar. 31	741.37
1978		June 12	742.07	July 12	741.25
Jan. 17	740.59	June 27	742.15	Nov. 18	741.63
Feb. 9	740.95	Aug. 1	742.24		
Feb. 16	741.11	Aug. 16	742.17	1983	
Feb. 28	740.96	Oct. 3	742.67	Feb. 10	741.90
Mar. 17	741.44	Nov. 16	742.01	June 10	742.47
May 9	741.67				
June 16	741.13	1980		1984	
July 19	742.21	Jan. 9	741.86	July 10	743.40
July 25	742.20	Aug. 21	741.34		

Table 1.--Altitudes of water level in wells--Continued

Well No. 524

SITE IDENTIFICATION NO.--412017089472701

DATUM.--Altitude top of casing is 746.28 ft. Measuring point: Top of casing 3.08 ft above land surface.

PERIOD OF RECORD.--October 1976 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 736.66 ft above sea level, Apr. 10, 1979; lowest water level, 727.40 ft above sea level, July 8, 1977.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1976		Aug. 30	728.72	1981	
Oct. 19	728.73	Sept. 21	728.04	Mar. 11	730.44
Oct. 29	728.91	Nov. 9	728.18	Apr. 29	733.30
				May 21	733.35
1977		1979		July 16	730.25
Apr. 12	731.45	Feb. 26	730.30	Aug. 12	730.37
Apr. 27	730.51	Apr. 10	736.66	Aug. 21	729.81
July 8	727.40	Apr. 12	736.06	Oct. 16	729.47
Oct. 20	730.07	May 23	735.12	Dec. 1	730.15
Nov. 18	732.90	June 13	733.11	Dec. 22	730.12
Dec. 20	733.37	June 15	733.05		
		June 27	732.45	1982	
1978		July 12	731.68	Jan. 20	729.08
Jan. 17	732.32	Aug. 16	730.53	Mar. 16	729.08
Feb. 16	731.21	Oct. 3	730.22	Mar. 31	733.95
Feb. 28	730.98	Nov. 16	730.26	June 23	729.22
Mar. 4	730.97			July 13	732.67
Mar. 17	731.52	1980			
Apr. 4	733.32	Jan. 10	731.73	1983	
May 1	734.21	Mar. 24	731.88	Feb. 10	731.99
June 13	733.09	Mar. 28	731.93	June 10	732.60
June 16	731.69	Aug. 21	729.46		
July 12	732.11	Sept. 18	730.11	1984	
July 21	730.47	Oct. 17	728.88	July 11	733.02
July 25	730.44	Nov. 19	729.25		

Well No. 525

SITE IDENTIFICATION NO.--412016089472301

DATUM.--Altitude top of casing is 728.52 ft. Measuring point: Top of casing 3.02 ft above land surface.

PERIOD OF RECORD.--October 1977 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 720.50 ft above sea level, Apr. 12, 1979; lowest water level, 714.83 ft above sea level, Sept. 22, 1978.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1977		1979		1981	
Oct. 20	716.44	Feb. 26	716.74	May 19	717.65
Nov. 18	717.24	Apr. 3	719.55	July 23	716.92
Dec. 21	718.04	Apr. 10	718.28	Aug. 21	716.73
		Apr. 12	720.50	Nov. 30	716.36
1978		May 23	717.55		
Jan. 18	716.91	June 12	717.00	1982	
Feb. 9	716.68	June 27	716.70	Jan. 20	715.62
Feb. 16	716.62	July 5	716.68	Mar. 16	718.12
Mar. 1	716.58	Aug. 16	715.78	July 13	716.88
Mar. 17	718.66	Oct. 3	716.00		
May 1	717.77	Nov. 16	716.05	1983	
July 11	716.43			Feb. 8	716.58
July 21	716.33	1980		June 10	716.79
July 25	716.29	Jan. 9	716.44		
Aug. 30	715.24	Nov. 19	715.75	1984	
Sept. 22	714.83			July 11	716.83
Nov. 9	715.30				

Table 1.--Altitudes of water level in wells--Continued

Well No. 526

SITE IDENTIFICATION NO.--412018089472301

DATUM.--Altitude top of casing is 758.03 ft. Measuring point: Top of casing 3.93 ft above land surface.

PERIOD OF RECORD.--July 1978 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--No water levels have ever been measured in this well.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1978		1981		1983	
July 19	Dry	May 19	Dry	Feb. 8	Dry
		July 23	Dry		
1979		Aug. 21	Dry	1984	
July 10	Dry			July 11	Dry
		1982			
1980		Mar. 16	Dry		
Aug. 21	Dry	July 12	Dry		

Table 1.--Altitudes of water level in wells--Continued

Well No. 527

SITE IDENTIFICATION NO.--412018089472601

DATUM.--Altitude top of casing is 759.41 ft. Measuring point: Top of casing 3.91 ft above land surface.

PERIOD OF RECORD.--October 1977 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 738.80 ft above sea level, Apr. 10, 1979; lowest water level, 731.48 ft above sea level, Aug. 7, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1977		1979		July 16	731.64
Oct. 20	731.88	Feb. 26	732.59	July 23	732.12
Nov. 18	733.70	Apr. 10	738.80	Aug. 7	731.48
Dec. 21	733.91	Apr. 12	738.54	Aug. 20	732.55
		May 23	737.57	Oct. 23	731.56
1978		June 13	736.19	Dec. 12	731.61
Jan. 17	733.78	July 5	735.45		
Feb. 9	733.28	Aug. 16	734.34	1982	
Feb. 16	733.19	Oct. 3	733.87	Jan. 20	733.01
Feb. 28	733.04	Nov. 16	733.28	Mar. 16	733.52
Mar. 17	733.42			June 22	733.86
May 1	735.00	1980			
May 9	735.28	Jan. 9	734.25	1983	
June 13	735.50	Aug. 21	732.96	Feb. 8	734.06
July 13	734.17			June 10	736.36
July 21	733.92	1981			
July 25	733.83	Mar. 11	732.18	1984	
Aug. 30	733.47	Apr. 29	733.72	July 11	737.17
Sept. 21	732.04	May 21	734.00		

Well No. 528

SITE IDENTIFICATION NO.--412019089472902

DATUM.--Altitude top of casing is 770.83 ft. Measuring point: Top of casing 2.83 ft above land surface.

PERIOD OF RECORD.--June 1977 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 744.46 ft above sea level, May 1, 1978; lowest water level, 739.34 ft above sea level, July 23, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1977		Aug. 30	740.70	1981	
June 29	740.05	Sept. 21	740.21	May 21	741.52
July 7	740.07	Nov. 9	741.37	July 23	739.34
Oct. 20	741.29			Aug. 17	741.01
Nov. 18	742.68	1979			
Dec. 21	743.34	Feb. 26	742.65	1982	
		Apr. 10	743.16	Jan. 20	740.63
1978		May 23	743.48	Mar. 16	742.46
Jan. 17	742.48	June 12	743.09	Mar. 31	742.40
Feb. 9	741.96	June 27	742.75	July 13	739.92
Feb. 16	741.88	July 5	742.27	Nov. 18	741.09
Feb. 28	741.77	Aug. 16	741.73		
Mar. 17	742.28	Oct. 3	741.65	1983	
May 1	744.46	Nov. 16	741.35	Feb. 10	741.88
May 19	744.08			June 10	742.28
June 16	742.46	1980			
July 13	741.62	Jan. 9	741.43	1984	
July 19	741.41	Aug. 21	740.60	July 10	743.56
July 25	741.35	Nov. 19	740.57		

Well No. 529

SITE IDENTIFICATION NO.--412017089473101

DATUM.--Altitude top of casing is 774.59 ft. Measuring point: Top of casing 3.42 ft above land surface. Prior to July 12, 1979, altitude top of casing was 771.54 ft.

PERIOD OF RECORD.--June 1977 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 749.09 ft above sea level, July 10, 1984; lowest water level, 745.15 ft above sea level, May 21, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1977		1979		1981	
June 29	745.52	Apr. 11	746.78	May 21	745.15
July 7	745.63	May 23	746.94	July 23	746.20
Oct. 20	745.66	June 13	746.78	Aug. 18	745.24
Nov. 18	745.84	June 27	746.80		
Dec. 20	745.92	July 5	746.87	1982	
		Aug. 1	746.78	Mar. 16	745.43
1978		Aug. 16	746.78	July 13	745.58
Jan. 18	745.95	Oct. 3	746.64	Nov. 18	745.52
Feb. 9	745.79	Nov. 16	746.48		
Mar. 17	745.78			1983	
May 1	746.23	1980		Feb. 10	745.61
June 16	746.46	Jan. 9	746.26	June 9	746.45
July 12	746.36	Aug. 21	745.60		
July 19	746.24			1984	
Sept. 21	745.99			July 10	749.09

Table 1.--Altitudes of water level in wells--Continued

Well No. 530

SITE IDENTIFICATION NO.--412017089473401

DATUM.--Altitude top of casing is 788.12 ft. Measuring point: Top of casing 3.72 ft above land surface.

PERIOD OF RECORD.--October 1977 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 749.02 ft above sea level, July 10, 1984; lowest water level, 744.72 ft above sea level, Aug. 19, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1977		Nov. 9	747.14	1981	
Oct. 20	745.63			May 21	746.02
Nov. 17	745.89	1979		July 23	746.48
Dec. 20	745.81	Jan. 22	746.61	Aug. 19	744.72
		Feb. 26	746.36		
1978		Apr. 11	746.66	1982	
Jan. 18	746.37	May 23	747.63	Mar. 16	746.72
Feb. 9	746.03	June 12	748.07	Mar. 31	746.56
Feb. 28	746.50	June 28	748.19	July 13	746.96
Mar. 17	746.40	July 5	748.17		
May 1	746.60	Aug. 16	748.20	1983	
June 16	747.04	Oct. 3	747.18	Feb. 9	746.84
June 27	747.15	Nov. 16	747.97	June 9	748.14
July 19	747.42				
July 25	747.48	1980		1984	
Aug. 30	747.50	Aug. 21	746.71	July 10	749.02
Sept. 12	747.51				

Well No. 531

SITE IDENTIFICATION NO.--412017089473701

DATUM.--Altitude top of casing is 778.11 ft. Measuring point: Top of casing 2.21 ft above land surface.

PERIOD OF RECORD.--October 1977 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 750.50 ft above sea level, May 23, 1979; lowest water level, 746.36 ft above sea level, Feb. 26, 1979.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1977		Sept. 22	747.97	Aug. 21	747.37
Oct. 20	746.39	Nov. 9	747.40	Sept. 19	747.20
Nov. 18	747.54			Oct. 17	747.23
Dec. 21	747.62	1979		Nov. 19	746.95
		Feb. 26	746.36		
1978		Apr. 11	748.26	1981	
Jan. 11	747.44	May 23	750.50	Mar. 10	746.63
Jan. 18	747.47	June 13	750.22	Aug. 18	748.08
Feb. 9	747.20	June 28	749.93		
Feb. 16	747.26	July 5	749.64	1982	
Feb. 28	747.22	July 12	749.58	Mar. 16	747.12
Mar. 1	747.13	Aug. 16	748.86	Mar. 31	746.98
Mar. 17	747.02	Oct. 3	748.78	July 13	748.07
Apr. 4	747.31	Nov. 16	748.07	Nov. 18	746.95
May 1	747.73				
June 2	749.52	1980		1983	
June 16	749.79	Jan. 9	747.75	Feb. 9	747.46
June 27	749.61	Jan. 18	747.65	June 9	750.15
July 20	749.38	Mar. 24	747.33		
July 25	749.27	Mar. 27	747.31	1984	
Aug. 30	748.38	June 2	747.91	July 11	750.44

Table 1.--Altitudes of water level in wells--Continued

Well No. 532

SITE IDENTIFICATION NO.--412018089473801

DATUM.--Altitude top of casing is 788.63 ft. Measuring point: Top of casing 3.43 ft above land surface.

PERIOD OF RECORD.--October 1977 to June 1983.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 751.51 ft above sea level, June 9, 1983; lowest water level, 746.86 ft above sea level, Oct. 20, 1977.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1977		Sept. 22	747.49	1981	
Oct. 20	746.86	Nov. 9	748.18	May 21	748.10
Nov. 17	747.33			July 23	748.56
		1979		Aug. 19	748.58
1978		Feb. 26	747.26		
Jan. 18	747.85	Apr. 11	748.69	1982	
Feb. 9	747.86	May 23	750.43	Mar. 16	747.98
Mar. 17	747.84	June 12	750.42	Mar. 31	748.09
Apr. 4	748.17	June 28	750.30	July 13	748.77
May 1	748.66	July 5	750.04		
June 1	750.12	Aug. 16	749.57	1983	
June 16	750.13	Oct. 3	749.46	Feb. 9	748.45
June 28	749.92	Nov. 16	748.94	June 9	751.51
July 20	749.73				
July 25	749.72	1980			
Aug. 30	749.08	Jan. 9	748.57		
Sept. 12	748.91	Aug. 21	748.57		

Well No. 533

SITE IDENTIFICATION NO.--412025089473601

DATUM.--Altitude top of casing is 762.19 ft. Measuring point: Top of casing 3.69 ft above land surface.

PERIOD OF RECORD.--June 1977 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 748.88 ft above sea level, Apr. 10, 1979; lowest water level, 741.12 ft above sea level, Mar. 16, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1977		1979		Nov. 20	742.47
June 29	743.33	Apr. 10	748.88	Dec. 1	742.55
July 7	743.19	May 23	748.63		
Oct. 20	745.00	June 12	747.63	1982	
Nov. 17	745.51	June 28	747.28	Mar. 16	741.12
Dec. 21	744.67	July 5	746.88	Mar. 31	741.34
		Aug. 16	746.04	July 12	743.70
1978		Nov. 16	744.45		
Feb. 9	742.85			1983	
Feb. 28	742.25	1980		Feb. 8	742.88
Mar. 17	742.36	Jan. 9	745.51	June 9	745.31
May 1	745.80	Mar. 11	743.26		
May 9	745.99	Nov. 19	743.12	1984	
June 1	747.21			July 10	745.67
June 16	746.82	1981			
June 28	746.51	May 21	745.46		
July 19	746.42	July 23	744.02		
Sept. 13	744.64	Aug. 20	744.09		

Well No. 534

SITE IDENTIFICATION NO.--412025089472802

DATUM.--Altitude top of casing is 742.05 ft. Measuring point: Top of casing 1.02 ft above land surface.

PERIOD OF RECORD.--July 1979 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 726.33 ft above sea level, July 10, 1984; lowest water level, 724.10 ft above sea level, Aug. 20, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1979		1981		Mar. 31	724.96
July 11	725.14	May 21	724.43	July 12	724.66
July 12	726.10	July 23	724.32		
Aug. 1	725.82	Aug. 20	724.10	1983	
		Oct. 30	724.14	Feb. 8	724.79
1980		Nov. 20	725.46	June 9	725.85
Aug. 22	724.47				
Nov. 19	724.27	1982		1984	
		Mar. 16	724.40	July 10	726.33

Table 1.--Altitudes of water level in wells--Continued

Well No. 535

SITE IDENTIFICATION NO.--412025089472901

DATUM.--Altitude top of casing is 755.38 ft. Measuring point: Top of casing 3.48 ft above land surface.

PERIOD OF RECORD.--October 1977 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 726.55 ft above sea level, May 23, 1979; lowest water level, 723.25 ft above sea level, Oct. 20, 1977.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1977		1979		1981	
Oct. 20	723.25	Feb. 26	724.20	May 21	724.19
Nov. 17	723.50	Apr. 11	726.26	July 23	724.02
Dec. 21	723.83	May 23	726.55		
		June 13	726.28	1982	
1978		June 28	726.10	Jan. 20	723.78
Feb. 9	724.17	July 5	725.96	Mar. 16	724.60
Feb. 28	724.23	Aug. 16	725.49	Mar. 31	724.20
Mar. 17	724.24	Oct. 3	725.08	July 12	724.43
May 1	724.64	Nov. 11	724.94		
June 1	725.21			1983	
June 16	725.26	1980		Feb. 8	724.51
July 11	724.99	Jan. 9	725.08	June 9	725.31
July 19	724.94	Mar. 11	724.88		
July 25	724.90	Aug. 22	724.26	1984	
Aug. 30	724.47	Nov. 18	724.09	July 10	726.05
Sept. 13	724.26				
Nov. 19	724.13				

Well No. 536

SITE IDENTIFICATION NO.--412025089472701

DATUM.--Altitude top of casing is 750.96 ft. Measuring point: Top of casing 3.16 ft above land surface.

PERIOD OF RECORD.--October 1977 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 718.66 ft above sea level, Jan. 20, 1982; lowest water level, 716.89 ft above sea level, Dec. 21, 1977.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1977		Sept. 22	717.94	1981	
Oct. 20	717.87	Nov. 9	717.94	May 21	717.97
Nov. 17	717.89			July 23	717.94
Dec. 21	716.89	1979			
		Feb. 26	717.97	1982	
1978		Apr. 3	718.23	Jan. 20	718.66
Feb. 9	717.96	Apr. 11	718.21	Mar. 16	718.00
Feb. 28	717.94	June 28	717.14	Mar. 31	717.93
Mar. 17	717.94	Aug. 16	718.11	July 12	717.94
May 1	717.99	Oct. 3	718.00		
June 1	717.80	Nov. 16	718.03	1983	
June 16	718.06			Feb. 8	717.96
July 11	718.00	1980		June 9	718.11
July 19	718.01	Jan. 9	718.03		
July 25	718.00	Aug. 22	717.92	1984	
Aug. 30	717.98			July 10	718.27

Well No. 537

SITE IDENTIFICATION NO.--412022089472501

DATUM.--Altitude top of casing is 767.91 ft. Measuring point: Top of casing 2.81 ft above land surface.

PERIOD OF RECORD.--July 1978 to February 1983.

EXTREMES FOR PERIOD OF RECORD.--No water has ever been measured in this well.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1978		1980		1982	
July 20	Dry	Aug. 22	Dry	Mar. 16	Dry
				July 13	Dry
1979		1981			
June 13	Dry	May 21	Dry	1983	
		July 23	Dry	Feb. 9	Dry
		Aug. 20	Dry		

Well No. 538

SITE IDENTIFICATION NO.--412022089473301

DATUM.--Altitude top of casing is 758.07 ft. Measuring point: Top of casing 2.97 ft above land surface.

PERIOD OF RECORD.--May 1981 to February 1983.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 732.18 ft above sea level, Feb. 8, 1983; lowest water level, 718.34 ft above sea level, Nov. 2, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1981		Nov. 11	719.71	Mar. 31	720.07
May 21	720.22	Nov. 20	720.57	July 13	727.19
July 23	724.61	Dec. 1	721.55		
Aug. 19	720.07			1983	
Oct. 30	720.56	1982		Feb. 8	732.18
Nov. 2	718.34	Mar. 16	728.62		

Table 1.--Altitudes of water level in wells--Continued

Well No. 539

SITE IDENTIFICATION NO.--412022089473302

DATUM.--Altitude top of casing is 757.67 ft. Measuring point: Top of casing 2.97 ft above land surface.

PERIOD OF RECORD.--May 1981 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 742.38 ft above sea level, July 10, 1984; lowest water level, 734.92 ft above sea level, Nov. 2, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1981		Nov. 20	736.50	1983	
May 21	736.36	Dec. 1	737.12	Feb. 8	738.13
July 23	738.54				
Aug. 19	735.68	1982		1984	
Oct. 30	738.51	Mar. 16	739.31	July 10	742.38
Nov. 2	734.92	Mar. 31	739.41		
Nov. 11	735.88	July 12	740.24		

Well No. 540

SITE IDENTIFICATION NO.--412019089472801

DATUM.--Altitude top of casing is 771.28 ft. Measuring point: Top of casing 2.63 ft above land surface.

PERIOD OF RECORD.--June 1979 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 748.61 ft above sea level, Aug. 16, 1979; lowest water level, 737.70 ft above sea level, Aug. 17, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1979		1981		1983	
June 14	740.88	May 21	739.08	Feb. 10	740.20
July 11	740.19	July 23	738.27		
Aug. 1	739.92	Aug. 17	737.70	1984	
Aug. 16	748.61			July 10	741.91
		1982			
1980		Mar. 16	739.63		
Aug. 21	738.66	Mar. 31	739.77		
Nov. 19	738.38	July 13	739.40		

Well No. 541

SITE IDENTIFICATION NO.--412019089472801

DATUM.--Altitude top of casing is 762.12 ft. Measuring point: Top of casing 2.89 ft above land surface.

PERIOD OF RECORD.--June 1979 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 740.48 ft above sea level, Mar. 16, 1982; lowest water level, 736.68 ft above sea level, Nov. 18, 1980.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1979		Nov. 18	736.68	1982	
June 14	739.42			Mar. 16	740.48
July 11	738.50	1981		Mar. 31	739.87
Aug. 1	737.89	May 22	738.75	July 13	738.69
Aug. 16	737.45	July 23	737.42		
		Aug. 17	737.52	1984	
1980				July 10	740.24
Aug. 21	736.72				

Well No. 542

SITE IDENTIFICATION NO.--412018089472501

DATUM.--Altitude top of casing is 761.94 ft. Measuring point: Top of casing 3.35 ft above land surface.

PERIOD OF RECORD.--June 1979 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 739.42 ft above sea level, July 10, 1984; lowest water level, 732.51 ft above sea level, July 23, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1979		1981		Mar. 31	735.54
June 14	738.29	May 21	734.54	July 13	734.98
July 11	737.32	July 23	732.51		
Aug. 1	736.65	Aug. 17	733.11	1983	
				Feb. 10	735.29
1980		1982			
Aug. 21	733.48	Mar. 16	734.89	1984	
				July 10	739.42

Well No. 543

SITE IDENTIFICATION NO.--412021089473102

DATUM.--Altitude top of casing is 781.69 ft. Measuring point: Top of casing 2.99 ft above land surface.

PERIOD OF RECORD.--March 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 732.61 ft above sea level, July 10, 1984; lowest water level, 725.70 ft above sea level, Nov. 20, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		Nov. 20	725.70	1983	
Mar. 11	732.32	Dec. 1	727.43	Feb. 9	731.19
Aug. 22	731.70	Dec. 22	729.36	June 9	731.37
1981		1982		1984	
May 21	726.19	Mar. 16	730.60	July 10	732.61
July 23	730.43	Mar. 31	730.98		
Oct. 16	731.15	June 23	731.46		
Oct. 30	730.85	July 13	731.00		

Well No. 544

SITE IDENTIFICATION NO.--412023089473201

DATUM.--Altitude top of casing is 758.97 ft. Measuring point: Top of casing 2.77 ft above land surface.

PERIOD OF RECORD.--March 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 739.54 ft above sea level, July 10, 1984; lowest water level, 717.08 ft above sea level, Nov. 2, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		Nov. 2	717.08	July 12	736.97
Mar. 11	737.16	Nov. 11	722.26		
Aug. 22	735.75	Nov. 20	725.82	1983	
		Dec. 1	728.98	Feb. 8	730.00
1981					
May 21	722.34	1982		1984	
July 23	734.46	Mar. 16	735.52	July 10	739.54
Oct. 30	734.11	Mar. 31	734.59		

Well No. 545

SITE IDENTIFICATION NO.--412023089473202

DATUM.--Altitude top of casing is 757.57 ft. Measuring point: Top of casing 2.92 ft above land surface.

PERIOD OF RECORD.--March 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 733.06 ft above sea level, July 10, 1984; lowest water level, 707.55 ft above sea level, Nov. 2, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		Nov. 2	707.55	July 12	728.37
Mar. 11	730.52	Nov. 11	711.06		
Aug. 22	730.28	Nov. 20	713.77	1983	
		Dec. 1	716.22	Feb. 8	732.65
1981					
May 21	730.03	1982		1984	
July 23	728.49	Mar. 16	726.42	July 10	733.06
Oct. 30	726.00	Mar. 31	719.41		

Well No. 546

SITE IDENTIFICATION NO.--412018089473101

DATUM.--Altitude top of casing is 781.64 ft. Measuring point: Top of casing 3.04 ft above land surface.

PERIOD OF RECORD.--March 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 747.97 ft above sea level, July 10, 1984; lowest water level, 745.27 ft above sea level, Mar. 31, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		Aug. 18	745.74	1983	
Mar. 11	746.17	Oct. 30	745.91	Feb. 9	745.55
Aug. 22	745.87				
		1982		1984	
1981		Mar. 16	745.85	July 10	747.97
May 21	745.58	Mar. 31	745.27		
July 23	745.69	July 13	745.93		

Table 1.--Altitudes of water level in wells--Continued

Well No. 547

SITE IDENTIFICATION NO.--412026089472501

DATUM.--Altitude top of casing is 740.20 ft. Measuring point: Top of casing 3.00 ft above land surface.

PERIOD OF RECORD.--January 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 724.75 ft above sea level, July 10, 1984; lowest water level, 722.53 ft above sea level, Aug. 22, 1980.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		Aug. 21	722.96	1983	
Jan. 6	723.32	Oct. 30	723.04	Feb. 8	723.60
Mar. 24	723.32	Nov. 20	723.11		
Aug. 22	722.53			1984	
		1982		July 10	724.75
1981		Mar. 16	723.21		
May 19	722.90	Mar. 31	723.69		
July 23	722.63	July 13	723.71		

Well No. 548

SITE IDENTIFICATION NO.--412020089473701

DATUM.--Altitude top of casing is 784.43 ft. Measuring point: Top of casing 2.00 ft above land surface.

PERIOD OF RECORD.--June 1979 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 751.64 ft above sea level, July 11, 1984; lowest water level, 746.65 ft above sea level, July 13, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1979		1980		1982	
June 14	750.14	Aug. 22	748.63	Mar. 16	748.58
July 11	750.06			Mar. 31	748.40
July 12	750.04	1981		July 13	746.65
Aug. 1	749.65	May 21	747.95		
Aug. 16	749.54	July 23	748.40	1984	
		Dec. 22	748.36	July 11	751.64

Well No. 549

SITE IDENTIFICATION NO.--412017089473102

DATUM.--Altitude top of casing is 774.55 ft. Measuring point: Top of casing 3.57 ft above land surface.

PERIOD OF RECORD.--June 1979 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 743.54 ft above sea level, June 14, 1979; lowest water level, 739.45 ft above sea level, Aug. 18, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1979		1981		July 13	741.98
June 14	743.54	May 21	742.02		
July 11	742.87	July 23	740.67	1983	
Aug. 1	742.59	Aug. 18	739.45	Feb. 9	742.28
Aug. 16	742.69				
		1982		1984	
1980		Mar. 16	742.95	July 10	743.38
Aug. 21	741.05	Mar. 31	743.07		

Well No. 550

SITE IDENTIFICATION NO.--412025089472801

DATUM.--Altitude top of casing is 755.43 ft. Measuring point: Top of casing 3.03 ft above land surface.

PERIOD OF RECORD.--March 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 720.17 ft above sea level, July 12, 1982; lowest water level, 718.13 ft above sea level, Aug. 22, 1980.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		Aug. 20	719.23	July 12	720.17
Mar. 11	718.89	Oct. 30	719.19		
Aug. 22	718.13	Nov. 20	718.99	1983	
				Feb. 8	719.34
1981		1982			
May 21	718.76	Mar. 16	719.28	1984	
July 23	718.73	Mar. 31	719.54	July 10	719.62

Well No. 551

SITE IDENTIFICATION NO.--412020089473602

DATUM.--Altitude top of casing is 790.85 ft. Measuring point: Top of casing 1.80 ft above land surface.

PERIOD OF RECORD.--June 1979 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 748.34 ft above sea level, July 10, 1984; lowest water level, 745.25 ft above sea level, Mar. 10, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1979		1981		Mar. 31	745.74
June 14	747.09	Mar. 10	745.25	July 13	746.13
July 11	746.89	May 21	745.62		
Aug. 1	746.80	July 23	746.43	1983	
		Aug. 19	745.94	Feb. 9	745.88
1980					
Aug. 21	745.85	1982		1984	
		Mar. 16	745.82	July 10	748.34

Table 1.--Altitudes of water level in wells--Continued

Well No. 552

SITE IDENTIFICATION NO.--412017089472901

DATUM.--Altitude top of casing is 747.95 ft. Measuring point: Top of casing 2.95 ft above land surface.

PERIOD OF RECORD.--March 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 722.58 ft above sea level, Mar. 16, 1982; lowest water level, 720.56 ft above sea level, Aug. 21, 1980.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		Aug. 18	722.26	1983	
Mar. 11	721.73	Oct. 30	722.16	Feb. 10	721.36
Aug. 21	720.56				
		1982		1984	
1981		Mar. 16	722.58	July 11	722.52
May 21	722.44	Mar. 31	722.07		
July 23	721.20	July 13	722.36		

Table 1.--Altitudes of water level in wells--Continued

Well No. 553

SITE IDENTIFICATION NO.--412024089473601

DATUM.--Altitude top of casing is 765.74 ft. Measuring point: Top of casing 3.04 ft above land surface.

PERIOD OF RECORD.--March 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 744.21 ft above sea level, July 10, 1984; lowest water level, 738.36 ft above sea level, Aug. 19, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		Oct. 30	742.71	July 12	743.10
Mar. 11	742.01	Nov. 11	739.97		
Aug. 22	743.36	Nov. 20	741.75	1983	
		Dec. 1	741.92	Feb. 8	741.79
1981					
May 21	743.26	1982		1984	
July 23	743.93	Mar. 16	741.31	July 10	744.21
Aug. 19	738.36	Mar. 31	741.70		

Well No. 554

SITE IDENTIFICATION NO.--412026089472801

DATUM.--Altitude top of casing is 752.37 ft. Measuring point: Top of casing 2.97 ft above land surface.

PERIOD OF RECORD.--January 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 731.37 ft above sea level, July 11, 1984; lowest water level, 728.52 ft above sea level, Aug. 22, 1980.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		July 23	728.98	July 12	730.34
Jan. 6	729.23	Aug. 20	729.22		
Mar. 24	729.23	Oct. 29	730.53	1983	
Aug. 22	728.52			Feb. 10	730.38
		1982			
1981		Mar. 16	729.36	1984	
May 19	728.54	Mar. 31	729.56	July 11	731.37

Well No. 555

SITE IDENTIFICATION NO.--412026089472701

DATUM.--Altitude top of casing is 750.78 ft. Measuring point: Top of casing 2.98 ft above land surface.

PERIOD OF RECORD.--January 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 731.27 ft above sea level, July 11, 1984; lowest water level, 728.01 ft above sea level, Aug. 22, 1980.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		July 23	728.88	1983	
Jan. 6	729.22	Oct. 29	729.57	Feb. 10	730.19
Mar. 24	729.22				
Aug. 22	728.01	1982		1984	
		Mar. 16	729.11	July 11	731.27
1981		Mar. 31	729.44		
May 19	728.53	July 12	730.09		

Well No. 556

SITE IDENTIFICATION NO.--412026089472702

DATUM.--Altitude top of casing is 750.53 ft. Measuring point: Top of casing 3.03 ft above land surface.

PERIOD OF RECORD.--January 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 731.34 ft above sea level, July 11, 1984; lowest water level, 728.52 ft above sea level, Aug. 22, 1980.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		July 23	728.97	1983	
Jan. 6	729.24	Oct. 29	729.46	Feb. 10	730.05
Mar. 24	729.24				
Aug. 22	728.52	1982		1984	
		Mar. 16	729.33	July 11	731.34
1981		Mar. 31	729.60		
May 19	728.54	July 12	730.35		

Well No. 557

SITE IDENTIFICATION NO.--412026089472703

DATUM.--Altitude top of casing is 749.86 ft. Measuring point: Top of casing 2.96 ft above land surface.

PERIOD OF RECORD.--January 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 730.48 ft above sea level, July 11, 1984; lowest water level, 725.50 ft above sea level, Mar. 16, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		July 23	727.93	1983	
Jan. 6	728.26	Oct. 29	728.46	Feb. 10	729.20
Mar. 24	728.26				
Aug. 22	727.50	1982		1984	
		Mar. 16	725.50	July 11	730.48
1981		Mar. 31	728.73		
May 19	727.75	July 12	729.36		

Table 1.--Altitudes of water level in wells--Continued

Well No. 559

SITE IDENTIFICATION NO.--412017089472902

DATUM.--Altitude top of casing is 747.84 ft. Measuring point: Top of casing 3.04 ft above land surface.

PERIOD OF RECORD.--March 1980 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 743.65 ft above sea level, Mar. 16, 1982; lowest water level, 738.39 ft above sea level, July 23, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1980		Aug. 18	742.57	1983	
Mar. 11	740.43	Oct. 29	739.59	Feb. 10	741.95
Aug. 21	739.14				
		1982		1984	
1981		Mar. 16	743.65	July 11	741.07
May 21	741.43	Mar. 31	742.70		
July 23	738.39	July 13	740.98		

Table 1.--Altitudes of water level in wells--Continued

Well No. 560

SITE IDENTIFICATION NO.--412026089471701

DATUM.--Altitude top of casing is 730.01 ft. Measuring point: Top of casing 3.06 ft above land surface.

PERIOD OF RECORD.--November 1981 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 710.08 ft above sea level, July 10, 1984; lowest water level, 709.00 ft above sea level, Oct. 12, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1981		Mar. 16	709.85	1983	
Nov. 20	709.16	July 13	709.68	Feb. 8	709.45
Dec. 17	709.15	Oct. 1	709.04	June 10	710.07
		Oct. 12	709.00		
1982		Nov. 15	709.07	1984	
Jan. 20	709.16			July 10	710.08

Well No. 561

SITE IDENTIFICATION NO.--412022089471301

DATUM.--Altitude top of casing is 716.01 ft. Measuring point: Top of casing 2.96 ft above land surface.

PERIOD OF RECORD.--November 1981 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 704.71 ft above sea level, Mar. 16, 1982; lowest water level, 701.25 ft above sea level, Oct. 1, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1981		Mar. 16	704.71	1983	
Nov. 20	702.69	July 13	703.35	Feb. 8	701.98
Nov. 29	702.79	Oct. 1	701.25		
Dec. 17	702.71	Oct. 12	701.30	1984	
		Nov. 15	702.12	July 10	702.71
1982					
Jan. 20	702.38				

Well No. 562

SITE IDENTIFICATION NO.--412021089471301

DATUM.--Altitude top of casing is 724.06 ft. Measuring point: Top of casing 3.27 ft above land surface.

PERIOD OF RECORD.--November 1981 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 707.70 ft above sea level, Mar. 16, 1982; lowest water level, 703.90 ft above sea level, Feb. 8, 1983.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1981		Mar. 16	707.70	1983	
Nov. 20	705.79	July 13	706.41	Feb. 8	703.90
Nov. 29	705.93	Oct. 12	703.93		
		Nov. 15	704.59	1984	
1982				July 10	706.12
Jan. 20	705.49				

Table 1.--Altitudes of water level in wells--Continued

Well No. 563

SITE IDENTIFICATION NO.--412024089472301

DATUM.--Altitude top of casing is 756.52 ft. Measuring point: Top of casing 2.89 ft above land surface.

PERIOD OF RECORD.--November 1981 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 721.20 ft above sea level, June 22, 1982; lowest water level, 713.88 ft above sea level, Jan. 27, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1981		Feb. 23	713.90	1983	
Nov. 20	714.24	Mar. 16	714.07	Feb. 7	714.35
Dec. 11	714.12	June 22	721.20		
Dec. 17	713.95	July 8	714.59	1984	
		Aug. 5	714.59	July 10	716.09
1982		Oct. 1	714.13		
Jan. 20	713.97	Oct. 12	714.05		
Jan. 27	713.88	Nov. 15	714.37		

Well No. 564

SITE IDENTIFICATION NO.--412028089472301

DATUM.--Altitude top of casing is 740.63 ft. Measuring point: Top of casing 3.00 ft above land surface.

PERIOD OF RECORD.--November 1981 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 717.48 ft above sea level, Nov. 20, 1981; lowest water level, 714.56 ft above sea level, Jan. 20, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1981		Mar. 16	714.90	1983	
Nov. 20	717.48	July 13	715.32	Feb. 8	715.05
		Oct. 1	714.77		
1982		Oct. 12	714.70	1984	
Jan. 20	714.56	Nov. 15	714.66	July 11	716.54

Table 1.--Altitudes of water level in wells--Continued

Well No. 565

SITE IDENTIFICATION NO.--412023089472301

DATUM.--Altitude top of casing is 764.04 ft. Measuring point: Top of casing 3.44 ft above land surface.

PERIOD OF RECORD.--November 1981 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 723.59 ft above sea level, Nov. 20, 1981; lowest water level, 717.74 ft above sea level, Dec. 4, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1981		Jan. 27	718.83	1983	
Nov. 20	723.59	Mar. 16	719.01	Feb. 8	718.94
Nov. 29	719.12	July 12	719.07		
Dec. 4	717.74	Aug. 5	719.05	1984	
Dec. 11	719.06	Oct. 1	719.10	July 10	719.19
		Oct. 12	718.89		
1982		Nov. 15	719.12		
Jan. 20	719.74				

Well No. 566

SITE IDENTIFICATION NO.--412018089471601

DATUM.--Altitude top of casing is 715.59 ft. Measuring point: Top of casing 3.58 ft above land surface.

PERIOD OF RECORD.--January 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 709.05 ft above sea level, Mar. 16, 1982; lowest water level, 706.76 ft above sea level, Nov. 15, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Mar. 16	709.05	1983	
Jan. 20	707.20	July 13	708.01	Feb. 8	707.10
Jan. 28	707.35	Nov. 15	706.76		
				1984	
				July 10	707.05

Well No. 567

SITE IDENTIFICATION NO.--412017089472201

DATUM.--Altitude top of casing is 729.87 ft. Measuring point: Top of casing 3.10 ft above land surface.

PERIOD OF RECORD.--November 1981 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 723.43 ft above sea level, July 10, 1984; lowest water level, 718.82 ft above sea level, Jan. 28, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1981		Jan. 28	718.82	1983	
Nov. 29	719.39	Mar. 16	720.59	Feb. 8	719.67
Dec. 2	719.59	July 13	720.33		
		Nov. 15	719.04	1984	
1982				July 10	723.43
Jan. 20	718.99				

Table 1.--Altitudes of water level in wells--Continued

Well No. 568

SITE IDENTIFICATION NO.--412015089472201

DATUM.--Altitude top of casing is 722.57 ft. Measuring point: Top of casing 2.87 ft above land surface.

PERIOD OF RECORD.--January 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 714.24 ft above sea level, Mar. 16, 1982; lowest water level, 712.75 ft above sea level, July 10, 1984.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Mar. 16	714.24	1983	
Jan. 20	712.88	July 13	713.41	Feb. 8	712.97
Jan. 28	712.89	Nov. 15	712.98		
				1984	
				July 10	712.75

Well No. 569

SITE IDENTIFICATION NO.--412032089472201

DATUM.--Altitude top of casing is 734.95 ft. Measuring point: Top of casing 2.75 ft above land surface.

PERIOD OF RECORD.--January 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 724.55 ft above sea level, July 13, 1982; lowest water level, 722.55 ft above sea level, Jan. 20, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		July 13	724.55	1983	
Jan. 20	722.55	Oct. 12	722.96	Feb. 8	724.01
Mar. 16	724.27	Nov. 15	723.43		
				1984	
				July 11	724.35

Well No. 570

SITE IDENTIFICATION NO.--412030089472001

DATUM.--Altitude top of casing is 725.21 ft. Measuring point: Top of casing 3.46 ft above land surface.

PERIOD OF RECORD.--December 1981 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 719.90 ft above sea level, Mar. 16, 1982; lowest water level, 713.43 ft above sea level, Dec. 17, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1981		Mar. 16	719.90	1983	
Dec. 17	713.43	July 13	719.63	Feb. 8	719.02
		Oct. 12	718.34		
1982		Nov. 15	718.94	1984	
Jan. 20	718.29			July 11	719.10

Table 1.--Altitudes of water level in wells--Continued

Well No. 572

SITE IDENTIFICATION NO.--412025089471201

DATUM.--Altitude top of casing is 717.39 ft. Measuring point: Top of casing 2.67 ft above land surface.

PERIOD OF RECORD.--January 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 702.02 ft above sea level, Mar. 16, 1982; lowest water level, 700.28 ft above sea level, Oct. 12, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		July 13	701.54	1983	
Jan. 20	701.34	Oct. 12	700.28	Feb. 8	700.83
Mar. 16	702.02	Nov. 15	700.95		
				1984	
				July 10	701.42

Well No. 573

SITE IDENTIFICATION NO.--412023089470901

DATUM.--Altitude top of casing is 711.92 ft. Measuring point: Top of casing 2.32 ft above land surface.

PERIOD OF RECORD.--December 1981 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 701.85 ft above sea level, Mar. 16, 1982; lowest water level, 695.93 ft above sea level, Dec. 17, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1981		1982		1984	
Dec. 17	695.93	Jan. 20	701.47	July 10	695.95
		Mar. 16	701.85		
		July 13	700.19		

Well No. 574

SITE IDENTIFICATION NO.--412023089470401

DATUM.--Altitude top of casing is 709.32 ft. Measuring point: Top of casing 3.17 ft above land surface.

PERIOD OF RECORD.--December 1981 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 700.36 ft above sea level, Mar. 16, 1982; lowest water level, 697.54 ft above sea level, Dec. 17, 1981.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1981		Mar. 16	700.36	1983	
Dec. 17	697.54	July 13	698.85	Feb. 8	697.83
		Oct. 12	698.54		
1982		Nov. 15	699.20	1984	
Jan. 20	699.59			July 10	698.52

Table 1.--Altitudes of water level in wells--Continued

Well No. 575

SITE IDENTIFICATION NO.--412025089472101

DATUM.--Altitude top of casing is 747.62 ft. Measuring point: Top of casing 2.56 ft above land surface.

PERIOD OF RECORD.--January 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 715.78 ft above sea level, July 10, 1984; lowest water level, 713.64 ft above sea level, Jan. 29, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		July 13	714.41	1983	
Jan. 20	713.78	Aug. 5	714.30	Feb. 7	714.07
Jan. 29	713.64	Oct. 1	713.85	June 10	715.07
Feb. 23	713.88	Oct. 12	713.77		
Mar. 16	713.86	Nov. 16	714.12	1984	
June 22	714.40			July 10	715.78

Well No. 576

SITE IDENTIFICATION NO.--412025089472201

DATUM.--Altitude top of casing is 750.83 ft. Measuring point: Top of casing 4.29 ft above land surface.

PERIOD OF RECORD.--January 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 722.83 ft above sea level, Jan. 20, 1982; lowest water level, below bottom of the screen.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Oct. 1	714.12	June 10	715.47
Jan. 20	722.83	Oct. 12	713.96		
Jan. 29	717.33	Nov. 16	713.84	1984	
Mar. 16	714.23			July 10	715.98
June 22	714.62	1983			
July 13	Dry	Feb. 7	714.28		

Well No. 577

SITE IDENTIFICATION NO.--412024089472501

DATUM.--Altitude top of casing is 759.10 ft. Measuring point: Top of casing 3.00 ft above land surface.

PERIOD OF RECORD.--May 1982 to June 1983.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 718.98 ft above sea level, May 20, 1982; lowest water level, 718.64 ft above sea level, Oct. 12, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Aug. 5	718.72	1983	
May 20	718.98	Sept. 30	718.66	Feb. 10	718.68
May 27	718.78	Oct. 12	718.64	June 10	718.83
June 23	718.76	Nov. 18	718.65		

Table 1.--Altitudes of water level in wells--Continued

Well No. 578

SITE IDENTIFICATION NO.--412024089472302

DATUM.--Altitude top of casing is 758.95 ft. Measuring point: Top of casing 3.00 ft above land surface.

PERIOD OF RECORD.--May 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 716.78 ft above sea level, July 10, 1984; lowest water level, 711.57 ft above sea level, May 27, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Sept. 30	714.98	June 10	716.13
May 20	711.59	Oct. 12	715.12		
May 27	711.57	Nov. 15	715.46	1984	
June 22	713.10			July 10	716.78
July 8	713.49	1983			
Aug. 5	714.14	Feb. 7	714.79		

Well No. 579

SITE IDENTIFICATION NO.--412024089472101

DATUM.--Altitude top of casing is 751.83 ft. Measuring point: Top of casing 3.00 ft above land surface.

PERIOD OF RECORD.--May 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 723.25 ft above sea level, July 10, 1984; lowest water level, 716.32 ft above sea level, May 27, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Oct. 12	720.92	1984	
May 20	718.84	Nov. 15	720.89	July 10	723.25
May 27	716.32				
June 22	720.46	1983			
Aug. 5	720.91	Feb. 7	720.71		
Sept. 30	720.91	June 10	722.59		

Well No. 580

SITE IDENTIFICATION NO.--412024089472401

DATUM.--Altitude top of casing is 752.90 ft. Measuring point: Top of casing 1.00 ft below land surface.

PERIOD OF RECORD.--May 1982 to June 1983.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 715.97 ft above sea level, June 10, 1983; lowest water level, 714.08 ft above sea level, May 27, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		June 23	714.85	1983	
May 20	715.10	Aug. 5	714.82	June 10	715.97
May 27	714.08	Sept. 30	714.73		

Well No. 581

SITE IDENTIFICATION NO.--412025089472102

DATUM.--Altitude top of casing is 746.46 ft. Measuring point: Top of casing 3.00 ft above land surface.

PERIOD OF RECORD.--May 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 715.66 ft above sea level, July 10, 1984; lowest water level, 713.66 ft above sea level, Oct. 12, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Oct. 12	713.66	1984	
May 20	714.47	Nov. 16	713.72	July 10	715.66
May 27	714.46				
June 22	714.63	1983			
Aug. 5	714.97	Feb. 7	714.01		
Sept. 30	713.78	June 10	715.29		

Well No. 582

SITE IDENTIFICATION NO.--412023089472201

DATUM.--Altitude top of casing is 761.57 ft. Measuring point: Top of casing 3.00 ft above land surface.

PERIOD OF RECORD.--May 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 727.84 ft above sea level, June 10, 1983; lowest water level, 727.43 ft above sea level, Nov. 18, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Oct. 12	727.51	1984	
May 20	727.75	Nov. 18	727.43	July 11	727.75
May 27	727.75				
June 23	727.61	1983			
Aug. 5	727.56	Feb. 10	727.56		
Sept. 30	727.52	June 10	727.84		

Well No. 583

SITE IDENTIFICATION NO.--412025089472301

DATUM.--Altitude top of casing is 754.60 ft. Measuring point: Top of casing 2.50 ft above land surface.

PERIOD OF RECORD.--May 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 715.70 ft above sea level, July 10, 1984; lowest water level, 713.90 ft above sea level, Nov. 15, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Oct. 12	714.05	1984	
May 20	714.83	Nov. 15	713.90	July 10	715.70
May 27	714.81				
July 8	714.58	1983			
Aug. 5	714.60	Feb. 7	714.35		
Sept. 30	714.14	June 10	715.68		

Well No. 584

SITE IDENTIFICATION NO.--412024089472102

DATUM.--Altitude top of casing is 750.61 ft. Measuring point: Top of casing 3.00 ft above land surface.

PERIOD OF RECORD.--May 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 718.71 ft above sea level, Feb. 7, 1983; lowest water level, 715.11 ft above sea level, May 27, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Oct. 12	715.83	1984	
May 27	715.11	Nov. 15	715.77	July 10	718.68
June 22	715.93				
Aug. 5	715.98	1983			
Sept. 30	715.85	Feb. 7	718.71		

Well No. 586

SITE IDENTIFICATION NO.--412024089472601

DATUM.--Altitude top of casing is 752.76 ft. Measuring point: Top of casing 3.08 ft above land surface.

PERIOD OF RECORD.--September 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 717.50 ft above sea level, July 10, 1984; lowest water level, 716.57 ft above sea level, Nov. 19, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Oct. 1	717.11	June 9	717.26
Sept. 2	716.60	Oct. 12	716.90		
Sept. 3	716.63	Nov. 19	716.57	1984	
Sept. 9	716.64			July 10	717.50
Sept. 10	716.63	1983			
Sept. 22	716.62	Feb. 8	716.69		

Well No. 587

SITE IDENTIFICATION NO.--412024089472502

DATUM.--Altitude top of casing is 753.93 ft. Measuring point: Top of casing 5.00 ft above land surface.

PERIOD OF RECORD.--September 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 717.36 ft above sea level, July 10, 1984; lowest water level, 710.18 ft above sea level, Sept. 13, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Oct. 1	714.93	June 9	716.83
Sept. 2	715.59	Oct. 12	715.29		
Sept. 3	711.81	Nov. 18	715.20	1984	
Sept. 9	715.17			July 10	717.36
Sept. 10	710.18	1983			
Sept. 22	715.48	Feb. 8	715.65		

Well No. 588

SITE IDENTIFICATION NO.--412022089472502

DATUM.--Altitude top of casing is 757.52 ft. Measuring point: Top of casing 0.02 ft below land surface.

PERIOD OF RECORD.--September 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 723.64 ft above sea level, July 11, 1984; lowest water level, 717.61 ft above sea level, Sept. 10, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Sept. 30	720.35	June 10	723.00
Sept. 2	719.97	Nov. 18	721.18		
Sept. 3	717.69			1984	
Sept. 9	718.87	1983		July 11	723.64
Sept. 10	717.61	Feb. 10	722.23		

Well No. 589

SITE IDENTIFICATION NO.--412023089472501

DATUM.--Altitude top of casing is 752.88 ft. Measuring point: Top of casing 0.38 ft above land surface.

PERIOD OF RECORD.--September 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 719.28 ft above sea level, June 10, 1983; lowest water level, 716.26 ft above sea level, Sept. 10, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Sept. 30	718.69	June 10	719.28
Sept. 2	718.88	Oct. 12	718.68		
Sept. 3	716.88	Nov. 18	718.87	1984	
Sept. 9	718.93			July 11	718.71
Sept. 10	716.26	1983			
Sept. 22	718.71	Feb. 10	718.42		

Well No. 590

SITE IDENTIFICATION NO.--412024089472402

DATUM.--Altitude top of casing is 752.38 ft. Measuring point: Top of casing 0.25 ft below land surface.

PERIOD OF RECORD.--September 1982 to June 1983.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 717.63 ft above sea level, Sept. 2, 1982; lowest water level, 712.14 ft above sea level, Sept. 3, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Sept. 9	717.09	1983	
Sept. 2	717.63	Sept. 10	713.65	Feb. 10	717.15
Sept. 3	712.14	Sept. 30	717.00	June 10	717.29

Well No. 591

SITE IDENTIFICATION NO.--412026089471901

DATUM.--Altitude top of casing is 738.46 ft. Measuring point: Top of casing 3.38 ft above land surface.

PERIOD OF RECORD.--September 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 713.26 ft above sea level, July 10, 1984; lowest water level, 711.66 ft above sea level, Nov. 16, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Nov. 16	711.66	June 10	713.04
Sept. 2	711.96				
Sept. 30	711.76	1983		1984	
Oct. 12	711.69	Feb. 8	712.08	July 10	713.26

Well No. 592

SITE IDENTIFICATION NO.--412025089471901

DATUM.--Altitude top of casing is 737.66 ft. Measuring point: Top of casing 2.12 ft above land surface.

PERIOD OF RECORD.--September 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 713.12 ft above sea level, June 10, 1983; lowest water level, 711.13 ft above sea level, Sept. 10, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Oct. 12	711.73	June 10	713.12
Sept. 2	711.96	Nov. 15	711.69		
Sept. 3	711.73			1984	
Sept. 10	711.13	1983		July 10	713.11
Sept. 30	711.81	Feb. 8	711.98		

Well No. 594

SITE IDENTIFICATION NO.--412026089472001

DATUM.--Altitude top of casing is 740.21 ft. Measuring point: Top of casing 2.17 ft above land surface.

PERIOD OF RECORD.--September 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 715.98 ft above sea level, July 10, 1984; lowest water level, 714.09 ft above sea level, Oct. 12, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Sept. 30	714.18	1983	
Sept. 2	714.41	Oct. 12	714.09	Feb. 8	714.49
Sept. 10	714.31	Nov. 15	714.12		
				1984	
				July 10	715.98

Well No. 597

SITE IDENTIFICATION NO.--412026089471702

DATUM.--Altitude top of casing is 735.47 ft. Measuring point: Top of casing 2.20 ft above land surface.

PERIOD OF RECORD.--October 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 711.18 ft above sea level, June 10, 1983; lowest water level, 709.90 ft above sea level, Oct. 6, 12, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Nov. 15	711.02	June 10	711.18
Oct. 1	709.95				
Oct. 6	709.90	1983		1984	
Oct. 12	709.90	Feb. 8	710.38	July 10	711.12

Well No. 599

SITE IDENTIFICATION NO.--412025089471701

DATUM.--Altitude top of casing is 734.49 ft. Measuring point: Top of casing 2.30 ft above land surface.

PERIOD OF RECORD.--October 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 714.75 ft above sea level, June 10, 1983; lowest water level, 712.60 ft above sea level, Oct. 1, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Nov. 15	713.52	June 10	714.75
Oct. 1	712.60				
Oct. 6	713.48	1983		1984	
Oct. 12	712.71	Feb. 8	712.87	July 10	713.04

Well No. 600

SITE IDENTIFICATION NO.--412026089471703

DATUM.--Altitude top of casing is 734.43 ft. Measuring point: Top of casing 2.50 ft above land surface.

PERIOD OF RECORD.--October 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 711.34 ft above sea level, July 10, 1984; lowest water level, 708.88 ft above sea level, Nov. 15, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Nov. 15	708.88	June 10	711.19
Oct. 1	710.01				
Oct. 6	710.01	1983		1984	
Oct. 12	709.95	Feb. 8	710.46	July 10	711.34

Well No. 601

SITE IDENTIFICATION NO.--412026089471704

DATUM.--Altitude top of casing is 732.05 ft. Measuring point: Top of casing 2.30 ft above land surface.

PERIOD OF RECORD.--October 1982 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 710.63 ft above sea level, June 10, 1983, July 10, 1984; lowest water level, 709.41 ft above sea level, Oct. 6, 1982.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1982		Nov. 15	709.48	June 10	710.63
Oct. 1	709.48				
Oct. 6	709.41	1983		1984	
Oct. 12	709.44	Feb. 8	709.91	July 10	710.63

Well No. 602

SITE IDENTIFICATION NO.--412020089471901

DATUM.--Altitude top of casing is 752.42 ft. Measuring point: Top of casing 2.63 ft above land surface.

PERIOD OF RECORD.--February 1983 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 720.70 ft above sea level, July 10, 1984; lowest water level, 719.75 ft above sea level, Feb. 8, 1983.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1983		1984			
Feb. 8	719.75	July 10	720.70		

Well No. 602

SITE IDENTIFICATION NO.--412020089471901

DATUM.--Altitude top of casing is 752.42 ft. Measuring point: Top of casing 2.63 ft above land surface.

PERIOD OF RECORD.--February 1983 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 720.70 ft above sea level, July 10, 1984; lowest water level, 719.75 ft above sea level, Feb. 8, 1983.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1983		1984			
Feb. 8	719.75	July 10	720.70		

Well No. 603

SITE IDENTIFICATION NO.--412015089471901

DATUM.--Altitude top of casing is 723.90 ft. Measuring point: Top of casing 3.13 ft above land surface.

PERIOD OF RECORD.--February 1983.

EXTREMES FOR PERIOD OF RECORD.--

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1983					
Feb. 8	714.66				

Table 1.--Altitudes of water level in wells--Continued

Well No. 604

SITE IDENTIFICATION NO.--412014089472001

DATUM.--Altitude top of casing is 735.87 ft. Measuring point: Top of casing 2.85 ft above land surface.

PERIOD OF RECORD.--February 1983 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 724.11 ft above sea level, July 10, 1984; lowest water level, 711.35 ft above sea level, June 10, 1983.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1983				1984	
Feb. 8	723.85	June 10	711.35	July 10	724.11

Well No. 605

SITE IDENTIFICATION NO.--412021089470901

DATUM.--Altitude top of casing is 713.61 ft. Measuring point: Top of casing 2.98 ft above land surface.

PERIOD OF RECORD.--February 1983 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 702.56 ft above sea level, July 10, 1984; lowest water level, 692.84 ft above sea level, June 10, 1983.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1983				1984	
Feb. 8	702.01	June 10	692.84	July 10	702.56

Well No. 606

SITE IDENTIFICATION NO.--412019089470801

DATUM.--Altitude top of casing is 720.37 ft. Measuring point: Top of casing 3.52 ft above land surface.

PERIOD OF RECORD.--February 1983 to July 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 706.86 ft above sea level, July 10, 1984; lowest water level, 703.57 ft above sea level, Feb. 8, 1983.

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1983		1984			
Feb. 8	703.57	July 10	706.86		

Table 1.--Altitudes of water level in wells--Continued

Well No. 607

SITE IDENTIFICATION NO.--412021089470501

DATUM.--Altitude top of casing is 709.57 ft. Measuring point: Top of casing 2.87 ft above land surface.

PERIOD OF RECORD.--February 1983.

EXTREMES FOR PERIOD OF RECORD.--

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1983					
Feb. 8	698.61				

Well No. 608

SITE IDENTIFICATION NO.--412022089471701

DATUM.--Altitude top of casing is 748.55 ft. Measuring point: Top of casing 1.07 ft above land surface.

PERIOD OF RECORD.--July 1984.

EXTREMES FOR PERIOD OF RECORD.--

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1984					
July 11	724.25				

Well No. 609

SITE IDENTIFICATION NO.--412021089471901

DATUM.--Altitude top of casing is 764.13 ft. Measuring point: Top of casing 1.18 ft above land surface.

PERIOD OF RECORD.--July 1984.

EXTREMES FOR PERIOD OF RECORD.--

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1984					
July 10	720.63				

Well No. 610

SITE IDENTIFICATION NO.--412021089471601

DATUM.--Altitude top of casing is 737.95 ft. Measuring point: Top of casing 3.18 ft above land surface.

PERIOD OF RECORD.--July 1984.

EXTREMES FOR PERIOD OF RECORD.--

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1984					
July 11	717.37				

Well No. 611

SITE IDENTIFICATION NO.--412019089471801

DATUM.--Altitude top of casing is 737.59 ft. Measuring point: Top of casing 2.81 ft above land surface.

PERIOD OF RECORD.--July 1984.

EXTREMES FOR PERIOD OF RECORD.--

Date	Altitude of water level (feet)	Date	Altitude of water level (feet)	Date	Altitude of water level (feet)
1984					
July 10	720.48				

Table 2.--Strip-mine lake stages

Date measured	Altitude of lake surface (feet)
6/11/82	698.0
6/17/82	698.1
6/23/82	698.2
7/12/82	698.2
8/18/82	698.4
9/16/82	697.8

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters

Part A. Depth of well, specific conductance, pH, temperature, and hardness

Well number or surface water site	Station number	Date of sample	Depth of well, total (feet)	Specific conductance (µmhos)	Specific conductance lab (µmhos)	pH (units)	Temperature (°C)	Hardness (mg/L as $CaCO_3$)
Lake Sample #1	412023089470402	07-14-82	--	1,460	1,460	7.9	26.0	1,370
Creek at Flume #1	412006089472601	07-15-82	--	876	--	7.9	21.0	1,040
NE Stream #1	412029089472201	07-14-82	--	567	600	7.5	20.0	287
502	412022089472401	05-20-82	43	--	--	--	--	--
		06-22-82	43	--	--	--	--	--
		07-15-82	43	773	790	8.0	11.5	237
		09-17-82	43	--	--	--	--	--
		11-19-82	43	--	320	8.4	11.0	63
505	412019089472501	06-23-82	31	--	--	--	--	--
		07-15-82	31	1,350	1,390	8.0	12.0	812
		09-07-82	31	--	--	--	--	--
507	412019089472901	07-15-82	39	1,270	1,090	7.9	12.5	686
510	412017089473201	07-15-82	39	828	--	7.7	12.0	315
		11-19-82	39	--	800	7.5	11.5	405
520	412024089473301	07-15-82	33	698	--	8.5	11.0	392
		11-19-82	33	687	690	7.4	11.0	382

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part A. Depth of well, specific conductance, pH, temperature, and hardness--Continued

Well number or surface water site	Station number	Date of sample	Depth of well, total (feet)	Specific conductance (µmhos)	Specific conductance lab (µmhos)	pH (units)	Temperature (°C)	Hardness (mg/L as $CaCO_3$)
522	412020089473601	07-15-82	52	377	420	9.2	12.0	201
		11-19-82	52	442	410	7.3	11.0	213
523	412019089472701	07-01-82	33	--	--	--	--	--
		11-19-82	33	--	1,960	6.5	12.0	1,210
524	412017089472701	07-15-82	32	500	500	9.0	11.5	278
		07-23-82	32	--	--	--	--	--
527	412018089472601	07-15-82	27	1,040	--	8.0	11.5	--
		07-16-82	27	1,040	1,070	8.0	11.5	656
528	412019089472902	07-15-82	31	1,190	1,180	7.9	12.0	672
		07-19-82	31	--	--	--	--	--
		11-19-82	31	--	1,270	7.3	11.5	751
529	412017089473101	07-15-82	31	440	460	8.7	11.5	122
		11-19-82	31	--	540	7.2	11.5	163
531	412017089473701	07-15-82	33	678	--	7.8	12.0	392
		11-19-82	33	--	720	7.3	12.0	403
535	412025089472901	07-15-82	33	1,050	1,090	8.3	10.5	620
543	412021089473102	07-15-82	62	371	--	9.2	11.0	28

560	412026089471701	02-08-82	26	--	--	--	--	--
		07-14-82	26	434	330	10.0	11.0	82
		07-16-82	26	325	--	9.9	11.5	194
		09-17-82	26	--	--	--	--	--
		11-18-82	26	--	460	8.0	12.0	100
561	412022089471301	02-08-82	21	--	--	--	--	--
		07-14-82	21	650	700	7.7	10.0	381
		11-18-82	21	--	750	7.1	13.0	408
562	412021089471301	02-08-82	22	--	--	--	--	--
		07-14-82	22	885	840	7.6	10.5	473
		11-17-82	22	--	880	6.5	12.0	491
563	412024089472301	02-08-82	44	--	--	--	--	--
		05-10-82	44	--	--	--	--	--
		06-08-82	44	--	--	--	--	--
		06-22-82	44	--	--	--	--	--
		09-17-82	44	--	--	--	--	--
		11-17-82	44	727	1,150	6.7	11.0	682
564	412028089472301	02-08-82	40	--	--	--	--	--
		11-17-82	40	--	950	8.2	10.5	558
565	412023089472301	02-08-82	45	--	--	--	--	--
		09-17-82	45	--	--	--	--	--
		11-17-82	45	--	1,070	7.0	11.0	611
566	412018089471601	02-08-82	11	--	--	--	--	--
		07-14-82	11	614	--	8.1	12.0	150
		07-14-82	11	453	460	7.5	--	241
		11-17-82	11	--	590	--	13.5	232
567	412017089472201	02-08-82	26	--	--	--	--	--
		07-14-82	26	1,280	101	7.6	11.0	502
		11-17-82	26	--	950	--	12.5	448
568	412015089472201	02-08-82	16	--	--	--	--	--
		07-14-82	16	788	770	7.5	10.0	435
		11-17-82	16	--	730	--	13.0	413

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part A. Depth of well, specific conductance, pH, temperature, and hardness--Continued

Well number or surface water site	Station number	Date of sample	Depth of well, total (feet)	Specific conductance (µmhos)	Specific conductance lab (µmhos)	pH (units)	Temperature (°C)	Hardness (mg/L as $CaCO_3$)
569	412032089472201	02-08-82	40	--	--	--	--	--
		07-14-82	40	1,360	1,250	7.5	11.0	664
		11-17-82	40	--	1,140	7.0	11.0	703
570	412030089472001	02-08-82	14	--	--	--	--	--
		07-14-82	14	802	--	8.8	11.0	92
		11-17-82	14	--	590	--	12.5	204
572	412025089471201	02-08-82	16	--	--	--	--	--
		07-14-82	16	760	850	7.9	11.0	501
		11-17-82	16	--	960	7.0	12.5	547
573	412023089470901	02-08-82	20	--	--	--	--	--
574	412023089470401	02-08-82	34	--	--	--	--	--
		07-14-82	34	815	760	7.7	9.5	287
		11-17-82	34	--	720	--	11.5	319
575	412025089472101	02-08-82	36	--	--	--	--	--
		05-10-82	36	--	--	--	--	--
		06-22-82	36	--	--	--	--	--
		07-14-82	36	1,450	700	7.3	11.5	420
		08-06-82	36	--	--	--	--	--
		11-17-82	36	--	1,190	--	9.0	731

576	412025089472201	02-08-82	42	--	--	--	--	--
		08-06-82	42	--	--	--	--	--
		09-17-82	42	--	--	--	--	--
		11-17-82	42	--	1,020	7.3	10.5	529
577	412024089472501	05-10-82	42	--	--	--	--	--
		05-20-82	42	--	--	--	--	--
		05-27-82	42	--	--	--	--	--
		06-22-82	42	--	--	--	--	--
		08-06-82	42	--	--	--	--	--
		09-17-82	42	--	--	--	--	--
		11-19-82	42	--	1,000	7.4	11.5	578
578	412024089472302	05-10-82	45	--	--	--	--	--
		06-22-82	45	--	--	--	--	--
		07-14-82	45	824	830	7.3	12.0	387
		09-17-82	45	--	--	--	--	--
		11-17-82	45	--	950	--	11.0	511
579	412024089472101	05-10-82	38	--	--	--	--	--
		06-22-82	38	--	--	--	--	--
		07-14-82	38	--	590	9.7	11.5	192
		09-17-82	38	--	--	--	--	--
		11-18-82	38	--	900	--	11.0	459
580	412024089472401	05-10-82	43	--	--	--	--	--
		05-27-82	43	--	--	--	--	--
		06-22-82	43	--	--	--	--	--
		08-06-82	43	--	--	--	--	--
581	412025089472102	05-20-82	44	--	--	--	--	--
		11-17-82	44	--	970	--	11.0	574
583	412025089472301	05-10-82	45	--	--	--	--	--
		06-22-82	45	--	--	--	--	--
		08-06-82	45	--	--	--	--	--
		09-17-82	45	--	--	--	--	--
		11-17-82	45	--	1,350	7.7	11.0	73

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part A. Depth of well, specific conductance, pH, temperature, and hardness--Continued

Well number or surface water site	Station number	Date of sample	Depth of well, total (feet)	Specific conductance (µmhos)	Specific conductance lab (µmhos)	pH (units)	Temperature (°C)	Hardness (mg/L as $CaCO_3$)
584	402024089472102	05-10-82	43	--	--	--	--	--
		06-04-82	43	--	--	--	--	--
		07-14-82	43	--	440	10.5	11.5	87
		09-17-82	43	--	--	--	--	--
		11-17-82	43	--	460	8.0	11.0	145
586	412024089472601	09-10-82	42	--	--	--	--	--
		09-22-82	42	--	--	--	--	--
		11-19-82	42	--	1,100	7.2	11.0	619
587	412024089472502	09-22-82	43	--	--	--	--	--
		11-19-82	43	--	1,100	7.5	11.0	626
588	412022089472502	11-19-82	43	--	1,050	7.6	11.0	613
589	412023089472501	09-22-82	41	--	--	--	--	--
		11-19-82	41	702	930	7.2	11.0	449
590	412024089472402	09-17-82	44	--	--	--	--	--
591	412026089471901	09-17-82	38	--	--	--	--	--
		11-17-82	38	--	780	7.2	11.0	432
592	412025089471901	09-17-82	34	--	--	--	--	--
		11-17-82	34	726	920	7.1	11.0	507

594	412026089472001	09-10-82	37	--	--	--	--	--
		11-19-82	37	--	950	--	11.0	535
597	412026089471702	09-23-82	33	--	--	--	--	--
		11-18-82	33	--	1,090	7.0	11.5	627
600	412026089471703	09-23-82	33	--	--	--	--	--
		11-18-82	33	--	1,350	7.0	11.5	758
601	412026089471704	09-23-82	33	--	--	--	--	--
		11-18-82	33	--	1,240	7.5	11.5	734

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part B. Calcium, magnesium, sodium, percent sodium, sodium absorption ratio, potassium, and alkalinity

Well number or surface water site	Date of sample	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Alkalinity field (mg/L as $CaCO_3$)	Alkalinity lab (mg/L as $CaCO_3$)
Lake Sample #1	07-14-82	205	207	141	18	1.7	18	220	214
Creek at Flume #1	07-14-82	229	113	20	4	.3	7.9	344	--
NE Stream #1	07-14-82	82	20	4.4	3	.1	4.4	230	241
502	05-20-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	07-15-82	41	33	45	27	1.3	18	--	432
	09-17-82	--	--	--	--	--	--	--	--
	11-19-82	16	5.5	36	53	2.0	6.2	--	36
505	06-23-82	--	--	--	--	--	--	--	--
	07-15-82	142	111	29	7	.5	2.3	--	678
	09-07-82	--	--	--	--	--	--	--	--
507	07-15-82	67	126	14	4	.2	2.6	544	447
510	07-15-82	37	54	15	9	.4	18	338	--
	11-19-82	63	60	13	6	.3	14	--	383
520	07-15-82	25	80	13	7	.3	2.7	322	--
	11-19-82	13	85	13	7	.3	2.3	--	327

522	07-15-82	21	36	12	11	.4	7.4	210	196
	11-19-82	11	45	11	10	.3	5.1	--	210
523	07-01-82	--	--	--	--	--	--	--	--
	11-19-82	136	211	42	7	.5	4.3	--	1,150
524	07-15-82	19	56	14	10	.4	1.6	332	245
	07-23-82	--	--	--	--	--	--	--	--
527	07-15-82	--	--	--	--	--	--	--	--
	07-16-82	119	87	23	7	.4	2.4	582	540
528	07-15-82	104	100	17	5	.3	2.6	531	491
	07-19-82	--	--	--	--	--	--	--	--
	11-19-82	131	103	17	5	.3	2.3	--	528
529	07-15-82	16	20	46	41	1.8	19	213	218
	11-19-82	19	28	49	36	1.7	22	--	265
531	07-15-82	86	43	9.9	5	.2	2.1	361	--
	11-19-82	92	42	11	6	.2	1.4	--	375
535	07-15-82	136	68	15	5	.3	1.1	545	517
543	07-15-82	9.9	.8	13	47	1.1	3.3	36	30
560	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	25	4.6	60	58	3.0	9.5	--	102
	07-16-82	48	18	58	37	1.9	14	246	--
	09-17-82	--	--	--	--	--	--	--	--
	11-18-82	20	12	57	52	2.6	12	--	214
561	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	88	39	19	10	.4	2.3	366	350
	11-18-82	89	45	15	7	.3	2.2	--	541
562	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	97	56	21	9	.4	3.5	435	452
	11-17-82	104	56	20	8	.4	3.0	--	447

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part B. Calcium, magnesium, sodium, percent sodium, sodium absorption ratio, potassium, and alkalinity--Continued

Well number or surface water site	Date of sample	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Alkalinity field (mg/L as $CaCO_3$)	Alkalinity lab (mg/L as $CaCO_3$)
563	02-08-82	--	--	--	--	--	--	--	--
	05-10-82	--	--	--	--	--	--	--	--
	06-08-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	159	69	12	4	0.2	1.1	--	519
564	02-08-82	--	--	--	--	--	--	--	--
	11-17-82	126	59	9.3	3	.2	1.9	--	463
565	02-08-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	134	67	17	6	.3	2.1	--	535
566	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	32	17	31	29	1.1	14	193	168
	07-14-82	52	27	6.8	6	.2	3.0	213	209
	11-17-82	50	26	32	22	.9	12	--	391
567	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	97	63	62	21	1.2	4.1	451	419
	11-17-82	87	56	51	20	1.1	3.1	--	403
568	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	100	45	11	5	.2	2.0	398	385
	11-17-82	96	42	9.8	5	.2	2.3	--	375

569	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	142	75	17	5	.3	2.1	597	512
	11-17-82	138	87	18	5	.3	2.4	--	499
570	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	12	15	35	41	1.6	14	--	94
	11-17-82	24	35	30	23	.9	10	--	284
572	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	113	53	16	6	.3	1.4	455	405
	11-17-82	110	66	17	6	.3	1.6	--	473
573	02-08-82	--	--	--	--	--	--	--	--
574	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	57	35	37	22	1.0	3.2	400	332
	11-17-82	65	38	42	22	1.1	3.0	--	355
575	02-08-82	--	--	--	--	--	--	--	--
	05-10-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	07-14-82	107	37	7.5	4	.2	2.5	--	243
	08-06-82	--	--	--	--	--	--	--	--
	11-17-82	169	75	14	4	.2	1.1	--	496
576	02-08-82	--	--	--	--	--	--	--	--
	08-06-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	116	58	26	10	.5	3.3	--	429
577	05-10-82	--	--	--	--	--	--	--	--
	05-20-82	--	--	--	--	--	--	--	--
	05-27-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	08-06-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-19-82	129	62	13	5	.2	2.4	--	540

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part B. Calcium, magnesium, sodium, percent sodium, sodium absorption ratio, potassium, and alkalinity--Continued

Well number or surface water site	Date of sample	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Alkalinity field (mg/L as $CaCO_3$)	Alkalinity lab (mg/L as $CaCO_3$)
578	05-10-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	07-14-82	92	38	46	20	1.1	3.0	--	419
	09-17-82	--	--	--	--	--	--	--	--
	11-18-82	117	53	36	13	.7	2.3	--	494
579	05-10-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	07-14-82	57	12	54	37	1.8	3.4	192	145
	09-17-82	--	--	--	--	--	--	--	--
	11-18-82	108	46	26	11	.5	3.1	--	406
580	05-10-82	--	--	--	--	--	--	--	--
	05-27-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	08-06-82	--	--	--	--	--	--	--	--
581	05-20-82	--	--	--	--	--	--	--	--
	11-17-82	134	58	11	4	.2	1.1	--	456
583	05-10-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	08-06-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	19	6.0	198	82	10	17	--	249

584	05-10-82	--	--	--	--	--	--	--	--
	06-04-82	--	--	--	--	--	--	--	--
	07-14-82	29	3.6	47	53	2.3	1.9	--	30
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	43	9.0	37	35	1.4	1.7	--	84
586	09-10-82	--	--	--	--	--	--	--	--
	09-22-82	--	--	--	--	--	--	--	--
	11-19-82	134	69	22	7	.4	4.5	--	482
587	09-22-82	--	--	--	--	--	--	--	--
	11-19-82	145	64	22	7	.4	8.2	--	411
588	11-19-82	138	65	11	4	.2	2.8	--	484
589	09-22-82	--	--	--	--	--	--	--	--
	11-19-82	89	55	28	11	.6	18	--	485
590	09-17-82	--	--	--	--	--	--	--	--
591	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	102	43	5.8	3	.1	.9	--	359
592	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	114	54	13	5	.3	3.0	--	391
594	09-10-82	--	--	--	--	--	--	--	--
	11-19-82	120	57	9.5	4	.2	2.1	--	412
597	09-23-82	--	--	--	--	--	--	--	--
	11-18-82	142	66	14	5	.3	5.2	--	489
600	09-23-82	--	--	--	--	--	--	--	--
	11-18-82	165	84	21	6	.3	1.4	--	515
601	09-23-82	--	--	--	--	--	--	--	--
	11-18-82	165	78	14	4	.2	1.5	--	530

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part C. Sulfate, chloride, fluoride, silica, solids (residue), barium, beryllium, and boron

Well number or surface water site	Date of sample	Sulfate (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, residue at 180 deg. C, dissolved (mg/L)	Barium, dissolved (µg/L as Ba)	Beryllium, dissolved (µg/L as Be)	Boron, dissolved (µg/L as B)
Lake Sample #1	07-14-82	760	3.5	0.2	3.5	1,320	81	<1	1,590
Creek at Flume #1	07-15-82	--	9.6	.2	18	1,100	224	<1	23
NE Stream #1	07-14-82	84	7.0	.3	20	--	75	--	44
502	05-20-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	07-15-82	19	3.4	.1	8.2	395	30	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-19-82	89	2.3	.1	14	206	17	--	26
505	06-23-82	--	--	--	--	--	--	--	--
	07-15-82	181	12	.2	18	979	61	<1	7,880
	09-07-82	--	--	--	--	--	--	--	--
507	07-15-82	215	6.1	.1	5.2	869	34	--	47
510	07-15-82	--	3.3	.1	11	745	45	5	<5
	11-19-82	72	2.8	.2	11	416	76	--	13
520	07-15-82	--	9.5	<.1	5.4	577	20	--	<20
	11-19-82	61	9.5	<.1	5.4	464	15	--	5

522	07-15-82	25	3.6	.1	4.0	262	30	--	422
	11-19-82	28	1.2	.1	3.0	234	9	--	71
523	07-01-82	--	--	--	--	--	--	--	--
	11-19-82	107	23	.1	21	1,910	105	--	5,070
524	07-15-82	43	2.5	.1	31	341	10	--	<5
	07-23-82	--	--	--	--	--	--	--	--
527	07-15-82	--	--	--	--	--	--	--	--
	07-16-82	80	1.8	.2	21	743	83	--	48
528	07-15-82	219	4.2	.1	14	791	47	--	<20
	07-19-82	--	--	--	--	--	--	--	--
	11-19-82	229	4.8	.3	16	889	53	--	10
529	07-15-82	26	2.5	.5	4.9	235	29	--	<5
	11-19-82	24	2.6	.5	7.2	318	52	--	5
531	07-15-82	21	1.0	.2	11	568	76	--	<5
	11-19-82	33	1.0	.2	11	422	100	--	11
535	07-15-82	122	5.3	.2	21	818	98	<2	<20
543	07-15-82	25	1.3	.2	2.0	103	14	--	98
560	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	37	1.9	.4	5.3	149	90	--	102
	07-16-82	12	1.4	.2	11	--	104	<5	79
	09-17-82	--	--	--	--	--	--	--	--
	11-18-82	33	1.4	.2	6.7	278	42	--	42
561	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	45	2.1	.2	19	419	62	--	45
	11-18-82	42	2.2	.1	19	455	65	--	57
562	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	40	2.5	.3	15	523	146	--	176
	11-17-82	41	2.9	.3	19	519	151	--	208

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part C. Sulfate, chloride, fluoride, silica, solids (residue), barium, beryllium, and boron--continued

Well number or surface water site	Date of sample	Sulfate (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, residue at 180 deg. C, dissolved (mg/L)	Barium, dissolved (µg/L as Ba)	Beryllium, dissolved (µg/L as Be)	Boron, dissolved (µg/L as B)
563	02-08-82	--	--	--	--	--	--	--	--
	05-10-82	--	--	--	--	--	--	--	--
	06-08-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	141	8.6	0.1	31	780	181	--	36
564	02-08-82	--	--	--	--	--	--	--	--
	11-17-82	118	3.1	.1	23	636	194	--	25
565	02-08-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	85	5.5	.1	26	744	179	--	19
566	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	56	2.5	.2	16	248	93	--	159
	07-14-82	33	3.8	.2	7.5	296	104	--	25
	11-17-82	41	1.5	.1	18	363	110	--	152
567	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	166	2.2	.3	14	730	44	--	488
	11-17-82	158	2.4	.1	13	622	39	--	408
568	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	66	1.9	.2	18	485	196	--	53
	11-17-82	56	1.4	.2	20	470	181	--	46

569	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	190	20	.1	16	982	89	--	83
	11-17-82	163	19	<.1	13	765	74	--	88
570	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	77	13	.1	5.3	337	32	--	<5
	11-17-82	101	13	<.1	11	353	38	--	11
572	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	77	7.6	.1	5.5	633	118	<1	50
	11-17-82	68	8.0	.1	20	618	130	--	85
573	02-08-82	--	--	--	--	--	--	--	--
574	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	56	5.0	.3	19	236	74	--	304
	11-17-82	44	4.3	.3	13	427	101	--	396
575	02-08-82	--	--	--	--	--	--	--	--
	05-10-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	07-14-82	87	4.8	.2	15	456	258	<1	43
	08-06-82	--	--	--	--	--	--	--	--
	11-17-82	174	8.8	.1	31	798	250	--	27
576	02-08-82	--	--	--	--	--	--	--	--
	08-06-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	112	30	.1	20	657	103	--	47
577	05-10-82	--	--	--	--	--	--	--	--
	05-20-82	--	--	--	--	--	--	--	--
	05-27-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	08-06-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-19-82	53	5.0	.2	31	613	283	--	50

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part C. Sulfate, chloride, fluoride, silica, solids (residue), barium, beryllium, and boron--continued

Well number or surface water site	Date of sample	Sulfate (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, residue at 180 deg. C, dissolved (mg/L)	Barium, dissolved (µg/L as Ba)	Beryllium, dissolved (µg/L as Be)	Boron, dissolved (µg/L as B)
578	05-10-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	07-14-82	49	1.5	0.2	14	460	163	--	127
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	40	2.2	.1	15	576	176	--	133
579	05-10-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	07-14-82	96	38	.4	16	420	51	--	6
	09-17-82	--	--	--	--	--	--	--	--
	11-18-82	101	6.2	.1	30	573	122	--	21
580	05-10-82	--	--	--	--	--	--	--	--
	05-27-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	08-06-82	--	--	--	--	--	--	--	--
581	05-20-82	--	--	--	--	--	--	--	--
	11-17-82	61	11	.2	27	622	118	--	42
583	05-10-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	08-06-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	94	87	<.1	8.9	567	13	--	13

584	05-10-82	--	--	--	--	--	--	--	--
	06-04-82	--	--	--	--	--	--	--	--
	07-14-82	125	2.5	.6	19	358	26	--	25
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	134	2.0	.4	6.7	327	41	--	25
586	09-10-82	--	--	--	--	--	--	--	--
	09-22-82	--	--	--	--	--	--	--	--
	11-19-82	158	8.6	.2	19	771	122	--	61
587	09-22-82	--	--	--	--	--	--	--	--
	11-19-82	192	6.1	.2	15	749	127	--	147
588	11-19-82	89	3.3	.1	20	643	154	--	11
589	09-22-82	--	--	--	--	--	--	--	--
	11-19-82	41	4.5	.2	14	577	221	--	113
590	09-17-82	--	--	--	--	--	--	--	--
591	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	52	14	.2	20	487	70	--	31
592	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	122	6.3	.2	14	585	129	--	52
594	09-10-82	--	--	--	--	--	--	--	--
	11-19-82	116	5.0	.2	17	610	129	--	24
597	09-23-82	--	--	--	--	--	--	--	--
	11-18-82	120	6.0	.2	24	725	177	--	59
600	09-23-82	--	--	--	--	--	--	--	--
	11-18-82	207	25	.1	30	936	116	--	54
601	09-23-82	--	--	--	--	--	--	--	--
	11-18-82	227	10	.1	32	876	221	--	35

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part D. Cadmium, chromium, cobalt, copper, iron, lead, manganese, and nickel

Well number or surface water site	Date of sample	Cadmium, dissolved (µg/L as Cd)	Chromium, dissolved (µg/L as Cr)	Cobalt, dissolved (µg/L as Co)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)	Manganese, dissolved (µg/L as Mn)	Nickel, dissolved (µg/L as Ni)
Lake Sample #1	07-14-82	<3	<5	<20	<5	95	<100	34	18
Creek at Flume #1	07-15-82	<3	<5	<20	<5	285	<100	121	<5
NE Stream #1	07-14-82	7	<5	<5	<5	81	<50	266	<5
502	05-20-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	07-15-82	--	5	<5	6	1,000	<50	320	7
	09-17-82	--	--	--	--	--	--	--	--
	11-19-82	<3	<5	<5	<5	44	<50	7	<5
505	06-23-82	--	--	--	--	--	--	--	--
	07-15-82	<3	<5	<20	22	165	<100	91	40
	09-07-82	--	--	--	--	--	--	--	--
507	07-15-82	<3	<5	<5	<5	20,600	<50	1,020	31
510	07-15-82	4	<5	<5	33	231	<100	330	<5
	11-19-82	<3	<5	<5	46	225	<50	498	<5
520	07-15-82	8	<5	<20	<5	74	<100	68	<5
	11-19-82	<3	<5	<5	7	63	<50	56	<5

522	07-15-82	<3	6	<5	18	435	<50	46	11
	11-19-82	<3	<5	<5	14	132	<50	32	<5
523	07-01-82	--	--	--	--	--	--	--	--
	11-19-82	<3	<5	<5	9	3,180	<50	357	40
524	07-15-82	4	6	<5	<5	120	<50	9	<5
	07-23-82	--	--	--	--	--	--	--	--
527	07-15-82	--	--	--	--	--	--	--	--
	07-16-82	<3	<20	<20	58	118	<100	90	8
528	07-15-82	<3	<5	<5	21	82	<100	356	12
	07-19-82	--	--	--	--	--	--	--	--
	11-19-82	<3	<5	<5	<5	492	<50	438	<5
529	07-15-82	8	<5	<5	23	725	<50	29	<5
	11-19-82	<3	<5	<5	<5	396	<50	37	<5
531	07-15-82	<3	<5	<5	37	82	<100	477	5
	11-19-82	<3	<5	<5	<5	583	<50	651	<5
535	07-15-82	6	<5	<5	19	215	<50	119	8
543	07-15-82	<3	<5	<5	14	63	<50	8	7
560	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	6	<5	<5	63	14,300	232	259	23
	07-16-82	8	11	7	73	6,850	89	418	22
	09-17-82	--	--	--	--	--	--	--	--
	11-18-82	<3	<5	<5	<5	51	<50	29	<5
561	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	<3	<5	<5	<5	332	<50	270	12
	11-18-82	<3	<5	<5	<5	5,110	<50	251	<5
562	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	<3	<5	<5	<5	2,830	<50	540	10
	11-17-82	<3	<5	<5	<5	1,820	<50	361	<5

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part D. Cadmium, chromium, cobalt, copper, iron, lead, manganese, and nickel--Continued

Well number or surface water site	Date of sample	Cadmium, dissolved (µg/L as Cd)	Chromium, dissolved (µg/L as Cr)	Cobalt, dissolved (µg/L as Co)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)	Manganese, dissolved (µg/L as Mn)	Nickel, dissolved (µg/L as Ni)
563	02-08-82	--	--	--	--	--	--	--	--
	05-10-82	--	--	--	--	--	--	--	--
	06-08-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	<3	<5	<5	<5	11,300	<50	2,170	<5
564	02-08-82	--	--	--	--	--	--	--	--
	11-17-82	<3	<5	<5	<5	965	<50	1,990	20
565	02-08-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	<3	<5	<5	6	301	<50	549	<5
566	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	<3	6	<5	9	112	52	107	11
	07-14-82	8	<5	<5	<5	65	<100	109	<5
	11-17-82	<3	<5	<5	<5	147	<50	331	<5
567	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	9	<5	<5	<5	10,800	<50	309	11
	11-17-82	<3	<5	<5	<5	16,900	<50	256	<5
568	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	8	<5	6	<5	3,920	<50	449	14
	11-17-82	<3	<5	<5	<5	7,360	<5	396	<5

569	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	12	<5	<5	<5	10,900	<50	1,100	18
	11-17-82	<3	<5	<5	<5	22,400	<50	1,030	<5
570	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	9	<5	<10	11	90	<50	8	<5
	11-17-82	<3	<5	<5	<5	42	<50	10	<5
572	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	<3	<5	<5	<5	160	<50	1,000	8
	11-17-82	<3	<5	<5	<5	160	<50	969	<5
573	02-08-82	--	--	--	--	--	--	--	--
574	02-08-82	--	--	--	--	--	--	--	--
	07-14-82	<3	<5	<5	<5	1,270	<50	144	<5
	11-17-82	<3	<5	<5	<5	1,980	<50	127	<5
575	02-08-82	--	--	--	--	--	--	--	--
	05-10-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	07-14-82	<3	<5	<5	<5	14,200	<50	1,460	8
	08-06-82	--	--	--	--	--	--	--	--
	11-17-82	<3	5	9	<5	14,800	<50	2,260	7
576	02-08-82	--	--	--	--	--	--	--	--
	08-06-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	<3	<5	<5	<5	7,420	<50	308	10
577	05-10-82	--	--	--	--	--	--	--	--
	05-20-82	--	--	--	--	--	--	--	--
	05-27-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	08-06-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-19-82	<3	<5	<5	<5	288	<50	746	5

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part D. Cadmium, chromium, cobalt, copper, iron, lead, manganese, and nickel--Continued

Well number or surface water site	Date of sample	Cadmium, dissolved (µg/L as Cd)	Chromium, dissolved (µg/L as Cr)	Cobalt, dissolved (µg/L as Co)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)	Manganese, dissolved (µg/L as Mn)	Nickel, dissolved (µg/L as Ni)
578	05-10-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	07-14-82	<3	<5	<5	7	494	<50	363	8
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	<3	<5	<5	<5	112	<50	422	<5
579	05-10-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	07-14-82	9	<5	<5	<5	77	<100	10	<5
	09-17-82	--	--	--	--	--	--	--	--
	11-18-82	<3	<5	<5	<5	84	<50	52	<5
580	05-10-82	--	--	--	--	--	--	--	--
	05-27-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	08-06-82	--	--	--	--	--	--	--	--
581	05-20-82	--	--	--	--	--	--	--	--
	11-17-82	<3	<5	5	5	112	<50	65	<5
583	05-10-82	--	--	--	--	--	--	--	--
	06-22-82	--	--	--	--	--	--	--	--
	08-06-82	--	--	--	--	--	--	--	--
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	<3	<5	<5	6	94	<50	5	<5

584	05-10-82	--	--	--	--	--	--	--	--
	06-04-82	--	--	--	--	--	--	--	--
	07-14-82	<3	<5	<5	<5	71	<50	6	<5
	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	<3	<5	<5	<5	127	<50	29	<5
586	09-10-82	--	--	--	--	--	--	--	--
	09-22-82	--	--	--	--	--	--	--	--
	11-19-82	<3	<5	<5	<5	16,500	<50	779	<5
587	09-22-82	--	--	--	--	--	--	--	--
	11-19-82	<3	<5	<5	<5	--	<50	3,780	<5
588	11-19-82	<3	<5	5	<5	12,400	<50	402	<5
589	09-22-82	--	--	--	--	--	--	--	--
	11-19-82	<3	<5	<5	<5	2,320	<50	520	<5
590	09-17-82	--	--	--	--	--	--	--	--
591	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	<3	<5	<5	<5	68	<50	50	<5
592	09-17-82	--	--	--	--	--	--	--	--
	11-17-82	<3	<5	<5	<5	1,640	<50	2,050	<5
594	09-10-82	--	--	--	--	--	--	--	--
	11-19-82	<3	<5	<5	<5	196	<50	703	<5
597	09-23-82	--	--	--	--	--	--	--	--
	11-18-82	<3	<5	7	<5	3,300	<50	1,710	<5
600	09-23-82	--	--	--	--	--	--	--	--
	11-18-82	<3	<5	<5	<5	280	<50	1,440	<5
601	09-23-82	--	--	--	--	--	--	--	--
	11-18-82	<3	<5	8	<5	935	<50	1,730	<5

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part E. Silver, strontium, vanadium, zinc, organic carbon, and tritium

Well number or surface water site	Date of sample	Silver, dissolved (µg/L as Ag)	Strontium, dissolved (µg/L as Sr)	Vanadium, dissolved (µg/L as V)	Zinc, dissolved (µg/L as Zn)	Organic carbon, dissolved (mg/L as C)	Tritium, dissolved (pCi/L)	Tritium, dissolved, counting error (pCi/L)
Lake Sample #1	07-14-82	<3	2,360	<5.0	633	--	800	400
Creek at Flume #1	07-15-82	--	433	<5.0	513	--	--	--
NE Stream #1	07-14-82	<3	204	<5.0	<100	--	--	--
502	05-20-82	--	--	--	--	--	400	400
	06-22-82	--	--	--	--	--	1,100	400
	07-15-82	3	--	<5.0	327	2.8	1,400	640
	09-17-82	--	--	--	--	--	900	400
	11-19-82	<3	83	<5.0	<100	--	--	--
505	06-23-82	--	--	--	--	--	80,000	400
	07-15-82	<10	289	<5.0	1,070	--	--	--
	09-07-82	--	--	--	--	--	130,000	700
507	07-15-82	<3	112	<5.0	184	--	--	--
510	07-15-82	--	85	<5.0	585	--	1,200	400
	11-19-82	<3	141	<5.0	721	--	--	--
520	07-15-82	--	38	<5.0	<100	3.3	--	--
	11-19-82	<3	18	<5.0	<100	--	--	--

522	07-15-82	<10	35	<5.0	<100	12	--	--
	11-19-82	<3	19	<5.0	<50	--	--	--
523	07-01-82	--	--	--	--	--	169,000	600
	11-19-82	5	260	<5.0	100	--	--	--
524	07-15-82	<10	32	<5.0	<50	--	--	--
	07-23-82	--	--	--	--	--	800	400
527	07-15-82	--	--	--	--	6.3	--	--
	07-16-82	<20	226	<5.0	229	--	2,000	400
528	07-15-82	<3	128	<5.0	149	2.6	--	--
	07-19-82	--	--	--	--	--	13,000	400
	11-19-82	<3	158	<5.0	<100	--	--	--
529	07-15-82	<3	39	<5.0	212	3.2	3,600	400
	11-19-82	<3	62	<5.0	<50	--	--	--
531	07-15-82	<10	129	<5.0	636	2.2	2,800	400
	11-19-82	<3	133	<5.0	667	--	--	--
535	07-15-82	<3	141	<5.0	570	2.4	1,000	400
543	07-15-82	<3	69	<5.0	238	--	1,600	400
560	02-08-82	--	--	--	--	--	1,000	400
	07-14-82	<3	177	7.0	491	12	--	--
	07-16-82	4	265	10	1,600	6.9	--	--
	09-17-82	--	--	--	--	--	1,600	400
	11-18-82	<3	122	<5.0	<50	--	--	--
561	02-08-82	--	--	--	--	--	400	400
	07-14-82	<3	192	<5.0	124	--	--	--
	11-18-82	<3	198	<5.0	<50	--	--	--
562	02-08-82	--	--	--	--	--	400	400
	07-14-82	<3	383	<5.0	230	--	--	--
	11-17-82	4	375	<5.0	<50	--	--	--

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part E. Silver, strontium, vanadium, zinc, organic carbon, and tritium--Continued

Well number or surface water site	Date of sample	Silver, dissolved (µg/L as Ag)	Strontium, dissolved (µg/L as Sr)	Vanadium, dissolved (µg/L as V)	Zinc, dissolved (µg/L as Zn)	Organic carbon, dissolved (mg/L as C)	Tritium, dissolved (pCi/L)	Tritium, dissolved, counting error (pCi/L)
563	02-08-82	--	--	--	--	--	74,000	400
	05-10-82	--	--	--	--	--	86,000	500
	06-08-82	--	--	--	--	--	81,000	500
	06-22-82	--	--	--	--	--	81,000	500
	09-17-82	--	--	--	--	--	85,000	400
	11-17-82	<3	178	<5.0	170	6.2	--	--
564	02-08-82	--	--	--	--	--	400	400
	11-17-82	<3	368	<5.0	4,130	--	--	--
565	02-08-82	--	--	--	--	--	400	400
	09-17-82	--	--	--	--	--	600	400
	11-17-82	<3	210	<5.0	373	--	--	--
566	02-08-82	--	--	--	--	--	400	400
	07-14-82	3	327	<5.0	197	--	--	--
	07-14-82	--	106	<5.0	180	--	--	--
	11-17-82	<3	366	<5.0	<100	--	--	--
567	02-08-82	--	--	--	--	--	400	400
	07-14-82	<3	320	<5.0	121	3.3	--	--
	11-17-82	<3	262	<5.0	<100	--	--	--
568	02-08-82	--	--	--	--	--	400	400
	07-14-82	5	251	<5.0	180	--	--	--
	11-17-82	<3	208	<5.0	<100	--	--	--

569	02-08-82	--	--	--	--	--	400	400
	07-14-82	<5	333	<5.0	210	2.5	--	--
	11-17-82	<3	298	<5.0	<50	--	--	--
570	02-08-82	--	--	--	--	--	400	400
	07-14-82	<5	298	<5.0	<100	--	--	--
	11-17-82	<3	225	<5.0	<50	--	--	--
572	02-08-82	--	--	--	--	--	400	400
	07-14-82	<3	272	<5.0	<100	--	--	--
	11-17-82	<3	299	<5.0	<50	--	--	--
573	02-08-82	--	--	--	--	--	600	400
574	02-08-82	--	--	--	--	--	400	400
	07-14-82	<3	393	<5.0	<100	3.2	--	--
	11-17-82	<3	435	<5.0	<50	--	--	--
575	02-08-82	--	--	--	--	--	47,000	400
	05-10-82	--	--	--	--	--	40,000	400
	06-22-82	--	--	--	--	--	37,000	400
	07-14-82	<5	174	<5.0	215	3.0	27,000	400
	08-06-82	--	--	--	--	--	19,000	400
	11-17-82	4	173	6.0	<100	--	--	--
576	02-08-82	--	--	--	--	--	400	400
	08-06-82	--	--	--	--	--	900	900
	09-17-82	--	--	--	--	--	1,000	400
	11-17-82	<3	144	<5.0	1,090	--	--	--
577	05-10-82	--	--	--	--	--	800	400
	05-20-82	--	--	--	--	--	400	400
	05-27-82	--	--	--	--	--	400	400
	06-22-82	--	--	--	--	--	1,000	400
	08-06-82	--	--	--	--	--	1,000	400
	09-17-82	--	--	--	--	--	800	400
	11-19-82	<3	371	<5.0	<100	--	--	--

Table 3.--Parts A, B, C, D, and E. Chemical analyses and temperatures of ground and surface waters--Continued

Part E. Silver, strontium, vanadium, zinc, organic carbon, and tritium--Continued

Well number or surface water site	Date of sample	Silver, dissolved (µg/L as Ag)	Strontium, dissolved (µg/L as Sr)	Vanadium, dissolved (µg/L as V)	Zinc, dissolved (µg/L as Zn)	Organic carbon, dissolved (mg/L as C)	Tritium, dissolved (pCi/L)	Tritium, dissolved, counting error (pCi/L)
578	05-10-82	--	--	--	--	--	400	400
	06-22-82	--	--	--	--	--	900	400
	07-14-82	<3	328	<5.0	132	--	--	--
	09-17-82	--	--	--	--	--	1,000	400
	11-17-82	<3	330	<5.0	142	--	--	--
579	05-10-82	--	--	--	--	--	800	400
	06-22-82	--	--	--	--	--	500	400
	07-14-82	--	125	<5.0	<100	--	--	--
	09-17-82	--	--	--	--	--	800	400
	11-18-82	<3	202	<5.0	<100	--	--	--
580	05-10-82	--	--	--	--	--	54,000	500
	05-27-82	--	--	--	--	--	40,000	400
	06-22-82	--	--	--	--	--	36,000	400
	08-06-82	--	--	--	--	--	46,000	400
581	05-20-82	--	--	--	--	--	400	400
	11-17-82	3	158	<5.0	<50	--	--	--
583	05-10-82	--	--	--	--	--	5,800	400
	06-22-82	--	--	--	--	--	14,000	400
	08-06-82	--	--	--	--	--	21,000	400
	09-17-82	--	--	--	--	--	19,000	400
	11-17-82	<3	355	<5.0	<50	--	--	--

584	05-10-82	--	--	--	--	--	900	400
	06-04-82	--	--	--	--	--	500	400
	07-14-82	<3	83	8.0	102	--	500	400
	09-17-82	--	--	--	--	--	900	400
	11-17-82	<3	152	<5.0	<100	--	--	--
586	09-10-82	--	--	--	--	--	10,000	400
	09-22-82	--	--	--	--	--	11,000	400
	11-19-82	<3	331	<5.0	<50	--	--	--
587	09-22-82	--	--	--	--	--	7,400	400
	11-19-82	<3	506	<5.0	<100	--	--	--
588	11-19-82	<3	219	<5.0	<50	--	--	--
589	09-22-82	--	--	--	--	--	6,200	400
	11-19-82	<3	400	<5.0	<5	11	--	--
590	09-17-82	--	--	--	--	--	900	400
591	09-17-82	--	--	--	--	--	1,200	400
	11-17-82	<3	132	<5.0	<100	--	--	--
592	09-17-82	--	--	--	--	--	39,000	400
	11-17-82	<3	256	<5.0	<100	5.5	--	--
594	09-10-82	--	--	--	--	--	500	400
	11-19-82	<3	208	<5.0	<50	--	--	--
597	09-23-82	--	--	--	--	--	29,000	400
	11-18-82	3	306	<5.0	<100	--	--	--
600	09-23-82	--	--	--	--	--	29,000	400
	11-18-82	<3	197	<5.0	<100	--	--	--
601	09-23-82	--	--	--	--	--	78,000	400
	11-18-82	<3	199	<5.0	<50	--	--	--

Table 4.--Hydraulic conductivities of the glacial materials

Lab hydraulic conductivity: Determined with liquid permeameter
Field hydraulic conductivity: B, bailer test (data analyzed by method of Bouwer and Rice, 1976)

Well No.	Tested interval (feet)	Lab hydraulic conductivity (ft/s)	Field hydraulic conductivity (ft/s)	Litho-stratigraphic unit
560	7.0- 7.5	6.9×10^{-4}		Fine to medium sand (Toulon Member)
560	12.5-13.0	7.9×10^{-4}		Fine sand (Toulon Member)
560	19.0-19.5	3.9×10^{-4}		Medium to coarse sand (Toulon Member)
561	3.5- 4.0	2.98×10^{-7}		Massive clay (Radnor Till Member)
561	12.0-12.5	7.0×10^{-7}		Fine silty sand (Toulon Member)
561	17.8-21.8		8.87×10^{-5}, B	Medium sand (Toulon Member)
562	17.0-17.5	8.5×10^{-5}		Fine to medium silty sand (Toulon Member)
562	18.7-22.7		3.15×10^{-5}, B	Fine to medium silty sand (Toulon Member)
563	16.5-17.0	4.2×10^{-4}		Very fine sand (Toulon Member)

563	24.0-24.5	3.9×10^{-4}		Coarse sand (Toulon Member)
563	36.0-36.5	5.6×10^{-4}		Fine to coarse sand (Toulon Member)
563	36.6-44.6		3.63×10^{-5}, B	Coarse sand and gravel (Toulon Member)
564	20.5-21.0	1.4×10^{-4}		Very fine sand (Toulon Member)
564	28.0-28.5	5.9×10^{-5}		Very fine sand with silt and clay (Toulon Member)
564	31.0-43.0		6.99×10^{-6}, B	Fine sand and pebbles (Toulon Member)
564	40.0-40.5	5.0×10^{-7}		Silty clay with pebbles (Hulick Till Member)
566	6.5-10.5		6.18×10^{-6}, B	Sand-silt-clay (Cahokia Alluvium)
566	12.0-12.5	9.0 x 10-7		Clayey silt (Cahokia Alluvium)
567	17.5-18.0	9.0×10^{-7}		Clayey silt (Hulick Till Member)
569	20.5-20.5	1.0×10^{-7}		Silty clay (Spoils)
570	10.0-14.0		1.32×10^{-5}, B	Clayey sand (Peoria Loess)
570	15.0-15.5	9.5×10^{-6}		Clayey sand (Toulon Member)

Table 4.--Hydraulic conductivities of the glacial materials--Continued

Well No.	Tested interval (feet)	Lab hydraulic conductivity (ft/s)	Field hydraulic conductivity (ft/s)	Litho-stratigraphic unit
571	6.0- 6.5	6.6×10^{-5}		Fine silty sand (Peoria Loess)
571	15.0-15.5	1.2×10^{-3}		Fine sand with pebbles (Toulon Member)
572	3.2- 3.8	2.7×10^{-7}		Silty clay (Peoria Loess)
572	12.0-12.5	2.2×10^{-4}		Fine pebbly sand (Toulon Member)
573	6.0- 6.5	2.0×10^{-7}		Clay, massive (Radnor Till Member)
573	11.5-12.0	6.9×10^{-5}		Fine silty sand (Toulon Member)
573	18.5-19.0	5.9×10^{-4}		Coarse sand with pebbles (Toulon Member)
574	5.5- 6.0	1.7×10^{-8}		Clayey silt (Radnor Till Member)
574	11.5-12.0	1.2×10^{-5}		Clayey sand (Toulon Member)
574	18.0-18.5	1.0×10^{-5}		Sand-silt-clay (Toulon Member)
574	24.0-24.5	2.3×10^{-3}		Fine to medium sand with silt (Toulon Member)

Table 5.--Grain-size distribution, clay and carbonate mineralogy, and cation exchange capacity of glacial sediments

Well No.	Sampled interval (feet)	Grain size (percent of total sample)				Clay minerals (percent of sample)			Carbonate minerals (percent)			Cation exchange capacity (meg/100 gm)	Stratigraphic unit name
		Gravel	Sand	Silt	Clay	Expandables	Illite	Kaolinite and chlorite	Calcium	Magnesium	Ca/Mg ratio		
501	4.8 - 5.1	--	6	67	27	70-80	10	10-20	0.4	1.5	0.27	--	Peoria Loess (Soil)
501	10.8 -11.1	--	1	87	12	50	20-30	20-30	2.1	21.8	.10	--	Peoria Loess (Soil)
501	18.8 -19.1	--	17	56	27	40	60	0	2.1	19.3	.11	--	Radnor Till Member
501	36.8 -37.1	--	24	46	30	50	30	20	3.7	11.3	.33	--	Hulick Till Member
501	42.3 -42.6	--	11	36	53	50-60	40-50	0	4.7	14.7	.32	--	Hulick Till Member
502	4.8 - 5.1	--	2	67	31	--	--	--	.4	.5	.80	--	Peoria Loess
502	11.3 -11.6	--	2	87	11	30-40	40	20-30	--	--	--	--	Peoria Loess
502	16.8 -17.1	--	18	53	29	20	60-70	10-20	1.9	22.0	.09	--	Radnor Till Member
502	19.8 -20.1	--	15	57	28	40-50	30-40	10-20	3.1	19.3	.16	--	Radnor Till Member
502	25.8 -26.1	--	88	6	6	--	--	--	--	--	--	--	Toulon Member
502	33.8 -34.1	--	81	14	5	--	--	--	--	--	--	--	Toulon Member
502	40.3 -40.6	--	26	43	31	30-50	30-40	10-30	5.1	13.7	.37	--	Hulick Till Member
503	0.1 - 0.4	--	7	63	30	--	--	--	--	--	--	--	Peoria Loess (Soil)
503	0.7 - 1.0	--	5	58	37	--	--	--	--	--	--	--	Peoria Loess (Soil)
503	1.8 - 2.1	--	7	69	24	60-70	20	10-20	.4	.4	1.00	--	Peoria Loess (Soil)
503	4.3 - 4.6	--	3	80	17	--	--	--	--	--	--	--	Peoria Loess
503	7.8 - 8.1	--	2	87	11	60	10	30	3.9	22.6	.17	--	Peoria Loess
503	10.8 -11.1	2	1	65	32	60-70	10	20-30	.3	3.7	.08	--	Roxana Silt
503	12.8 -13.1	--	2	78	20	70-80	0-10	10-30	.3	1.1	.27	--	Roxana Silt
503	15.3 -15.6	--	14	56	30	--	--	--	--	--	--	--	Roxana Silt
503	15.8 -16.1	--	21	55	24	--	--	--	.5	.1	5.00	--	Roxana Silt
503	17.1 -17.4	--	30	46	24	--	--	--	--	--	--	--	Roxana Silt

Table 5.--Grain-size distribution, clay and carbonate mineralogy, and cation exchange capacity of glacial sediments--Continued

Well No.	Sampled interval (feet)	Grain size (percent of total sample)				Clay minerals (percent of sample)			Carbonate minerals (percent)			Cation exchange capacity (meq/100 gm)	Stratigraphic unit name
		Gravel	Sand	Silt	Clay	Expandables	Illite	Kaolinite and chlorite	Calcium	Magnesium	Ca/Mg ratio		
503	17.8 -18.1	6	36	30	28	50-70	20-30	10-20	0.8	3.9	0.21	--	Radnor Till Member
503	21.8 -22.1	2	22	41	35	40	40-50	10-20	.4	2.5	.16	--	Radnor Till Member
503	25.8 -26.1	2	18	51	29	30-40	40-50	10-30	--	--	--	--	Radnor Till Member
503	28.1 -28.4	--	16	54	30	--	--	--	--	--	--	--	Radnor Till Member
503	30.2 -30.5	--	19	47	34	--	--	--	--	--	--	--	Radnor Till Member
503	33.8 -34.1	--	92	3	5	--	--	--	--	--	--	--	Toulon Member
503	46.3 -46.6	--	95	3	2	--	--	--	--	--	--	--	Toulon Member
503	49.0 -49.2	--	42	31	27	30	50	20	2.0	17.8	.11	--	Hulick Till Member
504	4.8 - 5.1	--	6	68	26	70	10	20	.6	.9	.67	--	Peoria Loess (Soil)
504	8.3 - 8.6	--	2	82	16	50-60	20	10-20	1.75	24.0	.07	--	Peoria Loess (Soil)
504	13.8 -14.1	--	1	86	13	60-70	10	10-20	.2	12.3	.02	--	Radnor Till Member
504	15.8 -16.1	--	2	75	23	70	10	20	.3	10.1	.03	--	Radnor Till Member
504	17.3 -17.6	--	8	58	34	50-60	10-20	20-30	.5	4.2	.12	--	Radnor Till Member
504	19.8 -20.1	1	15	63	21	60-80	10-20	10-20	.5	4.1	.12	--	Radnor Till Member
504	23.3 -23.6	--	10	54	36	60	20-30	10-20	.4	3.6	.11	--	Radnor Till Member
504	25.8 -26.1	1	16	51	32	30-40	40	10-20	.4	3.4	.12	--	Radnor Till Member
504	32.3 -32.6	4	18	50	28	30	40-50	20-30	4.0	19.7	.20	--	Radnor Till Member
504	46.3 -46.6	6	28	40	26	40	40	20	2.9	20.5	.14	--	Hulick Till Member
505	9.8 -10.1	--	2	86	12	50-70	30	0-20	--	--	--	--	Peoria Loess
505	12.0 -12.3	--	--	--	--	70-90	0-10	0-20	.4	1.7	.24	--	Roxana Silt
505	13.3 -13.6	--	27	39	34	60-80	10-20	10-20	.4	.9	.44	--	Radnor Till Member
505	15.8 -16.1	--	15	66	19	30-40	40	20-30	2.8	23.0	.12	--	Radnor Till Member

505	18.8 -19.1	--	11	57	32	20-30	50	20-30	5.7	17.6	0.32	--	Radnor Till Member
505	24.8 -25.1	--	31	42	27	30	30-40	20-30	--	--	--	--	Hulick Till Member
505	27.8 -28.1	--	32	42	26	30-40	40-50	10-30	3.4	16.7	.20	--	Hulick Till Member
505	30.3 -30.6	--	24	47	29	20	50	30	4.3	15.0	.29	--	Hulick Till Member
506	3.8 - 4.1	--	24	49	27	--	--	--	--	--	--	--	Peoria Loess (Soil)
506	9.3 - 9.6	--	20	53	27	30	50-60	10-20	4.3	19.8	.22	--	Radnor Till Member
506	10.0 -10.3	--	--	--	--	20-30	50-60	10-30	2.1	19.9	.11	--	Radnor Till Member
506	12.3 -12.6	--	31	41	28	30-40	40-50	10-20	5.7	15.6	.37	--	Hulick Till Member
506	15.8 -16.1	--	--	--	--	--	--	--	.5	1.5	.34	--	Hulick Till Member
507	7.8 - 8.1	--	4	69	27	60-70	10-20	10-20	.3	4.0	.08	--	Peoria Loess
507	15.3 -15.6	--	4	82	14	20	50-60	20-30	.4	1.6	.25	--	Toulon Member
507	19.3 -19.6	--	5	75	20	20-30	50-60	10-20	3.2	25.7	.12	--	Toulon Member
507	20.3 -20.6	5	13	56	26	20-30	50	20-30	2.3	21.9	.10	--	Hulick Till Member
507	23.5 -23.8	4	17	54	25	10-20	50	30-40	2.1	22.2	.09	--	Hulick Till Member
507	24.3 -24.6	1	15	64	20	10-20	60-70	10-30	3.0	27.0	.11	--	Hulick Till Member
507	25.8 -26.1	--	--	--	--	--	--	--	3.2	20.7	.15	--	Hulick Till Member
507	30.8 -31.1	5	28	39	28	30-40	40	20-30	3.7	16.5	.22	--	Hulick Till Member
508	2.1 - 2.4	--	4	74	22	60-80	10-20	0-20	1.4	10.1	.14	--	Fill
508	5.6 - 5.9	--	13	57	30	70-90	10	0-20	.6	2.1	.29	--	Fill
508	7.3 - 7.6	--	11	64	25	60-80	10-20	0-20	1.0	8.4	.12	--	Fill
508	17.8 -18.1	--	4	76	20	60-80	20	0-20	1.9	19.6	.10	--	Peoria Loess
508	19.8 -20.1	--	2	81	17	50-60	30	10-20	2.7	22.9	.12	--	Peoria Loess
508	25.8 -26.1	--	3	84	13	60-70	20-30	0-20	2.9	22.4	.13	--	Peoria Loess
508	27.8 -28.1	--	3	81	16	30-40	40	20-30	3.5	24.0	.15	--	Peoria Loess
508	30.8 -31.1	--	1	84	15	50-60	20	20-30	2.5	21.8	.12	--	Peoria Loess
508	33.8 -34.1	--	10	65	25	70-90	10-20	0-20	3.7	13.8	.27	--	Toulon Member
508	39.8 -40.1	--	95	1	4	--	--	--	--	--	--	--	Toulon Member

Table 5.--Grain-size distribution, clay and carbonate mineralogy, and cation exchange capacity of glacial sediments--Continued

Well No.	Sampled interval (feet)	Grain size (percent of total sample)				Clay minerals (percent of sample)			Carbonate minerals (percent)			Cation exchange capacity (meq/100 gm)	Stratigraphic unit name
		Gravel	Sand	Silt	Clay	Expandables	Illite	Kaolinite and chlorite	Calcium	Magnesium	Ca/Mg ratio		
508	49.8 -50.1	--	93	4	3	--	--	--	--	--	--	--	Toulon Member
508	52.2 -52.5	--	6	49	45	50-70	20-30	0-20	3.3	7.9	0.42	--	Duncan Mills Member
509	6.8 - 7.1	--	10	65	25	60-70	10	20-30	.4	.3	1.34	--	Peoria Loess (Soil)
509	15.0 -15.3	--	--	82	18	70-90	10	0-20	--	--	--	--	Radnor Till Member
509	15.6 -15.9	--	--	--	--	--	--	--	.4	.3	1.34	--	Radnor Till Member
509	16.3 -16.6	--	3	75	22	90	--	10	.4	.2	2.00	--	Radnor Till Member
509	18.8 -19.1	--	22	43	35	70-90	10	0-20	.4	2.1	.19	--	Radnor Till Member
509	21.3 -21.6	--	7	75	18	50-60	30	10-20	.5	0	--	--	Radnor Till Member
509	25.3 -25.6	--	29	57	14	50-70	20-30	10-20	.7	14.4	.05	--	Toulon Member
509	34.8 -35.1	--	72	18	10	--	--	--	5.9	31.0	.19	--	Toulon Member
510	3.8 - 4.1	--	--	--	--	60	20	20	1.2	10.5	.11	--	Fill
510	6.8 - 7.1	--	--	85	15	70	10-20	10-20	.2	6.3	.03	--	Fill
510	9.8 -10.1	--	1	86	13	70-80	--	20-30	.5	.8	.63	--	Roxana Silt
510	13.8 -14.1	--	15	60	25	100	--	--	.6	1.1	.55	--	Radnor Till Member
510	15.8 -16.1	--	--	--	--	70-90	0-10	0-20	.6	1.3	.46	--	Radnor Till Member
510	18.8 -19.1	--	--	--	--	80	10	10	.5	1.1	.45	--	Toulon Member
510	25.6 -25.9	--	17	63	20	30	40-50	20-30	.4	23.8	.02	--	Toulon Member
510	31.3 -31.6	--	12	76	12	50-60	30-40	10-20	2.4	24.8	.10	--	Toulon Member
510	33.8 -34.1	--	70	19	11	--	--	--	3.8	26.7	.14	--	Toulon Member
510	37.1 -37.4	--	--	--	--	50	30-40	10-20	--	--	--	--	Toulon Member
510	39.8 -40.1	--	--	--	--	20-30	40	30-40	2.2	28.1	.08	--	Hulick Till Member
510	43.8 -44.1	--	16	42	42	70	10	20	3.2	11.6	.28	--	Hulick Till Member

511	0.3 - 0.6	--	4	70	26	--	--	--	--	--	--	--	Peoria Loess (Soil)
511	4.3 - 4.6	--	9	66	25	--	--	--	--	--	--	--	Peoria Loess (Soil)
511	7.8 - 8.1	--	9	66	25	70	10-20	10-20	0.4	3.2	0.13	--	Peoria Loess (Soil)
511	10.8 -11.1	--	5	71	24	70-80	10-20	0-20	1.9	21.4	.09	--	Peoria Loess
511	13.8 -14.1	--	--	80	20	70-80	10-20	10-20	.5	15.3	.03	--	Peoria Loess
511	16.8 -17.1	--	--	89	11	90-100	--	0-10	.1	5.0	.02	--	Roxana Silt
511	19.3 -19.6	--	1	77	22	--	--	--	--	--	--	--	Roxana Silt
511	23.3 -23.6	--	8	18	74	80	10	10	.6	3.2	.19	--	Berry Clay Member
511	25.3 -25.6	--	6	40	54	--	--	--	--	--	--	--	Berry Clay Member
511	26.3 -26.6	12	5	35	48	70-80	10-20	10-20	.5	4.9	.10	--	Radnor Till Member
511	27.5 -27.8	--	10	49	41	--	--	--	--	--	--	--	Radnor Till Member
511	28.8 -29.1	1	10	53	36	60	30	10	.7	8.5	.08	--	Radnor Till Member
511	31.3 -31.6	2	32	40	26	60-70	20	10-20	35.8	18.2	1.97	--	Toulon Member
511	33.3 -33.6	--	29	44	27	--	--	--	--	--	--	--	Toulon Member
511	34.8 -35.1	--	12	66	22	--	--	--	--	--	--	--	Toulon Member
511	36.6 -36.9	--	69	23	8	--	--	--	--	--	--	--	Toulon Member
511	40.5 -40.8	--	85	10	5	--	--	--	--	--	--	--	Toulon Member
511	40.8 -41.1	--	15	39	46	--	--	--	--	--	--	--	Toulon Member
511	43.1 -43.4	--	20	42	38	--	--	--	--	--	--	--	Hulick Till Member
512	3.8 - 4.1	--	1	65	34	60	20	20	.4	.9	.45	--	Peoria Loess (Soil)
512	7.8 - 8.1	--	67	18	15	80-90	10-20	0	.4	.7	.57	--	Peoria Loess
512	10.6 -10.9	--	68	19	13	--	--	--	.4	.5	.80	--	Peoria Loess
512	13.8 -14.1	--	22	65	13	60	20	20	2.3	16.0	.14	--	Peoria Loess
512	15.8 -16.1	--	6	78	16	60-80	10-20	0-20	3.0	23.1	.13	--	Peoria Loess
512	19.8 -20.1	--	14	70	16	50-60	20	20-30	2.4	26.4	.09	--	Peoria Loess
512	21.6 -21.9	--	8	78	14	40-50	20-30	30	3.3	23.6	.14	--	Peoria Loess
512	22.0 -22.3	32	13	33	22	20	50-60	20-30	--	--	--	--	Toulon Member

Table 5.--Grain-size distribution, clay and carbonate mineralogy, and cation exchange capacity of glacial sediments--Continued

Well No.	Sampled interval (feet)	Grain size (percent of total sample)				Clay minerals (percent of sample)			Carbonate minerals (percent)			Cation exchange capacity (meq/100 gm)	Stratigraphic unit name
		Gravel	Sand	Silt	Clay	Expandables	Illite	Kaolinite and chlorite	Calcium	Magnesium	Ca/Mg ratio		
512	23.2 -23.5	1	2	42	55	10	60-70	20-30	0.7	0.8	0.88	--	Toulon Member
513	15.8 -16.1	--	3	84	13	50-60	30	10-20	5.4	21.5	.25	--	Peoria Loess
513	22.8 -23.1	--	4	88	8	50-70	20-30	10-20	3.5	21.4	.16	--	Peoria Loess
513	25.3 -25.6	--	--	85	15	40-60	30-40	10-20	4.8	21.8	.22	--	Peoria Loess
513	25.8 -26.1	--	--	--	--	30-40	50	10-20	1.4	13.5	.10	--	Toulon Member
513	27.8 -28.1	--	--	--	--	30-40	30-40	20-30	9.7	14.2	.68	--	Toulon Member
513	28.6 -28.9	--	--	82	18	70	20	10	.4	8.4	.05	--	Toulon Member
513	29.1 -29.4	--	--	--	--	40-60	20-30	10-30	2.6	7.1	.37	--	Toulon Member
513	30.8 -31.1	--	--	85	15	60-90	10-20	0-20	.2	5.2	.04	--	Toulon Member
513	33.8 -34.1	--	2	46	52	50-70	20-30	10-20	.4	.6	.67	--	Toulon Member
513	36.8 -37.1	--	4	35	61	60-70	20	10-20	.4	.2	2.00	--	Toulon Member
514	9.8 -10.1	--	2	88	10	50-60	20-30	10-20	3.3	23.8	.14	--	Peoria Loess
514	25.8 -26.1	--	3	81	16	60-70	10-20	10-20	1.9	14.3	.13	--	Peoria Loess
514	27.8 -28.1	--	1	85	14	50-60	20-30	20	2.3	19.5	.12	--	Peoria Loess
514	32.3 -32.6	--	3	83	14	40-50	30	20-30	2.0	21.8	.09	--	Toulon Member
514	32.9 -33.2	--	--	--	--	30-50	40-50	10-20	--	--	--	--	Toulon Member
514	34.3 -34.6	--	24	46	30	50-70	30	0-20	5.2	12.9	.40	--	Hulick Till Member
514	37.8 -38.1	--	28	44	28	30-40	30-40	20-30	5.3	15.3	.35	--	Hulick Till Member
514	40.55-40.85	--	--	--	--	50-60	30-40	10	--	--	--	--	Hulick Till Member
514	42.8 -43.1	--	--	--	--	60-70	20-30	10-20	4.0	.6	6.67	--	Hulick Till Member
515	3.8 - 4.1	--	2	65	33	60	10-20	10-20	.8	.4	2.00	--	Peoria Loess (Soil)
515	15.8 -16.1	--	2	86	12	50-60	30	10-20	2.7	24.4	.11	--	Peoria Loess

515	28.8 -29.1	--	2	88	10	40-60	20-30	20-30	2.4	23.6	.10	--	Peoria Loess
515	31.8 -32.1	--	74	20	6	--	--	--	3.7	25.0	.15	--	Toulon Member
515	38.8 -39.1	--	2	32	66	70	10-20	10-20	.6	.7	.86	--	Hulick Till Member
515	40.8 -41.1	--	--	--	--	80-90	0-10	0-10	2.3	1.3	1.77	--	Carbondale Formation (Shale)
516	1.8 - 2.1	--	13	62	25	50-70	20	10-30	.7	.7	1.00	--	Peoria Loess (Soil)
516	3.8 - 4.1	--	12	69	19	80-90	10	0-10	.7	.3	2.34	--	Peoria Loess (Soil)
516	11.8 -12.1	--	2	83	15	60-70	20	10-20	4.1	23.0	.18	--	Peoria Loess
516	18.8 -19.1	--	2	80	18	50-80	20-30	0-20	4.3	23.0	.19	--	Peoria Loess
516	21.8 -22.1	--	2	84	14	50-70	20-30	10-30	3.8	23.2	.16	--	Peoria Loess
516	23.0 -23.3	--	4	84	12	50-60	30	10-20	3.5	26.2	.13	--	Peoria Loess
516	27.3 -27.6	--	6	80	14	50-60	30	10-20	3.6	22.7	.16	--	Peoria Loess
516	28.0 -28.3	--	4	82	14	50-60	30	10-20	2.6	23.5	.11	--	Peoria Loess
516	28.8 -29.1	16	11	64	9	50-60	30	10-20	3.0	27.9	.11	--	Toulon Member
516	31.8 -32.1	--	86	6	8	--	--	--	--	--	--	--	Toulon Member
516	37.3 -37.6	--	19	67	14	60-70	20	10-20	1.5	5.8	.26	--	Toulon Member
516	39.8 -40.1	--	3	64	33	50	20-30	20-30	1.5	5.6	.27	--	Toulon Member
517	5.3 - 5.6	--	2	53	45	60-80	10-20	0-20	.7	.5	1.40	--	Peoria Loess (Soil)
517	7.8 - 8.1	--	1	60	39	80-90	10	0-10	.6	1.5	.40	--	Peoria Loess (Soil)
517	11.3 -11.6	--	14	72	14	70-90	10-50	0-20	1.0	17.9	.06	--	Peoria Loess
517	14.3 -14.6	--	6	78	16	80-90	10	0-10	3.0	19.3	.16	--	Peoria Loess
517	16.8 -17.1	--	--	84	16	50-70	20	10-30	2.6	23.2	.11	--	Peoria Loess
517	19.8 -20.1	--	2	84	14	50-60	20	10-20	3.1	22.7	.14	--	Peoria Loess
517	22.8 -23.1	6	18	62	14	40-50	30	20-30	3.6	25.9	.14	--	Peoria Loess
517	28.3 -28.6	--	17	51	32	60	20-30	10-20	7.1	17.9	.40	--	Hulick Till Member
517	30.8 -31.1	--	--	--	--	26	48	26	--	--	--	--	Hulick Till Member
518	0.3 - 0.6	--	28	53	19	--	--	--	--	--	--	--	Cahokia Alluvium

Table 5.--Grain-size distribution, clay and carbonate mineralogy, and cation exchange capacity of glacial sediments--Continued

Well No.	Sampled interval (feet)	Grain size (percent of total sample)				Clay minerals (percent of sample)			Carbonate minerals (percent)			Cation exchange capacity (meq/100 gm)	Stratigraphic unit name
		Gravel	Sand	Silt	Clay	Expandables	Illite	Kaolinite and chlorite	Calcium	Magnesium	Ca/Mg ratio		
518	1.8 - 2.1	--	28	55	17	--	--	--	--	--	--	--	Cahokia Alluvium
518	3.3 - 3.6	--	9	60	31	--	--	--	--	--	--	--	Peoria Loess (Soil)
518	4.3 - 4.6	--	--	60	40	70-80	10	10-20	0.6	5.5	0.11	--	Peoria Loess (Soil)
518	5.8 - 6.1	--	1	64	35	--	--	--	--	--	--	--	Peoria Loess (Soil)
518	7.3 - 7.6	--	34	46	20	70-80	0-10	10-20	.6	.8	.75	--	Peoria Loess (Soil)
518	9.3 - 9.6	--	53	34	13	--	--	--	--	--	--	--	Peoria Loess (Soil)
518	10.8 -11.1	--	41	42	17	60-70	20	10-20	.2	6.2	.03	--	Peoria Loess
518	12.8 -13.1	--	4	80	16	60-70	20-30	10-20	.2	19.3	.01	--	Peoria Loess
518	15.8 -16.1	--	3	81	16	70-80	20	0-10	2.9	22.6	.13	--	Peoria Loess
518	19.8 -20.1	--	4	84	12	60-80	10-20	10-20	4.1	24.5	.17	--	Peoria Loess
518	21.3 -21.6	--	12	75	13	50	30-40	10-20	4.5	24.5	.18	--	Toulon Member
518	22.3 -22.6	--	12	75	13	--	--	--	--	--	--	--	Toulon Member
518	28.3 -28.6	--	--	35	65	20	40	40	6.9	11.3	.61	--	Duncan Mills Member
518	30.8 -31.1	--	--	--	--	30-40	40	20-30	2.9	8.3	.12	--	Duncan Mills Member
518	33.8 -34.1	--	0	57	43	--	--	--	--	--	--	--	Duncan Mills Member
518	40.3 -40.6	7	21	34	38	30-40	40	20-30	9.6	7.2	1.34	--	Duncan Mills Member
518	42.3 -42.6	--	--	--	--	30-40	40	20-30	4.5	7.0	.64	--	Duncan Mills Member
519	4.8 - 5.1	--	8	68	24	60	10-20	20-30	1.9	14.7	.13	--	Fill
519	8.3 - 8.6	--	5	75	20	70-80	10-20	0-20	2.0	15.8	.13	--	Fill
519	12.8 -13.1	--	9	73	18	70-90	10-20	0-20	2.7	18.3	.15	--	Fill
519	16.3 -16.6	--	8	69	23	70-90	10-20	0-20	2.3	15.7	.15	--	Fill
519	17.8 -18.1	--	4	81	15	50-60	30	10-20	3.4	21.8	.16	--	Peoria Loess

519	18.8 -19.1	--	2	85	13	70-80	10-20	0-20	3.1	22.0	.14	--	Peoria Loess
519	19.4 -19.7	--	7	64	29	50-60	30	10-20	1.3	22.6	.06	--	Toulon Member
519	20.3 -20.6	--	9	80	11	60-70	20	10-20	4.1	21.8	.19	--	Toulon Member
519	22.8 -23.1	3	19	46	32	30-40	30	10-30	6.7	12.0	.56	--	Hulick Till Member
519	24.8 -25.1	7	25	51	17	50-60	20-30	10-20	3.5	20.0	.18	--	Hulick Till Member
519	25.8 -26.1	--	--	--	--	27	49	24	--	--	--	--	Hulick Till Member
519	27.8 -28.1	8	13	44	35	30	40	30	7.8	15.1	.52	--	Hulick Till Member
519	33.8 -34.1	2	19	48	31	40-50	30	20-30	6.5	14.7	.44	--	Hulick Till Member
519	35.8 -36.1	--	--	--	--	27	50	23	--	--	--	--	Hulick Till Member
519	36.8 -37.1	--	--	65	35	40-50	30-40	10-20	7.0	14.3	.49	--	Hulick Till Member
520	0.8 - 1.1	--	8	76	16	70-80	10-20	10-20	2.3	15.8	.15	--	Fill
520	1.8 - 2.1	--	4	66	30	--	--	--	--	--	--	--	Fill
520	6.8 - 7.1	--	13	69	18	90	10	--	2.3	16.0	.14	--	Fill
520	7.0 - 7.3	--	12	62	26	--	--	--	--	--	--	--	Fill
520	9.3 - 9.6	--	17	57	26	--	--	--	--	--	--	--	Fill
520	10.8 -11.1	--	20	64	16	50	30-40	10-20	4.1	15.4	.27	--	Peoria Loess
520	17.3 -17.6	--	9	78	13	70-90	10-20	0-20	3.9	29.7	.13	--	Peoria Loess
520	18.8 -19.1	--	8	81	11	60-70	20	10-20	4.4	25.2	.17	--	Peoria Loess
520	21.8 -22.1	--	3	86	11	50-60	20-30	10-20	3.2	27.1	.12	--	Peoria Loess
520	24.8 -25.1	--	14	72	14	60-80	10-20	10-20	3.1	24.9	.12	--	Peoria Loess
520	26.3 -26.6	--	4	83	13	60-70	20	10-20	3.5	24.9	.14	--	Peoria Loess
520	29.8 -30.1	--	6	81	13	40	30	30	2.7	23.9	.11	--	Toulon Member
520	32.6 -32.9	3	37	35	25	40-60	30	10-30	11.2	30.9	.36	--	Toulon Member
520	33.8 -34.1	--	9	48	43	--	--	--	--	--	--	--	Hulick Till Member
520	36.8 -37.1	7	25	50	18	30-60	30-40	10-30	8.0	25.0	.32	--	Hulick Till Member
520	39.8 -49.1	3	16	49	32	40-50	30	20-30	6.8	14.9	.46	--	Hulick Till Member
520	45.3 -45.6	--	12	49	39	--	--	--	--	--	--	--	Hulick Till Member

Table 5.--Grain-size distribution, clay and carbonate mineralogy, and cation exchange capacity of glacial sediments--Continued

Well No.	Sampled interval (feet)	Grain size (percent of total sample)				Clay minerals (percent of sample)			Carbonate minerals (percent)			Cation exchange capacity (meq/100 gm)	Stratigraphic unit name
		Gravel	Sand	Silt	Clay	Expandables	Illite	Kaolinite and chlorite	Calcium	Magnesium	Ca/Mg ratio		
520	46.5 -46.8	--	--	49	51	--	--	--	--	--	--	--	Duncan Mills Member
521	9.8 -10.1	--	10	66	24	60-80	10-20	10-20	0.9	1.2	0.75	--	Peoria Loess (Soil)
521	15.8 -16.1	--	1	87	12	60	20-30	10-20	2.8	26.3	.11	--	Peoria Loess
521	19.8 -20.1	--	3	85	12	50-70	20-30	10-20	4.5	30.7	.15	--	Peoria Loess
521	24.8 -25.1	--	1	89	10	70-80	10-20	10-20	2.1	24.7	.09	--	Peoria Loess
521	27.8 -28.1	--	3	86	11	50-70	20-30	10-20	2.2	24.8	.09	--	Peoria Loess
521	36.3 -36.6	--	--	--	--	50	37	13	--	--	--	--	Toulon Member
521	37.1 -37.4	--	--	--	--	29	49	22	--	--	--	--	Toulon Member
521	37.3 -37.6	--	1	64	35	60-80	10-20	10-20	7.4	22.3	.33	--	Toulon Member
522	9.8 -10.1	--	10	46	44	30-40	40-50	20-30	.8	5.3	.15	--	Fill
522	20.8 -21.1	--	5	66	29	70-80	10	10-20	1.0	11.3	.09	--	Fill
522	27.8 -28.1	--	18	55	27	70-90	10	0-20	.5	.9	.56	--	Peoria Loess (Soil)
522	32.3 -32.6	--	8	74	18	70-80	10	10-20	.7	20.2	.03	--	Berry Clay Member
522	34.8 -35.1	--	3	46	51	--	--	--	69.4	9.9	7.01	--	Berry Clay Member
522	36.3 -36.6	--	3	83	14	70-90	10	0-20	2.0	22.7	.09	--	Toulon Member
522	37.3 -37.6	--	3	82	15	50-60	30	10-20	1.7	22.8	.07	--	Toulon Member
522	38.0 -38.3	--	5	55	40	80-90	10	0-10	.7	11.8	.06	--	Toulon Member
522	38.8 -39.1	--	--	--	--	90	10	--	1.7	15.1	.11	--	Toulon Member
522	56.6 -56.9	1	5	86	8	20-30	40-50	30-40	4.1	2.8	1.46	--	Hulick Till Member
522	58.8 -59.1	--	17	50	33	20-30	40-50	30	2.7	16.6	.16	--	Hulick Till Member
523	0.8 - 1.1	2	4	73	21	80	10	10	2.4	70.3	.03	--	Fill
523	6.8 - 7.1	--	13	62	25	70-90	10	0-20	.6	.8	.75	--	Peoria Loess (Soil)

523	11.3 -11.6	--	6	74	20	70-90	10-20	0-20	.6	1.5	.40	--	Peoria Loess (Soil)
523	12.8 -13.1	--	1	87	12	70-80	10-20	0-20	4.6	21.3	.22	--	Peoria Loess
523	17.3 -17.6	--	3	85	12	70-80	10-20	0-20	4.0	24.1	.16	--	Peoria Loess
523	18.8 -19.1	--	2	84	14	70	20	10	4.1	21.5	.19	--	Peoria Loess
523	22.8 -23.1	--	3	83	14	50-60	30	10-20	3.7	25.7	.14	--	Peoria Loess
523	23.3 -23.6	--	4	82	14	70-80	10-20	0-20	3.4	21.8	.16	--	Peoria Loess
523	24.8 -25.1	7	26	37	30	20-30	40-50	30-40	6.9	14.7	.47	--	Hulick Till Member
523	28.0 -28.3	6	31	37	26	30	40-50	20-30	6.6	15.6	.42	--	Hulick Till Member
523	28.5 -28.8	--	2	58	40	30-40	40-50	20-30	1.1	1.7	.65	--	Hulick Till Member
523	28.9 -29.2	6	28	38	28	30-40	40	20-30	5.6	16.0	.35	--	Hulick Till Member
524	1.8 - 2.1	--	13	58	29	70-80	10-20	0-20	0.5	0.2	2.50	--	Peoria Loess (Soil)
524	6.8 - 7.1	--	2	79	19	60-70	20	10-20	3.2	22.8	.14	--	Peoria Loess
524	9.8 -10.1	--	7	77	16	60	20-30	10-20	3.7	22.5	.16	--	Peoria Loess
524	14.3 -14.6	--	3	82	15	40-50	20-30	30	5.0	22.5	.23	--	Toulon Member
524	16.8 -17.1	--	3	84	13	40-50	30	20-30	3.0	25.1	.12	--	Toulon Member
524	18.8 -19.1	--	3	83	14	40-50	30-40	10-20	2.5	23.2	.11	--	Toulon Member
524	22.8 -23.1	5	29	45	21	10-20	50-60	20-30	2.0	24.2	.08	--	Toulon Member
524	24.3 -24.6	5	41	35	19	10-20	60	20-30	2.1	22.3	.09	--	Toulon Member
524	25.8 -26.1	2	13	66	19	20	50-60	20-30	2.3	25.3	.09	--	Toulon Member
524	27.8 -28.1	--	3	83	14	30-40	40	20-30	2.2	23.6	.09	--	Toulon Member
524	28.8 -29.1	6	27	44	23	30-40	30-40	10-30	1.8	22.7	.08	--	Hulick Till Member
524	29.8 -30.1	--	1	49	50	40-50	20-30	30	8.1	5.1	1.59	--	Hulick Till Member
525	6.8 - 7.1	--	1	64	35	70-80	10	10-20	.4	1.3	.31	--	Peoria Loess (Soil)
525	10.8 -11.1	--	1	73	26	80	10	10	.4	6.7	.06	--	Peoria Loess
525	13.3 -13.6	--	16	65	19	--	--	--	6.4	16.7	.38	--	Toulon Member
525	14.8 -15.1	--	77	14	9	30	30	40	.4	15.3	.03	--	Toulon Member
525	20.8 -21.1	--	24	52	24	40	30-40	20-30	5.1	18.0	.28	--	Toulon Member

Table 5.--Grain-size distribution, clay and carbonate mineralogy, and cation exchange capacity of glacial sediments--Continued

Well No.	Sampled interval (feet)	Grain size (percent of total sample)				Clay minerals (percent of sample)			Carbonate minerals (percent)			Cation exchange capacity (meg/100 gm)	Stratigraphic unit name
		Gravel	Sand	Silt	Clay	Expandables	Illite	Kaolinite and chlorite	Calcium	Magnesium	Ca/Mg ratio		
526	3.8 - 4.1	--	22	54	24	70-90	10	0-20	0.3	0.3	1.00	--	Peoria Loess (Soil)
526	8.3 - 8.6	--	4	83	13	60-70	20	10-20	3.0	20.0	.15	--	Peoria Loess
526	14.3 -14.6	--	2	87	11	30	40-50	20-30	3.2	22.7	.14	--	Peoria Loess
526	18.8 -19.1	--	--	--	--	20-30	50-60	10-20	.4	.9	.44	--	Carbondale Formation (Shale)
526	21.8 -22.1	--	--	67	33	20-30	50	20-30	.3	.9	.34	--	Carbondale Formation (Shale)
527	4.8 - 5.2	--	19	56	25	60	10-20	20-30	.6	.8	.75	--	Peoria Loess (Soil)
527	7.8 - 8.1	--	3	75	22	70-80	20	0-20	.5	2.8	.18	--	Peoria Loess
527	10.8 -11.1	--	2	82	16	60-70	20	10-20	1.7	25.1	.07	--	Peoria Loess
527	15.8 -16.1	--	4	85	11	60	20-30	10-20	3.1	25.7	.12	--	Peoria Loess
527	22.8 -23.1	--	2	88	10	20-40	40-50	10-30	3.1	25.9	.12	--	Toulon Member
527	24.3 -24.6	--	17	41	42	--	--	--	--	--	--	--	Hulick Till Member
527	24.8 -25.1	4	15	64	17	--	--	--	1.9	23.6	.08	--	Hulick Till Member
528	7.8 - 8.1	--	5	70	25	80-90	10	0-10	.4	4.9	.08	--	Peoria Loess (Soil)
528	10.8 -11.1	--	2	92	6	50	30	20	3.6	24.3	.15	--	Peoria Loess
528	18.8 -19.1	2	22	36	40	30-40	50	10-20	3.3	25.8	.13	--	Hulick Till Member
528	26.8 -27.1	7	21	39	34	30-40	40	20-30	4.1	21.5	.19	--	Hulick Till Member
529	13.8 -14.1	--	5	63	32	70-80	10	10-20	.4	5.4	.07	--	Peoria Loess (Soil)
529	16.3 -16.6	1	6	65	28	60-80	10-20	0-20	.1	12.3	.01	--	Peoria Loess
529	18.8 -19.1	1	5	77	17	60-80	10-20	10-20	1.0	21.2	.05	--	Toulon Member
529	24.8 -25.1	7	58	25	10	10	60	30	4.9	33.2	.15	--	Toulon Member

530	1.8 - 2.1	--	15	60	25	50-70	10	10-20	2.7	.9	3.00	--	Peoria Loess (Soil)
530	3.8 - 4.1	--	5	80	15	70-90	10-20	0-20	3.2	21.9	.15	--	Peoria Loess
530	8.8 - 9.1	--	6	83	11	40-50	--	10-20	8.6	20.1	.43	--	Peoria Loess
530	13.8 -14.1	--	1	83	16	70-80	10	10-20	.9	.4	2.25	--	Roxana Silt
530	16.3 -16.6	--	1	81	18	70-90	10	0-20	.5	.2	2.50	--	Roxana Silt
530	17.6 -17.9	--	1	75	24	90	--	10	.4	1.8	.23	--	Toulon Member
530	19.3 -19.6	--	10	62	28	80-90	0-10	0-10	.4	.9	.45	--	Toulon Member
530	22.8 -23.1	--	23	41	36	60-80	10-20	10-20	.4	3.4	.12	--	Toulon Member
530	25.8 -26.1	--	23	61	16	50-60	30-40	0-20	.5	.2	2.50	--	Toulon Member
530	27.8 -28.1	--	25	62	13	30-40	50	10-20	.4	.9	.45	--	Toulon Member
530	31.8 -32.1	--	11	83	6	30	60	10	.3	21.5	.01	--	Toulon Member
530	34.8 -35.1	--	16	72	12	60-80	10-20	10-20	3.0	25.0	.12	--	Toulon Member
530	48.8 -49.1	--	--	--	--	10-20	50	30-40	1.1	2.1	.52	--	Carbondale Formation (Shale)
531	7.8 - 8.1	--	11	78	11	50-60	20	20-30	2.8	22.0	.13	--	Peoria Loess
531	21.8 -22.1	--	4	84	12	50-60	20	20-30	2.4	24.6	.10	--	Peoria Loess
531	24.8 -25.1	--	4	75	21	60	20	20	3.2	20.0	.16	--	Peoria Loess
531	26.6 -26.9	--	1	76	23	50	30	20	1.5	13.6	.11	--	Toulon Member
531	28.8 -29.1	--	3	80	17	30-40	40	20-30	.7	15.8	.04	--	Toulon Member
531	31.3 -31.6	--	--	--	--	20-30	40-50	20-30	1.4	4.3	.32	--	Toulon Member
531	32.3 -32.6	--	12	35	53	30-40	30-40	20-30	.9	4.3	.21	--	Hulick Till Member
531	32.6 -32.9	--	1	36	63	10-20	50-60	30	.8	2.3	.35	--	Carbondale Formation (Shale)
531	34.8 -35.1	--	--	36	64	10-20	50-60	30	.4	1.1	.36	--	Carbondale Formation (Shale)
532	22.8 -23.1	--	2	86	12	60-70	20-30	10-20	2.6	21.3	.12	--	Peoria Loess
532	23.9 -24.2	--	--	--	--	60-80	20	0-20	2.1	23.9	.09	--	Peoria Loess
532	25.0 -25.3	--	--	--	--	60-80	10-20	10-20	1.1	17.9	.06	--	Peoria Loess
532	25.6 -25.9	--	--	--	--	90-100	--	0-10	.4	.7	.57	--	Roxana Silt

Table 5.--Grain-size distribution, clay and carbonate mineralogy, and cation exchange capacity of glacial sediments--Continued

Well No.	Sampled interval (feet)	Grain size (percent of total sample)				Clay minerals (percent of sample)			Carbonate minerals (percent)			Cation exchange capacity (meq/100 gm)	Stratigraphic unit name
		Gravel	Sand	Silt	Clay	Expandables	Illite	Kaolinite and chlorite	Calcium	Magnesium	Ca/Mg ratio		
532	27.3 -27.6	--	4	67	29	70-80	10-20	10	.4	.2	2.00	--	Berry Clay Member
532	30.8 -31.1	--	7	43	50	80	10-20	0-10	.4	.2	2.00	--	Berry Clay Member
532	36.0 -36.3	--	20	49	31	70	20	10	21.4	10.2	2.10	--	Toulon Member
532	44.6 -44.9	--	52	41	7	--	--	--	--	--	--	--	Toulon Member
532	45.8 -46.1	--	1	87	12	10	60	30	4.2	30.0	.14	--	Toulon Member
533	9.8 -10.1	--	2	87	11	40-50	30	20-30	2.4	21.8	.11	--	Peoria Loess
533	13.3 -13.6	--	2	84	14	60-80	20	0-20	1.5	23.2	.06	--	Peoria Loess
533	16.3 -16.6	--	1	87	12	60-70	20	10-20	2.0	22.6	.09	--	Peoria Loess
533	23.3 -23.6	--	14	66	20	50-60	30	10-20	7.5	20.2	.37	--	Hulick Till Member
533	24.8 -25.1	6	19	43	32	50-60	30	10-20	5.7	22.8	.25	--	Hulick Till Member
533	28.8 -29.1	12	17	45	26	40-60	20-30	20-30	65	17.7	3.67	--	Hulick Till Member
534	23.8 -24.1	--	26	46	28	--	--	--	--	--	--	--	Hulick Till Member
535	4.3 - 4.6	--	2	62	36	60-70	20	10-20	.7	1.2	.58	--	Peoria Loess
535	13.8 -14.1	--	2	83	15	60-70	20	10-20	1.2	30.5	.04	--	Peoria Loess
535	15.8 -16.1	--	1	83	16	70-90	10-20	0-20	1.2	19.1	.06	--	Peoria Loess
535	18.8 -19.1	1	13	68	18	60-70	20	10-20	.8	12.5	.06	--	Toulon Member
535	19.8 -20.1	--	3	85	12	60-70	20	10-20	.7	17.4	.04	--	Toulon Member
535	21.8 -22.1	--	15	59	26	40	40	20	5.4	17.3	.31	--	Toulon Member
535	28.8 -29.1	--	6	79	15	30	40	30	7.5	20.1	.37	--	Toulon Member
535	32.3 -32.6	4	19	36	41	40-50	20-30	30	4.4	24.6	.18	--	Hulick Till Member
536	1.3 - 1.6	--	10	69	21	40-50	30	20-30	1.6	15.9	.10	--	Fill
536	7.3 - 7.6	--	22	53	25	40-50	20-30	20-30	.3	1.0	.30	--	Peoria Loess

536	12.8 -13.1	--	2	83	15	60-80	10-20	10-20	2.5	20.4	.12	--	Peoria Loess
536	15.8 -16.1	--	1	86	13	70	20	20	4.4	22.6	.19	--	Peoria Loess
536	18.8 -19.1	--	2	83	15	60-70	20	10-20	1.9	21.3	.09	--	Peoria Loess
536	19.8 -20.1	--	48	41	11	30	40	30	2.3	18.2	.13	--	Toulon Member
536	32.0 -32.3	--	14	52	34	30-40	40	20-30	6.0	15.2	.39	--	Hulick Till Member
536	32.5 -32.8	--	--	--	--	36	47	17	--	--	--	--	Hulick Till Member
536	32.8 -33.1	--	10	51	39	40	30-40	20-30	6.1	15.3	.40	--	Hulick Till Member
536	33.8 -34.1	--	--	41	59	30-40	30-40	30	6.9	11.4	.61	--	Hulick Till Member
537	3.8 - 4.1	--	16	57	27	50-60	20-30	20	1.2	15.7	.08	--	Radnor Till Member
537	9.8 -10.1	--	14	64	22	30	50	20	1.4	13.1	.11	--	Radnor Till Member
537	12.8 -13.1	--	15	53	32	30-40	40-50	10-20	.3	3.6	.08	--	Radnor Till Member
537	13.8 -14.1	--	17	51	32	30-40	40-50	10-20	3.4	16.2	.21	--	Radnor Till Member
537	15.8 -16.1	--	19	51	30	20-30	50-60	10-20	2.6	20.4	.13	--	Radnor Till Member
537	19.8 -20.1	--	25	45	30	20-30	60	10-20	2.4	16.6	.14	--	Radnor Till Member
537	21.3 -21.6	--	20	49	31	20-30	50-60	10-20	3.0	17.4	.17	--	Radnor Till Member
537	22.8 -23.1	--	86	10	4	--	--	--	--	--	--	--	Toulon Member
537	33.6 -33.9	--	29	41	30	40-50	20-30	10-20	3.5	14.9	.23	--	Hulick Till Member
560	0.83- 1.0	--	--	--	--	--	--	--	.37	.81	.46	10.3	Peoria Loess
560	7.0 - 7.5	45	40	10	5	--	--	--	--	--	--	--	Toulon Member
560	10.0 -10.2	--	--	--	--	--	--	--	4.64	.56	8.29	5.5	Toulon Member
[1]560	15.7 -15.8	--	--	--	--	--	--	--	4.18	.90	4.64	4.0	Toulon Member
560	34.8 -35.0	--	--	--	--	--	--	--	6.04	3.75	1.61	21.6	Toulon Member
560	35.0 -35.2	4	12	47	37	16	55	29	--	--	--	--	Toulon Member
561	1.8 - 1.9	4	20	49	27	53	30	17	--	--	--	--	Radnor Till Member
561	1.9 - 2.0	--	--	--	--	--	--	--	.51	2.04	.25	33.7	Radnor Till Member

[1] X-ray diffraction shows calcite.

Table 5.--Grain-size distribution, clay and carbonate mineralogy, and cation exchange capacity of glacial sediments--Continued

Well No.	Sampled interval (feet)	Grain size (percent of total sample)				Clay minerals (percent of sample)			Carbonate minerals (percent)			Cation exchange capacity (meg/100 gm)	Stratigraphic unit name
		Gravel	Sand	Silt	Clay	Expandables	Illite	Kaolinite and chlorite	Calcium	Magnesium	Ca/Mg ratio		
561	4.8 - 5.0	--	4	68	28	63	25	12	.71	1.88	.38	24.0	Radnor Till Member
561	7.6 - 8.0	--	94	2	4	--	--	--	--	--	--	--	Toulon Member
561	11.5 -11.7	--	--	--	--	--	--	--	2.53	1.66	15.6	--	Toulon Member
561	11.7 -11.8	--	20	66	14	41	44	15	--	--	--	--	Toulon Member
561	12.9 -13.0	--	--	--	--	--	--	--	3.49	.72	4.85	6.1	Toulon Member
561	13.0 -13.3	34	54	8	4	8	66	26	--	--	--	--	Toulon Member
561	46.7 -46.9	--	--	--	--	--	--	--	3.65	.45	8.11	9.4	Hulick Till Member
561	68.6 -68.8	12	9	59	20	13	47	40	--	--	--	--	Hulick Till Member
[1]561	68.8 -68.9	--	--	--	--	--	--	--	3.44	2.93	1.17	18.5	Hulick Till Member
562	3.1 - 3.3	--	70	16	14	42	41	17	--	--	--	--	Peoria Loess
562	5.8 - 6.0	--	88	3	9	38	47	15	--	--	--	--	Peoria Loess
562	18.7 -18.8	24	45	18	13	15	58	27	--	--	--	--	Toulon Member
562	18.8 -19.0	--	--	--	--	--	--	--	3.76	1.51	2.49	11.1	Toulon Member
562	21.5 -21.7	--	6	41	53	9	62	29	--	--	--	--	Toulon Member
562	24.3 -24.5	--	--	54	46	15	54	31	--	--	--	--	Hulick Till Member
563	13.6 -13.7	--	1	89	10	45	36	19	--	--	--	--	Peoria Loess
563	20.8 -21.0	16	69	9	6	6	79	15	--	--	--	--	Toulon Member
563	33.3 -33.5	--	96	2	2	5	78	17	--	--	--	--	Toulon Member
563	41.0 -41.2	6	88	4	2	24	59	17	--	--	--	--	Toulon Member
563	41.2 -41.3	--	--	--	--	--	--	--	4.03	.37	10.89	4.1	Toulon Member
564	11.8 -12.0	--	9	78	13	32	42	21	--	--	--	--	Peoria Loess

564	29.3 -29.5	--	77	20	3	11	72	17	--	--	--	--	Toulon Member
564	39.7 -39.8	5	85	4	6	8	61	31	--	--	--	--	Toulon Member
564	39.8 -40.0	--	--	--	--	--	--	--	2.98	.43	6.93	6.2	Toulon Member
564	41.1 -41.3	13	27	35	25	5	60	35	--	--	--	--	Hulick Till Member
565	17.8 -18.0	--	3	85	12	25	57	18	--	--	--	--	Peoria Loess
565	26.8 -27.0	--	96	2	2	4	78	18	--	--	--	--	Toulon Member
565	33.8 -34.0	--	--	--	--	--	--	--	2.71	.28	9.68	3.8	Toulon Member
565	45.8 -46.0	34	19	31	16	5	62	33	--	--	--	--	Toulon Member
565	46.8 -47.0	35	19	29	17	5	52	43	--	--	--	--	Hulick Till Member
566	3.0 - 3.2	--	13	57	30	--	--	--	--	--	--	--	Cahokia Alluvium
566	8.7 - 8.8	42	28	19	11	18	43	39	--	--	--	--	Cahokia Alluvium
566	8.8 - 9.0	--	--	--	--	--	--	--	1.07	2.33	.46	16.7	Cahokia Alluvium
566	11.8 -12.0	19	42	31	8	10	59	31	--	--	--	--	Cahokia Alluvium
566	23.8 -24.0	--	8	63	29	1	59	40	--	--	--	--	Carbondale Formation (Shale)
567	2.8 - 3.0	--	--	--	--	54	30	16	--	--	--	--	Peoria Loess
567	5.8 - 6.0	--	--	--	--	63	23	14	--	--	--	--	Peoria Loess
567	14.8 -15.0	--	--	--	--	6	63	31	--	--	--	--	Toulon Member
567	17.8 -18.0	--	--	--	--	26	51	23	--	--	--	--	Hulick Till Member
567	20.8 -20.9	3	70	16	11	3	56	41	--	--	--	--	Hulick Till Member
567	25.2 -25.3	--	--	--	--	--	--	--	4.79	2.07	12.2	--	Hulick Till Member
567	25.3 -25.5	1	8	65	26	0	63	37	--	--	--	--	Hulick Till Member
568	5.8 - 6.0	--	11	54	35	54	30	16	--	--	--	--	Cahokia Alluvium
568	8.8 - 9.0	--	12	59	29	57	28	15	--	--	--	--	Cahokia Alluvium
568	10.8 -11.0	67	14	12	7	32	42	26	--	--	--	--	Cahokia Alluvium

[1] X-ray diffraction shows calcite.

Table 5.--Grain-size distribution, clay and carbonate mineralogy, and cation exchange capacity of glacial sediments--Continued

Well No.	Sampled interval (feet)	Grain size (percent of total sample)				Clay minerals (percent of sample)			Carbonate minerals (percent)			Cation exchange capacity (meq/100 gm)	Stratigraphic unit name
		Gravel	Sand	Silt	Clay	Expandables	Illite	Kaolinite and chlorite	Calcium	Magnesium	Ca/Mg ratio		
568	14.7 -14.8	33	30	24	13	2	64	34	--	--	--	--	Cahokia Alluvium
568	14.7 -15.0	--	--	--	--	--	--	--	3.88	1.87	2.07	12.2	Cahokia Alluvium
569	0.25- 0.42	3	1	63	33	6	60	34	--	--	--	--	Spoils
569	2.5 - 2.7	24	16	36	24	8	66	26	--	--	--	--	Spoils
569	5.8 - 6.0	11	18	36	35	1	70	29	.55	2.11	.26	20.3	Spoils
569	14.7 -14.8	7	24	38	31	19	53	28	--	--	--	--	Spoils
569	14.8 -15.0	--	--	--	--	--	--	--	3.89	2.34	1.66	14.5	Spoils
569	20.7 -20.9	--	59	25	16	41	41	18	--	--	--	--	Spoils
569	35.7 -35.8	--	26	22	52	1	61	38	--	--	--	--	Spoils
569	35.8 -36.0	--	--	--	--	--	--	--	4.53	3.12	1.45	12.8	Spoils
569	38.7 -38.8	--	36	46	18	13	54	33	--	--	--	--	Spoils
569	38.8 -39.0	--	--	--	--	--	--	--	4.18	2.72	1.54	12.2	Spoils
570	0.08- 0.25	4	30	44	22	14	60	26	--	--	--	--	Peoria Loess
570	5.8 - 6.0	--	16	66	18	70	19	11	--	--	--	--	Peoria Loess
570	6.3 - 6.4	5	7	74	14	35	43	22	--	--	--	--	Peoria Loess
570	11.7 -11.8	3	3	75	19	41	40	19	--	--	--	--	Peoria Loess
570	11.8 -12.0	--	--	--	--	--	--	--	3.07	1.96	1.57	14.3	Peoria Loess
570	17.8 -17.9	39	22	30	9	10	75	15	--	--	--	--	Toulon Member
571	5.8 - 5.9	--	16	48	36	64	32	4	--	--	--	--	Peoria Loess
571	8.8 - 8.9	--	71	21	8	42	40	18	--	--	--	--	Peoria Loess
571	17.8 -17.9	5	91	2	2	15	65	20	--	--	--	--	Toulon Member
571	17.9 -18.0	--	--	--	--	--	--	--	3.66	.40	9.15	4.8	Toulon Member

571	19.3 -19.5	8	32	33	27	10	63	27	--	--	--	--	Toulon Member
572	5.8 - 6.0	--	1	61	38	64	25	11	--	--	--	--	Peoria Loess
572	8.8 - 8.9	--	86	4	10	47	39	14	--	--	--	--	Toulon Member
572	14.7 -14.8	17	68	8	7	4	65	31	--	--	--	--	Toulon Member
572	14.8 -15.0	--	--	--	--	--	--	--	3.91	.82	4.77	5.7	Toulon Member
[2]573	0.08- 0.25	--	--	--	--	--	--	--	.57	2.66	.21	31.0	Peoria Loess
573	0.25- 0.42	--	10	66	24	25	49	26	--	--	--	--	Peoria Loess
573	2.6 - 2.7	--	4	63	33	78	14	8	--	--	--	--	Peoria Loess
[2]573	2.7 - 2.9	--	--	--	--	--	--	--	.78	2.07	.38	20.5	Radnor Till Member
[2]573	6.0 - 6.2	--	--	--	--	--	--	--	.62	2.37	.26	16.3	Radnor Till Member
573	6.2 - 6.3	3	9	53	35	46	39	15	--	--	--	--	Radnor Till Member
573	17.2 -17.4	1	74	19	6	16	60	24	--	--	--	--	Toulon Member
573	17.4 -17.7	--	--	--	--	--	--	--	1.61	.71	2.27	5.3	Toulon Member
[1]573	18.5 -18.7	--	--	--	--	--	--	--	5.98	1.72	3.48	12.6	Toulon Member
573	18.7 -18.8	51	25	17	7	--	--	--	--	--	--	--	Toulon Member
574	5.8 - 6.0	--	5	69	26	65	24	11	--	--	--	--	Radnor Till Member
574	8.7 - 8.8	--	34	50	16	56	28	16	--	--	--	--	Radnor Till Member
574	21.2 -21.3	70	14	10	6	--	--	--	--	--	--	--	Toulon Member
574	21.3 -21.5	--	--	--	--	--	--	--	1.83	.23	7.96	10.7	Toulon Member
574	29.3 -29.5	40	40	12	8	6	65	29	--	--	--	--	Toulon Member
574	39.3 -39.5	81	5	10	4	--	--	--	--	--	--	--	Toulon Member
577	9.0 - 9.5	--	16	66	18	--	--	--	--	--	--	--	Peoria Loess
577	40.0 -41.0	27	25	32	16	--	--	--	--	--	--	--	Hulick Till Member
578	36.5 -37.0	--	96	1	3	--	--	--	--	--	--	--	Hulick Till Member
579	23.5 -24.0	--	12	81	7	--	--	--	--	--	--	--	Toulon Member

[1] X-ray diffraction shows calcite.
[2] X-ray diffraction shows no calcite.

Table 5.--Grain-size distribution, clay and carbonate mineralogy, and cation exchange capacity of glacial sediments--Continued

Well No.	Sampled interval (feet)	Grain size (percent of total sample)				Clay minerals (percent of sample)			Carbonate minerals (percent)			Cation exchange capacity (meq/100 gm)	Stratigraphic unit name
		Gravel	Sand	Silt	Clay	Expandables	Illite	Kaolinite and chlorite	Calcium	Magnesium	Ca/Mg ratio		
580	45.8 -46.0	--	1	48	51	--	--	--	--	--	--	--	Hulick Till Member
581	46.0 -46.5	22	8	24	46	--	--	--	--	--	--	--	Hulick Till Member
582	32.2 -32.5	10	28	39	23	--	--	--	--	--	--	--	Toulon Member
583	23.5 -24.0	22	63	8	7	--	--	--	--	--	--	--	Toulon Member
583	46.2 -46.5	62	26	6	6	--	--	--	--	--	--	--	Toulon Member
583	47.0 -47.5	9	33	34	24	--	--	--	--	--	--	--	Toulon Member
584	9.0 - 9.5	--	84	9	7	--	--	--	--	--	--	--	Toulon Member

Table 6.--Petrographic analyses of cores

Well No.	Unit name	Sampling interval (ft)
560	Peoria Loess	0.83-1.0

Minerals	Percentage
Quartz plus quartzite & chert	35
Feldspars (Plagioclase & Microcline)	2-3
Igneous rock fragments	2
Opaques	5
Volcanic rock fragments	3

Degree of oxidation: Moderately oxidized.

Angularity and sorting characteristics: Subrounded and poorly sorted grains.

Summary and remarks: Sample is admixture of large rock fragments and abundant sand size quartz (35%) set in a silty and clay rich matrix (45-55%).

Well No.	Unit name	Sampling interval (ft)
560	Toulon Member	10.0-10.2

Minerals	Percentage
Quartz, quartzite & chert	25-30
Feldspars	5
Igneous rock fragments	5
Marble & limestone	10
Volcanic rock fragments	5-8
Siltstone	3-5
Opaques	2
Hornblende	<1

Degree of oxidation: Opaques and volcanic rock fragments highly oxidized.

Angularity and sorting characteristics: Grains subrounded and poorly sorted.

Summary and remarks: Sorting poor, and grains mostly quartz.

Table 6.--Petrographic analyses of cores--Continued

Well No.	Unit name	Sampling interval (ft)
560	Toulon Member	34.8-35.0

Minerals	Percentage
Quartz & quartzite	15
Granite rock fragments	1-2
Siltstone	1-2
Volcanic rock fragments	2
Opaques	1
Marble	<1

Degree of oxidation: Matrix moderately oxidized; large grains unaltered by oxidation.

Angularity and sorting characteristics: Large grains subrounded; small grains angular. Sorting very poor.

Summary and remarks: About 70% of matrix is silt size quartz with a clay and calcium carbonate groundmass.

Well No.	Unit name	Sampling interval (ft)
561	Radnor Till Member	1.9-2.0

Minerals	Percentage
Quartz	30
Feldspars (Plagioclase & Microcline)	5
Opaques	5
Volcanic rock fragments	10-15

Degree of oxidation: Grains unaltered by oxidation; some oxidation on volcanic rock fragments.

Angularity and sorting characteristics: Large grains subrounded; smaller grains angular. Grains poorly sorted.

Summary and remarks: The till is 50% silt size grains with clay and 50% volcanic rock fragments

Table 6.--Petrographic analyses of cores--Continued

Well No.	Unit name	Sampling interval (ft)
561	Radnor Till Member	4.8-5.0

Minerals	Percentage
Quartz	25
Opaques	3
Plagioclase	2
Hornblende	1
Muscovite	1
Olivine	<1

Degree of oxidation: Clay bearing matrix moderately oxidized.

Angularity and sorting characteristics: Quartz grains angular; sorting poor.

Summary and remarks: Sample is composed of silt size quartz in a clay mineral groundmass.

Well No.	Unit name	Sampling interval (ft)
561	Toulon Member	11.5-11.7

Minerals	Percentage
Quartz	35
Feldspars	5
Opaques	3
Calcite cement	45-50
Muscovite	1
Hornblende	1
Chlorite	<1

Degree of oxidation: Quartz grains unaltered by oxidation and feldspars slightly altered. Slight oxidation in the opaques.

Angularity and sorting characteristics: Large grains subrounded; matrix grains subangular to angular. Sorting poor.

Summary and remarks: Sample consists of a few large quartz grains in a groundmass of silt size quartz and a calcitic cement with minor clay minerals.

Table 6.--Petrographic analyses of cores--Continued

Well No.	Unit name	Sampling interval (ft)
561	Hulick Till Member	46.7-46.8

Minerals	Percentage
Marble & Limestone	40
Volcanics	5
Granitic rock fragments	1-2
Quartz & Quartzite & Chert	3
Feldspars (Plagioclase)	1
Matrix	1

Degree of oxidation: Opaques in matrix are oxidized, along with some of the rock fragments.

Angularity and sorting characteristics: Large rock fragments rounded, sand to silt size grains subangular. Sorting very poor.

Summary and remarks: Sample is very poorly sorted, with abundant rock fragments of variable nature in matrix of sand and silt size quartz, opaques, calcite and some clay minerals.

Well No.	Unit name	Sampling interval (ft)
562	Toulon Member	18.8-19.0

Minerals	Percentage
Quartz and quartzite & chert	30-40
Marble and limestone	25-30
Granite rock fragments	5
Volcanics	10
Feldspars Siltstone	15
Feldspars (Plagioclase)	2

Degree of oxidation: Opaques, siltstone and the preserved part of matrix moderately oxidized.

Angularity and sorting characteristics: Rock fragments and large mineral grains subrounded to rounded. Sorting poor.

Summary and remarks: Sample consists of rock fragments with small percentage of matrix.

Table 6.--Petrographic analyses of cores--Continued

Well No.	Unit name	Sampling interval (ft)
563	Peoria Loess	13.75-13.9

Minerals	Percentage
Quartz	45
Opaques	5
Feldspars (Plagioclase)	5
Hornblende	2
Calcitic cement	30-40
Clay minerals	2-3

Degree of oxidation: Opaques oxidized.

Angularity and sorting characteristics: Grains subangular, sorting moderate.

Summary and remarks: Sample is moderately well sorted calcite cemented siltstone with common opaques and minor amounts of plagioclase and hornblende.

Well No.	Unit name	Sampling interval (ft)
563	Toulon Member	41.2-41.3

Minerals	Percentage
Quartz & Quartzite	55-60
Opaques	10
Limestone & Marble	20
Granitic rock fragments	5
Feldspars	5
Calcite cemented sandstone	1-2

Degree of oxidation: Large opaques highly oxidizd, and quartz, quartzite and igneous rock fragments largely unaltered by oxidation.

Angularity and sorting characteristics: Grains subrounded to subangular, sorting poor.

Summary and remarks: Sample is poorly sorted quartz, quartzite, limestone and igneous rock.

Table 6.--Petrographic analyses of cores--Continued

Well No.	Unit name	Sampling interval (ft)
564	Toulon Member	39.8-40.0

Minerals	Percentage
Quartz, quartzite, and chert	65-75
Feldspars	3
Marble & limestone	15
Granitic rock fragments	1
Volcanics	5
Siltstone	3
Hornblende	<1

Degree of oxidation: Volcanics moderately oxidized, and opaques highly oxidized.

Angularity and sorting characteristics: Grains and rock fragments subrounded and poorly sorted.

Summary and remarks: Sample is poorly sorted and of a wide assortment of rock fragments and sand size grains with quartz and limestone constituting about 90% of the grain portion.

Well No.	Unit name	Sampling interval (ft)
565	Toulon Member	33.8-34.0

Minerals	Percentage
Quartz & quartzite	60-70
Granitic rock fragments	2
Marble and limestone	15
Volcanics	6-8
Feldspars (Plagioclase)	1-2
Calcite cemented sandstone	2

Degree of oxidation: Volcanics oxidized. Other grains relatively unaltered by oxidation.

Angularity and sorting characteristics: Grains subrounded and poorly sorted.

Summary and remarks: Sample consists of poorly sorted rock fragments (mostly quartzite, limestone and volcanics).

Table 6.--Petrographic analyses of cores--Continued

Well No.	Unit name	Sampling interval (ft)
566	Cahokia Alluvium	8.8-9.0

Minerals	Percentage
Quartz	35
Limestone & Marble	5
Coal fragments & organic matter	20
Calcite cement	35
Feldspars (Plagioclase)	3-5
Muscovite	1-2
Chlorite	<1

Degree of oxidation: Opaques moderately oxidized.

Angularity and sorting characteristics: Grains subangular, sorting poor.

Summary and remarks: Sample consists of abundant subangular quartz grains, coal fragments, organic matter, opaques and a few feldspars in a calcitic cement with minor amounts of muscovite.

Well No.	Unit name	Sampling interval (ft)
567	Hulick Till Member	25.2-25.3

Minerals	Percentage
Quartz and chert	40
Feldspars	2-3
Coal fragments & organic matter	20
Calcite cement	10
Clay mineral matrix	25

Degree of oxidation: Oxidation low.

Angularity and sorting characteristics: Grains subangular, sorting poor to moderate.

Summary and remarks: Sample consists of abundant silt size quartz and small coal fragments and organic matter in a clay mineral matrix, often with localized calcite cement.

Table 6.--Petrographic analyses of cores--Continued

Well No.	Unit name	Sampling interval (ft)
568	Cahokia Alluvium	8.7-8.8

Minerals	Percentage
Quartz and quartzite	40
Feldspars	3
Marble	1
Coal fragments and organic matter	20
Calcite cement	10
Clay minerals	20-25
Hornblende	1-2

Degree of oxidation: Grains largely unaltered by oxidation.

Angularity and sorting characteristics: Grains subangular to subrounded, sorting poor.

Summary and remarks: Sample consists of abundant sand and silt quartz grains, common coal, and organic matter fragments in a clay mineral matrix with minor calcite cement.

Well No.	Unit name	Sampling interval (ft)
568	Cahokia Alluvium	14.8-15.0

Minerals	Percentage
Quartz, quartzite and chert	40
Marble and limestone	30
Granitic rock fragments	5
Coal and organic matter fragments	15
Hornblende schist	1
Feldspars (Microcline)	1
Calcite cemented sandstone	5
Clay minerals	5

Degree of oxidation: Grains largely unaltered by oxidation.

Angularity and sorting characteristics: Grains subrounded, poorly sorted.

Summary and remarks: Sample consists of abundant grains of quartz and quartzite, some limestone fragments, some coal and organic matter fragments and an undeterminate amount of clay mineral matrix and calcitic cement.

Table 6.--Petrographic analyses of cores--Continued

Well No.	Unit name	Sampling interval (ft)
569	Spoils	38.8-39.0

Minerals	Percentage
Quartz and chert	15-20
Feldspar	5
Opaques	5
Muscovite	6-8
Chlorite	3
Clay minerals	50-55
Disseminated organic matter	10

Degree of oxidation: Opaques and organic matter debris oxidized.

Angularity and sorting characteristics: Grains subangular, sorting poor.

Summary and remarks: Sample fairly well laminated and consists of quartz, chert, feldspar, opaques and chlorite in a clay mineral matrix.

Well No.	Unit name	Sampling interval (ft)
570	Peoria Loess	11.8-12.0

Minerals	Percentage
Quartz, quartzite and chert	45
Opaques	5
Feldspar	10
Clay mineral matrix (including some muscovite)	30-35
Heavy minerals	<1
Volcanics	5

Degree of oxidation: Sand and silt size grains largely unaltered by oxidation except for a few highly oxidized spots.

Angularity and sorting characteristics: Grains subangular, sorting poor.

Summary and remarks: Rock consists of sand size quartz, feldspar and opaques in a matrix of silt size quartz, feldspar, opaques and clay minerals.

Table 6.--Petrographic analyses of cores--Continued

Well No.	Unit name	Sampling interval (ft)
571	Toulon Member	17.9-18.0

Minerals	Percentage
Quartz, quartzite and chert	40-45
Feldspar	3
Marble and limestone	20-25
Granitic rock fragments	3
Volcanics	6-8
Calcite cemented sandstone	15-20

Degree of oxidation: Rock fragments and sand grains largely unaltered by oxidation.

Angularity and sorting characteristics: Grains subrounded. Sorting poor.

Summary and remarks: Sample consists of subrounded sand size (and coarser) grains with predominance of quartz, limestone and siltstone. Matrix consists of clay minerals, opaques, silt size quartz, feldspar and calcite.

Well No.	Unit name	Sampling interval (ft)
572	Toulon Member	14.8-15.0

Minerals	Percentage
Quartz, quartzite	45-45
Feldspar	15
Volcanics	15
Marble	15
Opaques	5-8
Calcite cemented sandstone	5
Granitic rock fragments	1
Hornblende	1

Degree of oxidation: Volcanics oxidized, other grains largely unaltered by oxidation.

Angularity and sorting characteristics: Sand size grains subrounded. Silt size grains subangular to angular. Sorting poor.

Summary and remarks: Sample consists mostly of quartz, feldspar, volcanics and limestone grains and fragments.

Table 6.--Petrographic analyses of cores--Continued

Well No.	Unit name	Sampling interval (ft)
573	Radnor Till Member	2.75-2.92

Minerals	Percentage
Quartz	35
Feldspar	5-10
Opaques	3-5
Clay minerals	20
Disseminated organic matter	30
Heavy minerals	1-2

Degree of oxidation: Grains unaltered by oxidation except for organic matter and some opaques.

Angularity and sorting characteristics: Grains subangular. Sorting poor to moderate.

Summary and remarks: Sample consists of abundant silt size quartz and feldspar, disseminated organic matter and clay mineral matrix.

Well No.	Unit name	Sampling interval (ft)
573	Radnor Till Member	6.0-6.2

Minerals	Percentage
Quartz and feldspar	3-5
Opaques	2-3
Volcanics	10-15
Hornblende	2-3
Clay mineral matrix	35

Degree of oxidation: Volcanics highly oxidized.

Angularity and sorting characteristics: Grains subangular, sorting moderate to poor.

Summary and remarks: Sample consists of abundant silt size quartz, opaques, some volcanics and clay minerals.

Table 6.--Petrographic analyses of cores--Continued

Well No.	Unit name	Sampling interval (ft)
573	Toulon Member	17.9-18.0

Minerals	Percentage
Quartz, quartzite and chert	40-45
Feldspar	3
Marble and limestone	20-25
Granitic rock fragments	3
Volcanics	6-8
Calcite cemented sandstone	15-20

Degree of oxidation: Rock fragments and sand grains largely unaltered by oxidation.

Angularity and sorting characteristics: Grains subrounded. Sorting poor.

Summary and remarks: Sample consists of subrounded sand size (and coarser) grains with predominance of quartz, limestone and siltstone. Matrix consists of clay minerals, opaques, silt size quartz, feldspar and calcite.

Well No.	Unit name	Sampling interval (ft)
573	Toulon Member	18.5-18.7

Minerals	Percentage
Quartz and quartzite	46
Feldspar	5
Marble, limestone	2
Volcanics	10
Siltstone	3
Opaques	2-3
Igneous rock fragments	2
Clay minerals	5-10

Degree of oxidation: Volcanics oxidized along with outer rim of all other grains

Angularity and sorting characteristics: Large clasts and grains subrounded to rounded, sand size quartz grains rounded and silt size grains subangular, sorting very poor.

Summary and remarks: Sample consists of very poorly sorted grains in an argillaceous and silty matrix.

Table 6.--Petrographic analyses of cores--Continued

Well No.	Unit name	Sampling interval (ft)
574	Radnor Till Member	8.8-9.0

Minerals	Percentage
Quartz	60
Feldspar	8
Clay mineral matrix	25
Hornblende	2
Volcanics	3

Degree of oxidation: Sand size grains largely unaltered by oxidation.

Angularity and sorting characteristics: Sand size grains rounded, silt size grains subangular. Sorting poor.

Summary and remarks: Sample consists of sand size quartz, feldspar and volcanics in matrix of silt size grains (mostly quartz), clay mineals and finelly crystalline calcite cement.

Well No.	Unit name	Sampling interval (ft)
574	Toulon Member	21.3-21.5

Minerals	Percentage
Quartz and chert	33
Feldspar	3-5
Volcanics	10
Marble and limestone	40
Igneous rock fragments	1
Clay minerals	10

Degree of oxidation: Opaques and volcanics highly oxidized.

Angularity and sorting characteristics: Large grains rounded, silt size grains subangular.

Summary and remarks: Sample has one large Trachytic pebble, and matrix consists of sand size quartz, feldspar, marble and igneous rock fragments all set in a groundmass of silt size quartz, clay minerals, and calcite cement.

Table 7.--Physical characteristics of wells

Well No.	Date drilled	Total depth (feet)	Altitude LSD (feet)	Casing depth (feet)	Casing diameter (inches)	Screened interval	
						Altitude top of screen (feet)	Altitude bottom of screen (feet)
538	12-07-79	47.1	755.10	45.1	4	709.97	707.97
539	11-08-79	25.5	754.70	23.9	4	730.8	729.2
543	12-06-79	59.6	778.70	57.6	4	721.1	719.1
544	11-20-79	42.4	756.20	40.4	4	715.8	713.8
545	12-07-79	52.0	756.80	50.0	4	706.8	704.8
546	12-04-79	52.3	778.60	50.3	4	728.3	726.3
547	11-20-79	46.2	737.20	44.2	4	693.0	691.0
550	11-20-79	72.0	752.40	70.0	2	682.4	680.4
552	12-03-79	43.2	745.00	41.2	4	703.8	701.8
553	12-05-79	48.7	762.70	46.7	4	716.0	714.0
554	10-09-79	30.3	749.40	28.3	4	721.1	719.1
555	10-16-79	26.3	747.80	24.3	4	723.5	721.5
556	10-15-79	34.6	747.50	32.6	4	714.9	712.9
557	10-15-79	48.0	746.90	46.0	4	--	--
559	12-03-79	11.2	744.80	9.2	4	735.6	733.6
560	11-08-81	26.1	726.95	18.1	4	708.81	700.81
561	11-10-81	21.8	713.05	17.8	4	695.25	691.25
562	11-13-81	22.7	720.79	18.7	4	702.1	698.1
563	11-17-81	44.6	753.63	36.6	4	717.0	709.0
564	11-18-81	43.0	737.63	31.0	4	706.6	694.6
565	11-18-81	45.8	760.60	33.8	4	726.8	714.8
566	11-30-81	10.5	712.01	6.5	4	705.5	701.5
567	11-28-81	26.0	726.77	18.0	4	708.8	700.8
568	12-01-81	16.0	719.70	12.0	4	707.67	703.67
569	12-07-81	40.0	732.20	36.0	4	696.2	692.2
570	12-13-81	14.0	721.75	10.0	4	711.8	707.8
571	12-10-81	18.3	724.99	14.3	4	710.7	706.7
572	12-10-81	16.0	714.72	12.0	4	702.72	698.72
573	12-12-81	20.0	709.60	16.0	4	693.6	689.6
574	12-17-81	34.0	706.15	18.0	4	688.2	672.2

575	12-23-81	36.5	745.06	32.5	4	712.56	708.56
576	12-23-81	42.0	746.54	38.0	4	708.54	704.54
577	04-13-82	42.5	756.10	34.0	6	722.1	713.6
578	04-15-82	45.0	755.95	36.5	6	719.45	710.95
579	04-15-82	38.5	748.83	30.0	6	718.8	710.3
580	05-10-82	42.0	749.90	33.5	6	716.4	707.9
581	04-16-82	44.0	743.46	25.5	6	718.0	705.0
582	04-20-82	41.0	758.57	32.5	6	726.1	717.6
583	04-20-82	44.5	751.60	31.0	6	720.6	707.1
584	04-22-82	43.0	747.61	34.5	6	713.1	704.6
586	08-04-82	42.5	749.72	27.0	4	721.7	711.7
587	08-05-82	43.5	748.93	30.0	4	718.9	710.9
588	08-06-82	42.5	752.38	24.0	4	733.5	721.5
589	08-06-82	41.0	752.50	25.5	4	727.0	717.0
590	08-11-82	44.0	758.02	30.0	4	727.5	719.5
591	08-12-82	38.5	735.33	21.0	4	714.33	702.33
592	08-12-82	34.0	734.70	16.5	4	718.2	706.2
594	08-13-82	39.5	737.20	22.0	4	715.2	703.2
597	09-21-82	33.3	733.27	37.8	4	715.3	705.3
599	09-22-82	31.0	732.19	17.5	4	714.7	706.7
600	09-22-82	33.0	731.93	17.5	4	714.4	704.4
601	09-22-82	33.0	729.75	17.5	4	712.25	702.25
602	12-16-82	40.0	749.79	26.5	4	723.29	714.79
603	12-16-82	20.0	720.77	10.8	4	710.05	705.8
604	12-17-82	19.5	733.02	10.2	4	722.75	718.5
605	12-17-82	19.3	710.63	10.0	4	700.6	696.35
606	12-17-83	24.5	716.85	6.5	4	711.06	702.56
607	12-17-83	24.6	706.70	15.4	4	690.20	685.7
608	05-05-83	28.5	747.48	18.5	2	728.0	718.0
609	05-05-83	50.0	762.95	40.0	2	723.0	713.0
610	05-05-83	28.0	734.77	23.0	2	711.8	706.8
611	05-06-83	25.0	734.78	15.0	2	719.8	714.8

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells

[The rock-stratigraphic nomenclature follows the usage of the Illinois State Geological Survey and is modified from Willman and Frye, 1970, p. 12]

Core 501

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		36	36	Clayey silt, brown to dark brown, leached, iron stains few, brick fragments few.
	Pleistocene	Wisconsinan	Peoria Loess		103	67	Clayey silt; A zone missing; B zones, brownish-yellow, leached, blocky, argillans abundant upper part, few towards base, silans common upper part, few towards base, iron and manganese stains few; (Modern Soil).
					216	113	Silt, pale yellow to brownish-yellow, calcareous, weak blocky to weak platy, manganese stains few.
		Illinoian	Glasford Formation	Radnor Till Member	252	36	Clayey silt, pebbly, light yellowish-brown, calcareous, massive, iron stains common, iron concretions few, few sand pockets and coal fragments.
				Toulon Member	420	168	Pebbly sand (medium-coarse), strong brown to tan, leached, pebbles decrease towards base.
				Hulick Till Member	526	106	Sand-silt-clay, pebbly, light brown to brown, calcareous, massive, iron stains common, gray shale abundant, coal fragments few.

Core 502

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		7	7	Silty sand, yellowish-brown, slightly calcareous, few pebbles, some organics.
	Pleistocene	Wisconsinan	Peoria Loess		108	101	Clayey silt; A zone dark brown, leached, blocky to granular, silans common, some organics; B zone, yellowish-brown to brownish-yellow, leached, blocky, argillans few upper zone, abundant towards base, iron and manganese stains few, some organics near top; (Modern Soil).
					180	72	Silt, brownish-yellow, leached upper zone, calcareous towards base, massive, manganese stains few towards base.
		Illinoian	Glasford Formation	Radnor Till Member	258	78	Clayey silt, pebbly, light yellowish-brown, calcareous, massive, iron stains common, coal fragments few.
				Toulon Member	278	20	Sand-silt-clay intercalated with silty sand, brownish-yellow to light yellowish-brown, calcareous, iron stains abundant, laminated upper zone, few pebbles.
					459	181	Sand (fine-coarse), light yellowish-brown, calcareous, iron stains few, few pebbles.
				Hulick Till Member	498	39	Sand-silt-clay, pebbly, brown, calcareous, massive, iron stains few.
Pennsylvanian	Desmoinesian		Carbondale Formation		516	18	Silty clay, gray, calcareous, massive, few clusters of subhedral pyrite crystals; (Weathered Shale).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 503

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		36	36	A zone, clayey silt, dark brown, leached, granular, abundant silans and organics; B zone, silty clay grading into clayey silt, yellowish-brown, leached blocky, silans few, argillans abundant, some organics; (Modern Soil).
					124	88	Silt, brownish-yellow to olive-yellow, calcareous, weak blocky to weak platy, silans common upper part, few towards base, iron stains few.
			Roxana Silt		137	13	Clayey silt, brown, slightly calcareous, massive to weak platy, small white silt spots common.
					180	43	Silt, brown, leached, some secondary carbonates, weak platy, very friable, small white silt spots abundant.
					201	21	Clayey silt, brown, leached, some secondary carbonates, granular, friable.
					210	9	Sand-silt-clay, brown, leached, some secondary carbonates, blocky to granular.
		Illinoian	Glasford Formation	Radnor Till Member	244	34	Sand-silt-clay to clayey sand, pebbly, strong brown to yellowish-red, leached, some secondary carbonates, massive to blocky, iron stains abundant, manganese stains few, argillans common to few; (Sangamon Soil).
					372	128	Sand-silt-clay to clayey silt, pebbly, brownish-yellow to light olive-brown, leached upper 4 feet, calcareous towards base, massive, iron and manganese stains common, argillans common upper 4 feet, 1 inch silt layer.
				Toulon Member	588	216	Sand (fine-coarse), well-sorted, tan to light brown, calcareous, majority of sand medium-grained, few pebbles.
				Hulick Till Member	594	6	Sand-silt-clay, pebbly, brownish-yellow, calcareous upper part, leached towards base, massive, iron stains few.
					600	6	Clayey silt, grayish-brown, leached, massive, iron stains few, abundant shale fragments, some coal.

Core 504

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		24	24	Clayey silt to silt, light yellowish-brown to yellow, calcareous, weak blocky, mixture of till and silt.
	Pleistocene	Wisconsinan	Peoria Loess		76	52	Clayey silt, yellowish-brown, leached, A zone missing, B zones, blocky to massive, argillans common; (Modern Soil).
					128	52	Silt, light yellowish-brown to olive-yellow, calcareous, massive to weak platy.
			Roxana Silt		158	30	Silt, light yellowish-brown to yellowish-brown, calcareous, massive to platy, iron stains few.
		Illinoian	Glasford Formation	Radnor Till Member	228	70	Silt to clayey silt, brown to dark yellowish-brown, leached, some secondary carbonates, platy to weak blocky, argillans and manganese concretions few; (Sangamon Soil).
					300	72	Clayey silt, pebbly, dark yellowish-brown, leached, massive, argillans common, iron stains and concretions common; (Sangamon Soil).
					423	123	Clayey silt, pebbly, light yellowish-brown, leached upper 30 inches, calcareous lower part, massive, iron stains common upper 5 feet, few sand lenses and pieces of coal.
				Toulon Member	552	129	Pebbly sand (fine-coarse), well to moderately well-sorted, calcareous, few silty zones.
				Hulick Till Member	575	23	Sand-silt-clay, pebbly, yellowish-brown, calcareous, massive.
					587	12	Silty clay, dark gray, slightly calcareous.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 505

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		7	7	Clayey silt, brownish-yellow, calcareous, few pebbles, some organics.
	Pleistocene	Wisconsinan	Peoria Loess		90	83	Clayey silt; A zone, brown, leached, weak blocky, silans common, abundant organics; B zones, brown to brownish-yellow, leached, blocky, argillans abundant near top, few towards base, silans common near top, few towards base, iron stains common, manganese stains few, some organics; (Modern Soil).
					137	47	Silt, brownish-yellow to pale yellow, calcareous, massive, manganese stains few.
			Roxana Silt		161	24	Silt, brown to yellowish-brown, leached, some secondary carbonates, weak platy to massive.
		Illinoian	Glasford Formation	Radnor Till Member	176	15	Sand-silt-clay, pebbly, yellowish-brown to strong brown, weak blocky to massive, argillans common, silans few, iron stains abundant, manganese stains few; (Sangamon Soil).
				Hulick Till Member	261	85	Clayey silt, pebbly, light yellowish-brown, calcareous, massive, iron stains abundant, some pieces of coal, few small sand lenses.
					373	112	Sand-silt-clay, pebbly, brownish-yellow to dark gray, calcareous, massive, iron stains few, some pieces of coal, 2 inch sand lens.
				Duncan Mills Member	384	11	Silty clay intercalated with silt, dark gray, leached, few pebbles, ½ inch silty sand layer; (Lacustrine).

Core 506

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		15	15	Clayey silt, dark yellowish-brown to brownish-yellow, leached at top, calcareous at base, some organics.
	Pleistocene	Wisconsinan	Peoria Loess		94	79	A zone, clayey silt, dark grayish-brown to dark yellowish-brown, leached, weak blocky, silans abundant, some organics; B zones, sand-silt-clay, dark-brown to yellowish-brown, leached, blocky to massive, argillans abundant, silans few, iron stains abundant, manganese stains few, some very small silt layers, some pieces of coal; (Modern Soil).
		Illinoian	Glasford Formation	Radnor Till Member	125	31	Clayey silt, pebbly, light yellowish-brown to brownish-yellow, calcareous, massive to blocky, iron stains few.
				Toulon Member	131	6	Sand, medium-grained, well-sorted, yellow, calcareous, iron stains abundant.
				Hulick Till Member	180	49	Sand-silt-clay, pebbly, yellowish-brown, calcareous, massive, iron stains few.
					228	48	Silty clay, light brownish-gray to dark-gray, leached, blocky to friable, iron stains abundant, manganese stains few.
Pennsylvanian	Desmoinesian		Carbondale Formation		240	12	Weathered Shale

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 507

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		79	79	A zone missing; B zone, clayey silt, yellowish-brown to brownish-yellow, leached, blocky, argillans and silans abundant, some organics; (Modern Soil).
					171	92	Clayey silt grading into silt, brownish-yellow, leached upper 2 feet, weak blocky to massive, manganese stains few.
		Illinoian	Glasford Formation	Toulon Member	178	7	Pebbly silty sand, pale-brown, leached.
					191	13	Silt, brownish-yellow to olive-yellow, leached, massive to weak platy, iron stains common, manganese stains few, faint color banding, some thin organic layers; (Lacustrine).
					228	37	Clayey silt interbedded with silty sand, brownish-yellow to olive-yellow, upper 16 inches leached, massive to weak platy, iron and manganese stains few, some organics and pebbles, faint color banding in parts; (Lacustrine).
					238	10	Silt, light yellowish-brown, calcareous, massive; (Lacustrine).
				Hulick Till Member	336	98	Clayey silt, pebbly, light brownish-gray to gray, massive, iron stains few, abundant pieces of shale, some coal and pieces of wood.
					384	48	Sand-silt-clay, pebbly, pale brown, calcareous, massive.
					444	60	Silty clay, dark gray, leached, friable.
Pennsylvanian	Desmoinesian		Carbondale Formation		456	12	Weathered Shale.

Core 508

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		116	116	Clayey silt, brown to reddish-yellow, leached zones interbedded with calcareous zones, iron concretions few, few pebbles, some organics.
					134	18	Clayey silt, pebbly, yellowish-brown to brown, leached, massive to blocky, iron stains and concretions few; (Till).
					192	58	Clayey silt grading into silt, yellowish-brown to dark brown, leached upper part, blocky to platy, iron stains few.
	Pleistocene	Wisconsinan	Peoria Loess		201	9	A zone missing; B zone, clayey silt, brownish-yellow, leached, blocky to platy, argillans common, silans few, manganese stains common, some organics; (Modern Soil).
					396	195	Silt, yellow to brownish-yellow, calcareous, platy to massive, some organics.
		Illinoian	Glasford Formation	Toulon Member	442	46	Clayey silt, dark brown to yellow, calcareous, platy to massive, faint color banding, few pebbles, iron stains and concretions lower part; (Lacustrine).
					624	182	Sand (fine-coarse), well-sorted, light brown to yellow, slightly calcareous, few pebbles.
				Duncan Mills Member	672	48	Silty clay interbedded with sandy silt, pale brown to dark grayish brown, calcareous, iron stains common; (Lacustrine).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 509

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		45	45	Clayey silt, brownish-yellow, slightly calcareous upper part, leached lower part, blocky, iron stains common, silans few, few pebbles.
	Pleistocene	Wisconsinan	Peoria Loess		87	42	Clayey silt; A zone, dark brown, leached, blocky, argillans few, silans abundant, iron stains common, organics abundant; B zones, brown to yellowish-brown, leached, blocky, iron stains few, argillans abundant, silans common, some organics; (Modern Soil).
					180	93	Silt, brownish-yellow, leached in upper 30 inches, iron stains few.
		Illinoian	Glasford Formation	Radnor Till Member	192	26	Silt, light gray to grayish-brown, leached, weak platy to blocky, iron stains common, silans abundant; (Sangamon Soil).
					252	46	Sand-silt-clay, pebbly, grayish-brown to yellowish-brown, leached, some secondary carbonates, blocky, argillans few, silans common upper part, argillans abundant, silans few lower part, some organics; (Sangamon Soil).
					267	15	Silt, light brownish-gray, leached, massive, iron stains common, few pebbles.
					294	27	Sandy silt, pebbly, pale olive, slightly calcareous, massive, blocky, iron stains few.
				Toulon Member	309	15	Marl, white, very calcareous, massive to blocky, iron stains common, abundant broken snail and mollusk shells, faint laminations; (Lacustrine).
					320	11	Clayey silt, pale yellow to light brownish-gray, calcareous, blocky, iron stains common, few pebbles.
					501	181	Pebbly silty sand, light yellowish-brown, calcareous, poorly sorted.
				Hulick Till Member	522	21	Sand-silt-clay, pebbly, gray, calcareous, massive.

Core 510

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		84	84	Clayey silt, yellowish-brown, leached, blocky, argillans and silans abundant, iron stains few, some pebbles and organics.
	Pleistocene	Wisconsinan	Peoria Loess		117	33	Silt, yellowish-brown to light gray, slightly calcareous, massive, iron stains abundant.
			Roxana Silt		144	27	Silt, brown to light gray, leached, massive to granular, iron stains and concretions common, some organics.
		Illinoian	Glasford Formation	Radnor Till Member	173	29	Clayey silt, brown to yellowish-brown, leached, some secondary carbonates, granular, argillans few, silans abundant, iron stains common, some organics; (Sangamon Soil).
					221	48	Sand-silt-clay, pebbly, yellowish-brown to dark brown, leached, blocky, argillans and silans abundant upper part, few towards base, iron stains few upper part, abundant towards base; (Sangamon Soil).
				Toulon Member	303	82	Pebbly silty sand, yellowish-brown, moderately well-sorted, leached, abundant iron stains upper 4 feet, some pieces of coal, 2 inch silt layer.
					458	155	Silty sand interbedded with silt, pale yellow to light gray, leached upper 6 feet, pebbles increase towards base, iron stains few, some pieces of coal.
				Hulick Till Member	516	58	Clayey silt, gray, calcareous, massive.
					549	33	Silty clay, pebbly, gray, calcareous, massive, abundant pieces of shale.
Pennsylvanian	Desmoinesian		Carbondale Formation		624	75	Coal, black, leached, some silt.
					636	12	Silty clay, gray, calcareous, massive.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 511

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Silt		114	114	Clayey silt; A zone, grayish-brown, leached, platy to granular, silans abundant; B zones, pale brown to brownish-yellow, leached, blocky to weak platy, argillans abundant upper part, common lower part, silans few; (Modern Soil).
					192	78	Clayey silt grading into silt, pale yellow to pale brown, color-banded, calcareous, massive, iron stains lower part.
			Roxana Silt		252	60	Silt, pale brown, slightly calcareous, granular to massive, iron stains common towards base.
		Sangamonian	Glasford Formation	Berry Clay Member	312	60	Silty clay, grayish-brown to gray, leached, granular to massive; (Sangamon Soil).
		Illinoian		Radnor Till Member	360	48	Silty clay grading into clayey silt, pebbly, light yellowish-brown, leached, massive, iron stains abundant.
				Toulon Member	408	48	Sand-silt-clay, light-gray, calcareous, massive, iron stains common, abundant snail and mollusk shells; (Lacustrine).
					428	20	Clayey silt, dark gray to light gray, calcareous, massive to platy, iron stains common, abundant snail and mollusk shells, decreasing towards base; (Lacustrine).
					492	64	Silty sand grading into sand, moderately well-sorted, brownish-yellow, calcareous, iron stains abundant upper part, pebbly zone middle, bottom part sand (fine-medium), well-sorted.
				Hulick Till Member	528	36	Clayey silt; pebbly dark gray, slightly calcareous, platy, abundant pieces of coal, pebble layer at top in contact with sand.

Core 512

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		63	63	Clayey silt; A zone, pale brown, leached, abundant organics; B zones, very pale brown to yellowish-brown, leached, blocky, argillans and silans common upper part, abundant lower part, some organics; (Modern Soil).
					144	81	Silty sand (fine-medium), well-sorted, light olive-brown to yellowish-brown, leached, massive, color-banded, iron stains common lower part; (Sand Dune).
					264	120	Silt to clayey silt, light gray to light brownish-gray, calcareous, massive, iron stains few, snail shells few.
			Glasford Formation	Toulon Member	270	6	Clayey silt, abundant pebbles and cobbles, yellowish-brown, calcareous, iron stains common.
					282	12	Silty clay, gray, leached, massive.
					288	6	Coal, black, leached.
					312	24	Pebbly silty sand (fine-coarse), brownish-tan, calcareous, large pieces of shale towards bottom.
Pennsylvanian	Desmoinesian		Carbondale Formation		348	36	Siltstone, light gray, slightly calcareous, abundant mica flakes; (Weathered).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 513

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		21	21	Clayey silt, dark grayish-brown to brownish-yellow, slightly calcareous, platy to blocky, abundant organics in upper part.
		Wisconsinan	Peoria Loess		67	46	Clayey silt; A zone, dark-brown, leached, iron stains and silans abundant, some organics; B zone, yellowish-brown to light olive-brown, leached, blocky, iron stains few, argillans abundant, silans common; (Modern Soil).
					311	244	Silt, light brownish-gray to olive-yellow, calcareous, massive, iron stains common, iron concretions few.
				Toulon Member	388	77	Silt and clayey silt interbedded with silty clay, light-brownish-gray to grayish-brown, calcareous, massive, iron stains common, few pebbly zones, individual layers vary between 1 and 17 inches in thickness.
				Hulick Till Member	474	86	Silty clay, dark grayish-brown to olive-gray, leached, massive, secondary carbonates abundant lower part, iron concretions abundant, few pebbles.
Pennsylvanian	Desmoinesian		Carbondale Formation		486	12	Weathered Shale.

Core 514

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		93	93	Clayey silt; A zone, dark brown, leached, weak platy, argillans few, silans abundant, iron stains few, some organics; B zones, dark brown to yellowish-brown, leached, blocky, argillans abundant, silans few, manganese stains few; (Modern Soil).
					354	261	Silt, brownish-yellow to very pale brown, calcareous, massive, iron stains common, some organics upper part.
		Illinoian	Glasford Formation	Toulon Member	399	45	Clayey silt, pebbly, brownish-yellow to gray, calcareous, massive, iron stains abundant upper part, few lower part; (Lacustrine).
					408	9	Silt intercalated with silty clay, light-brownish-gray to light olive-brown, slightly calcareous, massive to platy, iron stains few, silty clay layers 1/8 to 1½ inches thick, some very thin sand layers, few pebbles; (Lacustrine).
				Hulick Till Member	488	80	Sand-silt-clay, pebbly, grayish-brown, calcareous, massive, iron stains few, 3 inch clayey silt layer, some pieces of charcoal.
					516	28	Silty clay, olive to light olive-gray, calcareous, massive to blocky, secondary carbonates abundant, few pebbles.
Pennsylvanian	Desmoinesian		Carbondale Formation		528	12	Weathered Shale.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 515

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		92	92	Clayey silt; A zone, brown, leached, weak platy to blocky, argillans few, silans abundant, some organics; B zones, brown to brownish-yellow, leached, blocky, argillans abundant, silans few, iron stains common, manganese stains few; (Modern Soil).
					360	268	Silt, brownish-yellow to light yellowish-brown, calcareous, weak-platy to massive, iron stains abundant upper part, few towards base, snail shells few.
		Illinoian	Glasford Formation	Toulon Member	456	96	Silty sand, light olive-brown to light yellowish-brown, calcareous, iron stains abundant, pebbles abundant upper 3 feet decreasing towards base.
				Hulick Till Member	480	24	Silty clay, olive-gray, leached upper 2 feet, massive to weak platy, iron stains and concretions abundant upper 2 feet pebbles few.
Pennsylvanian	Desmoinesian		Carbondale Formation		492	12	Weathered Shale.

Core 516

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		64	64	Clayey silt, yellowish-brown, leached, blocky, argillans abundant, silans few, some organics; (Modern Soil).
					342	278	Silt, pale yellow to olive-yellow, calcareous, massive, iron stains few, few small sandy zones and snail shells.
		Illinoian	Glasford Formation	Toulon Member	355	13	Pebbly clayey silt, olive-yellow, slightly calcareous, iron stains common.
					432	77	Pebbly sand (medium-coarse), well-sorted reddish-brown to brown, calcareous, iron stains common.
					438	6	Silty clay, olive-gray, calcareous, massive; (Lacustrine).
					444	6	Silt, pale brown, slightly calcareous, massive; (Lacustrine).
					450	6	Clayey silt intercalated with silt, pale yellow to grayish-brown, calcareous, platy, iron concretions few; (Lacustrine Rhythmites).
					456	6	Silt, grayish-brown, calcareous, massive; (Lacustrine).
					492	36	Clayey silt intercalated with silt, dark grayish-brown to light gray, calcareous, platy; (Lacustrine Rhythmites).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 517

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Cahokia Alluvium		36	36	Clayey silt, brownish-yellow, calcareous, platy to massive, some organics.
	Pleistocene	Wisconsinan	Peoria Loess		118	82	Clayey silt; A zone, dark grayish-brown, leached, granular to massive, iron stains common, silans few, some organics; B zone, yellowish-brown to light brownish-gray, leached, blocky, argillans abundant, iron stains few, some organics; (Modern Soil).
					288	170	Sandy silt, light yellowish-brown to grayish-brown, calcareous, massive to platy.
		Illinoian	Glasford Formation	Toulon Member	336	48	Pebbly silt sand, brownish-yellow, calcareous, cobbles few.
				Hulick Till Member	420	84	Clayey silt, pebbly, grayish-brown, calcareous, massive.

Core 518

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Cahokia Alluvium		26	26	Sandy silt, pale yellow to yellowish-brown, slightly calcareous upper 10 inches, leached lower part, blocky, silans common, few pebbles and brick fragments.
	Pleistocene	Wisconsinan	Peoria Loess		111	80	Clayey silt; A zone, brown, leached, silans few, some organics; B_2 zone, clayey silt, yellowish-brown, leached, blocky, argillans abundant, some organics; B_3 zone, sandy silt, yellowish-brown, leached, weak blocky to weak platy, argillans few, silans common, iron stains few, faint color banding; (Modern Soil).
					141	33	Silty sand, pale brown to brownish-yellow, leached, weak platy to weak blocky, silans few, iron stains few, faint color banding; (Sand Dune).
					250	109	Silt, light yellowish-brown to pale brown, calcareous, massive to platy, iron stains few, color-banded, some twigs and organics upper zone.
		Illinoian	Glasford Formation	Toulon Member	324	74	Sandy silt grading into pebbly sand, light yellowish-brown, calcareous, massive, faint color banding.
				Duncan Mills Member	690	366	Silty clay intercalated with silt, pale brown to dark-brown, calcareous, platy to massive, some pebbly zones, a few sandy silt layers; (Lacustrine Rhythmites).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 519

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		210	210	Clayey silt interbedded with silt, dark yellowish-brown to light olive-brown, calcareous, blocky to platy to massive, argillans few, some pebbles.
	Pleistocene	Wisconsinan	Peoria Loess		233	23	Silt, brownish-yellow to light brownish-gray, calcareous, platy to massive, snail shells and pebbles few.
		Illinoian	Glasford Formation	Toulon Member	237	4	Clayey silt, grayish-green, slightly calcareous, massive, abundant pebbles.
					252	15	Silt, gray to grayish-brown, calcareous, massive to weak platy, faint color banding, some organics and shell fragments bottom 6 inches.
					267	15	Sandy silt grading into silty sand (fine-medium), pebbly, light brownish-gray to reddish-brown, calcareous, massive, iron stains few, shell fragments few.
				Hulick Till Member	285	18	Clayey silt, pebbly, grayish-brown, calcareous, massive, shale and coal fragments abundant.
					294	9	Silt, light yellowish-brown, calcareous, massive.
					315	21	Clayey silt interbedded with silt and sandy silt, grayish-brown to light gray, calcareous, till layers average 4 inches thick, massive, pebbles abundant.
					459	144	Clayey silt, pebbly, dark grayish-brown to gray, calcareous, massive.
				Duncan Mills Member	492	33	Silty clay, light gray to dark gray, calcareous, massive; (Lacustrine).

Core 520

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		102	102	Clayey silt interbedded with silt and silty clay, brownish-yellow to dark brown, calcareous, blocky to weak platy.
					120	18	Clayey silt, pebbly, dark gray to grayish-brown, calcareous, blocky; (Till).
	Pleistocene	Wisconsinan	Peoria Loess		350	230	Clayey silt grading into silt, brownish-yellow to light brownish-gray, calcareous, platy to massive, iron stains few, color-banded, snail shells upper part.
		Illinoian	Glasford Formation	Toulon Member	384	34	Silt, pebbly, grayish-brown, calcareous, massive, pebbles increase towards base.
					396	12	Sand-silt-clay, pebbly, light brownish-gray, calcareous, massive, iron stains common.
				Hulick Till Member	558	162	Sandy silt to clayey silt, pebbly, dark grayish-brown to yellowish-brown, calcareous, massive, iron stains few, abundant shale fragments.
				Duncan Mills Member	561	3	Silty clay interbedded with very thin silt layers, dark brown, calcareous, platy; (Lacustrine).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 521

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		95	95	Clayey silt, brownish-yellow to yellow, leached bottom 8 inches, blocky to massive, some organics upper 3 inches.
	Pleistocene	Wisconsinan	Peoria Loess		174	79	Clayey silt; A zone, dark grayish-brown to pale-brown, leached, weak platy to blocky, silans common, abundant organics; B zones, dark yellowish-brown to brown, leached, secondary carbonates few, blocky to massive, argillans common, iron stains common; (Modern Soil).
					355	181	Silt, light olive-brown to grayish-brown, calcareous, platy to massive, faint color banding.
		Illinoian	Glasford Formation	Toulon Member	386	31	Silt, grayish-brown, calcareous, massive, some pieces of wood.
					422	36	Sand-silt-clay, pebbly, light olive-brown, calcareous, weak platy to massive, some pieces of charcoal.
					475	53	Sand (medium-coarse), tan to white, well-sorted, calcareous, iron stains few, pebbles few.
				Hulick Till Member	481	6	Sand-silt-clay, pebbly, light yellowish-brown, calcareous, massive.

Core 522

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		36	36	Clayey silt, light olive brown to yellowish-brown, slightly calcareous, iron stains few.
					72	36	Clayey silt, pebbly, pale yellow, calcareous, massive, shale fragments abundant; (Till).
					84	12	Silt, pale yellow, calcareous, platy.
					108	24	Clayey silt, dark yellowish-brown, leached, argillans abundant.
					144	36	Clayey silt, pebbly, light olive-brown to light yellowish-brown, calcareous; (Till).
					279	135	Clayey silt, brownish-yellow to dark yellowish-brown, calcareous, blocky to massive, argillans common, silans and iron stains few.
	Pleistocene	Wisconsinan	Peoria Loess		380	101	Clayey silt; A zone, dark gray, to grayish-brown, leached, blocky to granular, organics abundant, pebbles few; B zones, yellowish-brown, leached, blocky, argillans common, silans common upper 6 inches, iron stains few; (Modern Soil).
		Sangamonian	Glasford Formation	Berry Clay Member	418	38	Silt, olive-yellow to light olive-brown, calcareous, platy to massive, some broken snail shells upper part.
					437	19	Clayey silt, dark yellowish-brown to light olive-brown, leached, slightly calcareous lower 10 inches, argillans common; (Sangamon Soil).
		Illinoian		Toulon Member	444	7	Clayey silt, light olive-brown, calcareous, weak platy to massive, broken mollusk and snail shells abundant; (Lacustrine).
					463	19	Marl, light gray to light brownish-gray, very calcareous, massive, color-banded, broken mollusk and snail shells abundant; (Lacustrine).
					654	191	Sand-silt-clay grading into silty sand, pebbly, light yellowish-brown to light gray, calcareous, iron stains few.
				Hulick Till Member	678	24	Clayey silt, pebbly, gray, calcareous, massive.
					690	12	Silt, light brownish-gray, calcareous, massive, contains 1/4 inch thick charcoal layer.
					720	30	Clayey silt, pebbly, gray, calcareous, massive.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 523

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		54	54	Clayey silt, pale yellow to brownish-yellow, calcareous, blocky to massive, argillans and silans few, pebbles few.
	Pleistocene	Wisconsinan	Peoria Loess		144	90	Clayey silt; A zone missing; B zones, dark yellowish-brown to brownish-yellow, leached, blocky, argillans common, silans few, some organics upper 1 foot; (Modern Soil).
					286	142	Silt, brownish-yellow, calcareous, weak platy to massive, iron concretions few, few small silty clay zones.
		Illinoian	Glasford Formation	Hulick Till Member	319	33	Sand-silt-clay, pebbly, yellowish-brown, calcareous, massive, iron stains few.
					330	11	Silty clay interbedded with silty sand, light yellowish-brown, calcareous, massive.
					353	23	Sand-silt-clay, pebbly, yellowish-brown to dark grayish-brown, calcareous, massive, iron stains and concretions few, contains a large piece of weathered shale.
Pennsylvanian	Desmoinesian		Carbondale Formation		384	31	Silty clay, dark gray, leached, massive to weak platy; (Weathered Shale).

Core 524

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		67	67	Clayey silt; A zones, light yellowish-brown, leached, blocky to granular, silans common, organics abundant; B zones, brown to brownish-yellow, leached, blocky, argillans common, silans few, some organics and worm burrows; (Modern Soil).
					160	93	Silt, light gray to light brownish-gray, faint color banding, calcareous, massive, iron stains and concretions few.
		Illinoian	Glasford Formation	Toulon Member	264	104	Silt, light gray to light brownish-gray, calcareous, massive, iron stains few, dark-gray organics abundant; (Lacustrine).
					282	18	Sand-silt-clay, pebbly, light gray, calcareous, massive, abundant organics.
					288	6	Silt interbedded with clayey sand, dark gray to pale yellow, calcareous, massive, some pieces of charcoal.
					307	19	Sandy silt grading into silty sand, pebbly, pale yellow to gray, calcareous, iron stains few, abundant pieces of charcoal.
					324	17	Silt interbedded with sandy silt, pale brown to gray, calcareous, massive, iron stains few, organics and snail shells few.
					342	18	Silt, light yellowish-brown to dark gray, calcareous, massive, iron stains few, abundant organics, faint color banding; (Lacustrine).
				Hulick Till Member	360	18	Sand-silt-clay, pebbly, dark gray, calcareous, massive, abundant pieces of charcoal.
Pennsylvanian	Desmoinesian		Carbondale Formation		384	24	Silty clay top 18 inches grading into siltstone bottom 6 inches, dark reddish-brown to light gray, slightly calcareous, abundant mica flakes in siltstone; (Weathered Shale and Siltstone).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 525

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Cahokia Alluvium		36	36	Clayey silt, dark brown to yellowish-brown, leached, granular to blocky, argillans common, silans abundant, abundant organics.
	Pleistocene	Wisconsinan	Peoria Loess		111	75	Clayey silt; A zone, very dark-gray to grayish-brown, leached, granular to blocky, silans abundant, some organics; B zones, light gray, leached, blocky, argillans abundant, silans few, iron stains common; (Modern Soil).
					144	33	Silt to clayey silt, light olive-gray, slightly calcareous, massive, iron stains common, few 1 to 2 inch sandy zones.
		Illinoian	Glasford Formation	Toulon Member	169	25	Clayey silt, gray, very calcareous, massive, iron stains and broken snail and mollusk shells upper 5 inches, clayey silt intercalated with silty sand middle part, some snail and mollusk shells bottom part; (Lacustrine).
					258	89	Pebbly sand (fine-coarse), well-sorted grading into pebbly sandy silt, light gray to dark gray, calcareous, iron stains abundant upper part.

Core 526

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		92	92	Clayey silt; A zone, dark brown, leached, platy, silans and organics abundant; B zones, brown to yellowish-brown, leached, blocky, argillans and silans abundant, iron stains few; (Modern Soil).
					204	112	Silt, brownish-yellow to pale yellow, calcareous, weak platy, some secondary carbonates upper part.
Pennsylvanian	Desmoinesian		Carbondale Formation		272	68	Clayey silt, pale olive, leached, weak platy to blocky, iron stains common; (Weathered Shale).

Core 527

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		84	84	Clayey silt; A zone, pale-yellow to pale-brown, leached, massive to granular; B zones, yellowish-brown, leached blocky to platy, argillans and silans abundant, some organics and worm burrows, iron stains few; (Modern Soil).
					256	172	Silt, brownish-yellow to light-yellowish-brown, calcareous, platy, iron stains common, iron concretions few.
		Illinoian	Glasford Formation	Toulon Member	271	15	Silty sand, pebbly, light-olive-brown, calcareous, massive to platy.
					288	17	Silt, light-olive-brown, calcareous, massive.
				Hulick Till Member	348	60	Silty clay, pebbly, grayish-brown, slightly calcareous, massive, iron stains few.
Pennsylvanian	Desmoinesian		Carbondale Formation		354	6	Silty clay, very-dark-gray, leached, massive, ½ inch siltstone layer at top; (Weathered Shale).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 528

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		49	49	Clayey silt, pale yellow to light brownish-gray, calcareous, blocky, argillans common, silans few.
	Pleistocene	Wisconsinan	Peoria Loess		110	61	Clayey silt; A zone, light brownish-gray to dark grayish-brown, leached, granular to weak blocky, abundant organics; B zones, yellowish-brown, leached, blocky, argillans common, silans few, iron stains common; (Modern Soil).
					136	26	Silt, pale yellow, calcareous, platy.
		Illinoian	Glasford Formation	Toulon Member	222	86	Pebbly silty sand, brownish-yellow to pale yellow, calcareous, iron stains few, poorly-sorted.
				Hulick Till Member	234	12	Sand-silt-clay, pebbly, light yellowish-brown, calcareous, massive, iron and manganese stains common, argillans common.
					240	6	Charcoal, black.
					294	54	Silt to clayey silt, pale yellow, calcareous, massive, silans and iron stains abundant, coal fragments few lower part.
					336	42	Sand-silt-clay, pebbly, gray to light gray, calcareous, massive, iron stains few, 4 inch silt layer.
				Duncan Mills Member	374	38	Pebbly silty sand (fine-coarse), brownish-yellow to light olive-brown, calcareous, moderately well-sorted.
Pennsylvanian	Desmoinesian		Carbondale Formation		378	4	Silty clay, dark gray, leached weak platy, iron stains few; (Weathered Shale).

Core 529

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		127	127	Clayey silt, pale yellow to light gray, calcareous, platy to blocky to massive, iron stains and concretions common, argillans and silans common, organics abundant, pebbles abundant upper 4 feet.
	Pleistocene	Wisconsinan	Peoria Loess		193	66	Clayey silt; A zone, grayish-brown to very pale-brown, leached, granular, argillans few, silans common, iron stains and organics abundant; B zones, yellowish-brown to brownish-yellow, leached, blocky to massive, argillans abundant; (Modern Soil).
					212	19	Clayey silt, light yellowish-brown to yellow, leached, massive, argillans common, iron stains few.
		Illinoian	Glasford Formation	Toulon Member	252	40	Silt, light gray, calcareous, granular to massive, silans and iron stains common, some secondary carbonates and organics; (Lacustrine).
					378	126	Pebbly silty sand (fine-coarse), brownish-yellow to pale yellow, calcareous, iron stains few, moderately well-sorted, some pieces of coal, few silty zones, no pebbles bottom 4 feet.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 530

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		6	6	Clayey silt, yellowish-brown, slightly calcareous, granular.
	Pleistocene	Wisconsinan	Peoria Loess		30	24	Clayey silt; A zone missing; B zone, yellowish-brown, leached, granular to blocky, argillans common, silans few, some organics; (Modern Soil).
					148	118	Silt, brownish-yellow to light gray, blocky to granular, calcareous, iron stains abundant lower part.
			Roxana Silt		210	62	Silt, pale brown to brown, leached, granular to blocky, silans few, iron stains common.
		Illinoian	Glasford Formation	Toulon Member	260	50	Clayey silt, grayish-brown to yellowish-brown, leached, some secondary carbonates, blocky, argillans abundant, silans few, iron stains common; (Sangamon Soil).
					288	28	Sand-silt-clay, pebbly, brown to brownish-yellow, leached, blocky, argillans abundant, silans few, iron and manganese stains abundant upper part; (Sangamon Soil).
					378	90	Clayey silt, brownish-yellow, leached, silans few, iron and manganese stains few.
					396	18	Silt, pale yellow to yellow, calcareous, some cross-bedding.
					432	36	Clayey silt, yellow to brownish-yellow, calcareous, weak blocky, argillans few, pebbles few.
					582	150	Silty sand (fine-coarse), pebbly, pale brown to yellow, calcareous, well-sorted, majority of sand medium grained.
Pennsylvanian	Desmoinesian		Carbondale Formation		600	18	Silty clay, dark gray, leached, platy; (Weathered Shale).

Core 531

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		29	29	Clayey silt; A zone, brown, leached, blocky to granular, abundant silans and organics; B zone, brownish-yellow, leached, blocky, argillans and silans few, some organics; (Modern Soil).
					312	283	Silt, brownish-yellow to olive-yellow, calcareous, massive, iron stains common, faint color banding, some broken snail shells towards bottom.
		Illinoian	Glasford Formation	Toulon Member	324	12	Silt, light brownish-gray, slightly calcareous, weak platy, iron stains few, abundant mica flakes.
					360	36	Silt, calcareous, massive, iron stains few, some organics and coal fragments (Lacustrine Rhythmites).
					388	28	Clayey silt, light brownish-gray to gray, calcareous, massive, abundant organics, iron stains few, few pebbly zones; (Lacustrine).
				Hulick Till Member	391	3	Silty clay, pebbly, slightly calcareous, massive, iron stains few.
Pennsylvanian	Desmoinesian		Carbondale Formation		432	41	Silty clay, dark gray, leached, massive, fissile, iron stains few; (Weathered Shale).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 532

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		51	51	Clayey silt; A zone, brown, leached, platy, argillans and silans few, iron and manganese stains few; B zones, yellowish-brown, leached, blocky, argillans common, silans and manganese stains few, some organics; (Modern Soil).
					308	257	Silt, brownish-yellow to pale yellow, calcareous, top, slightly calcareous towards base, blocky to weak platy, iron stains abundant, few broken snail shells upper part.
			Roxana Silt		324	16	Silt, light brown to pale brown, leached, massive, iron stains abundant.
		Sangamonian	Glasford Formation	Berry Clay Member	336	12	Clayey silt, light brownish gray, leached, blocky, silans common, iron stans abundant; (Sanganmon Soil).
					410	74	Silty clay, dark brown to gray, leached, blocky to massive, argillans abundant, silans few, iron stains abundant, pebbles few; (Sangamon Soil).
		Illinoian		Toulon Member	442	32	Sand-silt-clay, light brownish-gray, to olive-gray, slightly calcareous top, very calcareous towards base, massive, iron stains abundant top, few towards base, mollusk and snail shells few at top, abundant towards base; (Lacustrine).
					477	35	Clayey silt grading into marl, light gray to white, very calcareous, massive, iron stains abundant, abundant mollusk and snail shells, pebbles few upper zone; (Lacustrine).
					545	68	Pebbly silty sand (fine-coarse), yellowish-brown, calcareous, moderately well-sorted.
					559	14	Silt, light gray, calcareous, massive to weak platy, iron stains few, faint laminations towards base.

Core 533

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		36	36	Silty clay, dark yellowish-brown, leached, massive to blocky, manganese stains and concretions few, some roots and twigs.
					108	72	Silt, olive-yellow, calcareous, weak platy, iron stains common.
	Pleistocene	Wisconsinan	Peoria Loess		210	102	Silt, light olive-brown to light yellowish-brown, calcareous, iron stains abundant upper part, few towards bottom.
		Illinoian	Glasford Formation	Hulick Till Member	240	30	Sand-silt-clay, pebbly, brown to yellowish-brown, calcareous, massive, iron stains common, sandy upper part.
					258	18	Pebbly silty sand, strong brown, calcareous, iron stains abundant, poorly-sorted.
					310	52	Sand-silt-clay to clayey silt, pebbly, brown to olive-gray, calcareous, massive, iron stains abundant, pieces of shale common, 2 inch pebbly silty sand layer.
					334	24	Silty sand, olive to yellowish-brown, calcareous, iron stains abundant, fairly well-sorted lower 10 inches, few pebbles upper part.
					362	28	Sand-silt-clay, pebbly, olive-gray to dark gray, calcareous, massive, 1 inch silty sand layer.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 534

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		72	72	Clayey silt; dark brown to light brown, leached, massive to blocky, argillans and silans abundant, iron stains common, abundant organics; (Modern Soil).
					192	120	Silt, yellowish-brown to brownish-gray, calcareous, massive, iron stains few upper part.
		Illinoian	Glasford Formation	Toulon Member	228	36	Silt intercalated with silty sand, light greenish-gray, calcareous, massive, iron stains few; (Lacustrine).
					246	18	Pebbly silty sand, reddish-brown, calcareous, iron stains common.
				Hulick Till Member	300	54	Sand-silt-clay, pebbly, gray, calcareous, shale fragments common.

Core 535

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		27	27	Clayey silt, yellowish-brown, calcareous, weak platy.
	Pleistocene	Wisconsinan	Peoria Loess		132	105	Clayey silt; A zone, brown to dark grayish-brown, weak granular, leached, iron stains and silans few, some organics; B zone, silt, yellowish-brown, leached, blocky, argillans abundant, manganese concretions few, some organics; (Modern Soil).
					194	62	Silt, brownish-yellow to yellow, calcareous, platy to massive.
		Illinoian	Glasford Formation	Toulon Member	214	20	Silt intercalated with clayey silt, pale yellow to olive-yellow, calcareous, massive, laminated, (Lacustrine).
					234	20	Silt intercalated with clayey silt, very pale brown to brown, calcareous, laminated, pebbles few, contains a 2 inch silty clay layer; (Lacustrine).
					258	24	Silt intercalated with clayey silt, light olive-brown to light yellowish-brown, calcareous, iron stains and concretions few, pebbles common, contains some silty sand layers; (Lacustrine).
					270	12	Clayey silt, light yellowish-brown, calcareous, iron stains and concretions abundant.
					336	66	Pebbly silt sand, dark brown to reddish-brown, calcareous, iron stains common, iron concretions abundant, some cobbles.
					360	24	Silt, yellowish-brown, calcareous, pebbles common.
				Hulick Till Member	396	36	Silty clay, pebbly, gray, calcareous, pieces of shale common.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 536

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		52	52	Silt, some sand.
	Pleistocene	Wisconsinan	Peoria Loess		236	184	Silt, clayey silt, A, B, C, soil horizons developed in upper 128 inches, blocky, silans common in upper horizons, some sand layers, calcareous near base.
		Illinoian	Glasford Formation	Toulon Member	354	118	Silt, silty sand, grading into sand, pebbly sand. Pebbles and cobbles at base.
				Hulick Till Member	399	45	Silty clay, some sand and pebbles dark gray-brown.
					414	15	Clay, clay-silt layers, calcareous.

Core 537

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		36	36	Clayey silt, pebbly, yellowish-brown to grayish-brown, calcareous, weak platy, some organics upper 2 feet.
	Pleistocene	Illinoian	Glasford Formation	Radnor Till Member	258	222	Clayey silt, pebbly, calcareous, massive, few argillans upper 10 feet, iron stains common, some pieces of coal, few small clay and sand lenses.
				Toulon Member	360	102	Sand (fine-coarse), pebbly upper 3 feet, pale yellow to yellowish-brown, calcareous, majority of sand medium-grained.
				Hulick Till Member	408	48	Sand-silt-clay, pebbly, yellowish-brown, calcareous, massive, iron stains common.

Core 538

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		180	180	Clayey silt; B zones, light olive-brown to olive-gray, leached, massive to blocky, argillans and silans abundant, iron and manganese stains abundant, abundant organics, extremely mottled; (Modern Soil).
					312	132	Silt, light brownish-gray to gray, calcareous, massive, iron stains abundant and manganese stains common upper part.
		Illinoian	Glasford Formation	Toulon Member	324	12	Pebbly silty sand, light brownish-gray, massive, calcareous.
				Duncan Mills Member	504	180	Clay intercalated with silt and clayey silt, gray, calcareous, massive to platy, layers extremely folded and faulted upper nine feet, some small scale crossbedding lower part, some coal fragments; (Lacustrine Rhythmites).
					582	78	Clayey silt intercalated with silt, gray to light gray, calcareous, platy, abundant coal fragments, some shell fragments and small scale crossbedding, (Lacustrine Rhythmites).
					612	30	Clay intercalated with silt, dark grayish-brown to light brownish-gray; calcareous, platy; (Lacustrine Rhythmites).
					648	36	Silt grading to clayey silt, pebbly, grayish-brown to light brownish-gray, calcareous, massive to platy, some shell fragments, slightly mottled; (Lacustrine).
					690	42	Silty clay, pebbly, dark gray to weak red, calcareous, massive, iron stains abundant, extremely mottled, siltstone and shale pebbles abundant.
Pennsylvanian	Desmoinesian	Carbondale Formation			723	33	Clay, dark reddish-gray to greenish-gray, massive to platy, mottled, some siltstone and shale pebbles; (Weathered Shale).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 543

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		360	360	Silt to clayey silt.
	Pleistocene	Wisconsinan	Peoria Loess		492	132	Silt to clayey silt, grayish-brown to brownish-yellow, calcareous, massive, iron stains few.
		Illinoian	Glasford Formation	Toulon Member	590	98	Sand (fine-coarse), well-sorted, brownish-yellow, calcareous, lower 6 inches dark gray and moderately well-sorted.
				Hulick Till Member	678	88	Clayey silt, pebbly, brownish-yellow to gray, calcareous, massive, iron stains abundant upper six inches, gray shale abundant.
				Duncan Mills Member	840	162	Clayey silt intercalated with silt and clay, gray to dark gray, calcareous, platy to massive, some pebbly sand-silt-clay layers, upper seven feet extremely folded and faulted, some shell fragments, massive with less layers in lower four feet; (Lacustrine Rhythmites).
					864	24	Silty clay, pebbly, dark grayish-brown to greenish-gray, massive, abundant clay skins, iron stains few, extremely mottled, some secondary carbonates.
Pennsylvanian	Desmoinesian		Carbondale Formation		894	30	Clay, greenish-gray, massive, iron stains common, some shale fragments lower part; (Weathered Shale).

Core 544

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		102	102	Clayey silt interbedded with silt and silty clay, brownish-yellow to dark-brown, calcareous, blocky to weak platy.
					120	18	Clayey silt, pebbly, dark gray to grayish-brown, calcareous, blocky; (Till).
	Pleistocene	Wisconsinan	Peoria Loess		350	230	Clayey silt grading into silt, brownish-yellow to light brownish-gray, calcareous, platy to massive iron stains few, color-banded, snail shells upper part.
		Illinoian	Glasford Formation	Toulon Member	384	34	Silt, pebbly, grayish-brown, calcareous, massive, pebbles increase towards base.
					396	12	Sand-silt-clay, pebbly, light brownish-gray, calcareous, massive, iron stains common.
				Hulick Till Member	510	114	Sandy silt to clayey silt, pebbly, dark grayish-brown to yellowish-brown, calcareous, massive, iron stains abundant, abundant shale fragments.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 545

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		102	102	Clayey silt interbedded with silt and silty clay, brownish-yellow to dark brown, calcareous, blocky, to weak platy.
					120	18	Clayey silt, pebbly, dark gray to grayish-brown, calcareous, blocky; (Till).
	Pleistocene	Wisconsinan	Peoria Loess		350	230	Clayey silt grading into silt, brownish-yellow to light brownish-gray, calcareous, platy to massive, iron stains few, color-banded, snail shells upper part.
		Illinoian	Glasford Formation	Toulon Member	384	34	Silt, pebbly, grayish-brown, calcareous, massive, pebbles increase towards base.
					396	12	Sand-silt-clay, pebbly, light brownish-gray, calcareous, massive, iron stains common.
				Hulick Till Member	576	180	Silty clay to clayey silt, pebbly, dark grayish-brown to yellowish-brown, calcareous, massive, iron stains few, abundant shale fragments, few sandy silt layers.
				Duncan Mills Member	624	48	Silty clay intercalated with silt, dark gray to light brownish-gray, calcareous, platy, few pebbly layers, few coal fragments; (Lacustrine Rhythmites).

Core 546

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		45	45	Clayey silt, brownish-yellow, slightly calcareous upper part, leached lower part, blocky, iron stains common, silans few, few pebbles.
	Pleistocene	Wisconsinan	Peoria Loess		87	42	Clayey silt; A zone, dark brown, leached, blocky, argillans few, silans abundant, iron stains common, organics abundant; B zones, brown to yellowish-brown, leached, blocky, iron stains few, argillan abundant, silans common, some organics; (Modern Soil).
					180	93	Silt, brownish-yellow, leached in upper 30 inches, iron stains few.
		Illinoian	Glasford Formation	Radnor Till Member	206	26	Silt, light gray to grayish-brown, leached, weak platy to blocky, iron stains common, silans abundant; (Sanganmon Soil).
					252	46	Sand-silt-clay, pebbly, grayish-brown to yellowish-brown, leached, some secondary carbonates, blocky, argillans few, silans common upper part, argillans abundant, silans few lower part, some organics; (Sangamon Soil).
					267	15	Silt, light brownish-gray, leached, massive, iron stains common, few pebbles.
					312	45	Sandy silt, pebbly, pale olive, slightly calcareous, massive, blocky, iron stains few.
				Toulon Member	327	15	Marl, white, very calcareous, massive to blocky, iron stains common, abundant broken snail and mollusk shells, faint laminations; (Lacustrine).
					338	11	Clayey silt, pale yellow to light brownish-gray, calcareous, blocky, iron stains common, few pebbles.
					492	154	Pebbly silty sand (fine-coarse), light yellowish-brown, calcareous, poorly-sorted.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 546--Continued

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Illinoian	Glasford Formation	Hulick Till Member	578	86	Sand-silt-clay, pebbly, gray, calcareous, massive, iron stains few, gray shale abundant.
					588	10	Clayey silt, pebbly, gray, calcareous, massive.
					595	7	Silty sand (fine), well-sorted, light brownish-gray, calcareous, iron stains few.
					607	12	Clayey silt, pebbly, gray, calcareous, massive, abundant coal fragments.
					648	41	Sand-silt-clay, pebbly, gray to dark gray, calcareous, massive, some sand pockets.
					708	60	Clay, olive-gray to weak red, calcareous, massive to platy, extremely mottled.
Pennsylvanian	Desmoinesian		Carbondale Formation		720	12	Weathered shale.

Core 547

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Cahokia Alluvium		36	36	Clayey silt, brownish-yellow, calcareous, platy to massive, some organics.
	Pleistocene	Wisconsinan	Peoria Loess		118	82	Clayey silt; A zone, dark grayish-brown, leached, granular to massive, iron stains common, silans few, some organics; B zone, yellowish-brown to light brownish-gray, leached, blocky, argillans abundant, iron stains few, some organics; (Modern Soil).
					288	170	Silt, light yellowish-brown to grayish-brown, calcareous, massive to platy.
		Illinoian	Glasford Formation	Toulon Member	348	60	Pebbly silty sand intercalated with silt, brownish-yellow, calcareous, massive, cobbles few, some organics.
				Hulick Till Member	492	144	Clayey silt, pebbly, grayish-brown to dark gray, calcareous, massive, shale abundant.
				Duncan Mills Member	540	48	Clayey silt intercalated with silt and clay, gray to dark gray, calcareous, platy; (Lacustrine Rhythmites).
					588	48	Clayey silt intercalated with silty sand and clay, pebbly, gray, calcareous, platy, abundant siltstone, shale and coal; (Lacustrine).
					864	276	Clayey silt intercalated with silt and clay, gray, calcareous, platy, few sandy silt and pebbly layers, some coal; (Lacustrine Rhythmites).
					876	12	Clayey silt to silty clay, pebbly, gray to greenish-gray, calcareous, extremely mottled, abundant siltstone, shale and coal.
Pennsylvanian	Desmoinesian		Carbondale Formation		882	6	Silty clay, greenish-gray, massive; (Weathered Shale).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 550

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		27	27	Clayey silt, yellowish-brown, calcareous, weak platy.
	Pleistocene	Wisconsinan	Peoria Loess		132	105	Clayey silt; A zone, brown to dark grayish-brown, granular, leached, iron stains and silans few, some organics; B zone, silt yellowish-brown, leached, blocky, argillans abundant, manganese concretions few, some organics; (Modern Soil).
					216	84	Silt, brownish-yellow to yellow, calcareous, platy to massive.
		Illinoian	Glasford Formation	Toulon Member	236	20	Silt intercalated with clayey silt, pale yellow to olive-yellow, calcareous, massive, laminated; (Lacustrine).
					256	20	Silt intercalated with clayey silt, very pale brown to brown, calcareous, laminated, pebbles few, contains a two inch silty clay layer; (Lacustrine).
					280	24	Silt intercalated with clayey silt, light olive-brown to light yellowish-brown, calcareous, iron stains and concretions few, pebbles common, contains some silty sand layers; (Lacustrine).
					292	12	Pebbly silt, light yellowish-brown, calcareous, iron stains and concretions abundant.
					396	104	Pebbly silty sand, dark brown to reddish-brown, calcareous, iron stains common, iron concretion abundant, some cobbles.
				Hulick Till Member	546	150	Silty clay, pebbly, gray, calcareous, shale common, iron stains few.

				Duncan Mills Member	811	265	Clayey silt intercalated with silt and clay, dark gray to dark grayish-brown, calcareous, platy, clay layers increase towards bottom, some small scale crossbedding; (Lacustrine Rhythmites).
					1,020	209	Clayey silt intercalated with silt, clay and sand-silt-clay, dark grayish-brown, calcareous, platy, iron stains few, pebbly layers with siltstone, shale and coal abundant, some small scale cross-bedding, some shell fragments; (Lacustrine Rhythmites).
Pennsylvanian	Desmoinesian		Carbondale Formation		1,023	3	Siltstone, greenish-gray, calcareous, platy to massive, iron stains common; (Weathered Siltstone).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 552

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Cahokia Alluvium		24	24	Clayey silt, brown to brownish-yellow, calcareous, massive to granular, silans abundant, iron stains abundant, mottled, abundant organics.
	Pleistocene	Wisconsinan	Peoria Loess		90	66	Clayey silt; A zones, black, granular, leached, silans common, abundant organics; B zones, dark brown to light olive-brown, leached, massive to blocky, argillans abundant, iron and manganese stains abundant, mottled, some secondary carbonates lower part; (Modern Soil).
					121	31	Silt to clayey silt, brownish-yellow, calcareous, massive to platy, silans common, iron stains abundant, manganese stains few, extremely mottled.
					123	2	Silty sand, pale yellow, calcareous, massive, silans common, iron stains abundant.
Pennsylvanian	Desmoinesian		Carbondale Formation		408	285	Clay, dark gray, massive to platy, iron stains common upper part, two inch coal seam at 198 inches, some carbonaceous plant fossils and clusters of euhedral pyrite crystals; (Weathered Shale).
					412	4	Siltstone, light gray, massive, calcareous, abundant micas.
					480	68	Shale, dark gray, massive to platy, some siltstone layers.
					483	3	Siltstone, light gray, massive, calcareous, abundant micas.

Core 553

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		210	210	Clayey silt interbedded with silt, dark yellowish-brown to light olive-brown, calcareous, blocky, to platy to massive, argillans few, some pebbles.
	Pleistocene	Wisconsinan	Peoria Loess		248	38	Silt, brownish-yellow to light brownish-gray, calcareous, platy to massive, snail shells and pebbles few.
		Illinoian	Glasford Formation	Toulon Member	252	4	Clayey silt, grayish-green, slightly calcareous, massive, abundant pebbles.
					264	12	Silt, gray to grayish-brown, calcareous, massive to weak platy, faint color banding, some organics and shell fragments bottom six inches.
					282	18	Sandy silt grading into silty sand (fine-medium), pebbly, light brownish-gray to reddish-brown, calcareous, massive, iron stains few, shell fragments few.
				Hulick Till Member	300	18	Clayey silt, pebbly, grayish-brown, calcareous, massive, shale and coal fragments abundant.
					309	9	Silt, light yellowish-brown, calcareous, massive.
					480	171	Sand-silt-clay, pebbly, dark gray, calcareous, massive, some pieces of lacustrine rhythmites from below, shale and coal fragments abundant.
				Duncan Mills Member	558	78	Silty clay intercalated with silt, dark gray, calcareous, platy, some carbonaceous fossils; (Lacustrine Rhythmites).
					582	24	Clayey silt, dark gray, calcareous, massive to platy, some thin silt layers; (Lacustrine).
					594	12	Silty clay to clayey silt, pebbly, dark gray, massive, iron stains abundant, siltstone and shale pebbles abundant increasing towards base; (Lacustrine).
Pennsylvanian	Desmoinesian		Carbondale Formation		641	47	Clay, greenish-gray, platy, iron stains common, mottled, abundant micas; (Weathered Shale).

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 554

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		64	64	Clayey silt, yellowish-brown, leached, blocky, argillans abundant, silans few, some organics; (Modern Soil).
					342	278	Silt, pale yellow to olive-yellow, calcareous, massive, iron stains few, few small sandy zones and snail shells.
		Illinoian	Glasford Formation	Toulon Member	355	13	Pebbly clayey silt, olive-yellow, slightly calcareous, iron stains common.
					378	23	Pebbly silty sand (fine-coarse), moderately well-sorted, reddish-brown to brown, calcareous, iron stains common.

Core 555

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		64	64	Clayey silt, yellowish-brown, leached, blocky, argillans abundant, silans few, some organics; (Modern Soil).
					318	254	Silt, pale yellow to olive-yellow, calcareous, massive, iron stains few, few small sandy zones and snail shells.

Core 556

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		64	64	Clayey silt, yellowish-brown, leached, blocky, argillans abundant, silans few, some organics; (Modern Soil).
					336	272	Silt, pale yellow to olive-yellow, calcareous, massive, iron and manganese stains few, few small sandy zones and snail shells.
		Illinoian	Glasford Formation	Toulon Member	414	78	Pebbly silty sand (fine-coarse), moderately well-sorted, yellowish-brown, calcareous, iron stains common.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 558

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		64	64	Clayey silt, yellowish-brown, leached, blocky, argillans abundant, silans few, some organics; (Modern Soil).
					342	278	Silt, pale yellow to olive-yellow, calcareous, massive, iron stains few, few small sandy zones and snail shells.
		Illinoian	Glasford Formation	Toulon Member	355	13	Pebbly clayey silt, olive-yellow, slightly calcareous, iron stains common.
					447	92	Pebbly sand (medium-coarse), well-sorted, reddish-brown to brown, calcareous, iron stains common.
					450	3	Clayey silt intercalated with silt, pale yellow to grayish-brown, calcareous, platy, iron concretions few; (Lacustrine Rhythmites).
					456	6	Silt, grayish-brown, calcareous, massive; (Lacustrine).
					492	36	Clayey silt intercalated with silt, dark grayish-brown to light gray, calcareous, platy; (Lacustrine Rhythmites).
					522	30	Silty clay, pebbly, gray, calcareous, massive, iron stain supper part, coal fragments few; (Lacustrine).
				Duncan Mills Member	588	66	Silty clay intercalated with silt, light brownish-gray to dark grayish-brown, calcareous, platy, iron stains few, coarse pebbly layer at 540 inches, four inch piece of wood at 582 inches; (Lacustrine Rhythmites).
					600	12	Clayey silt, dark grayish-brown to greenish-gray, calcareous, massive, iron stains abundant, some organics; (Lacustrine).
					630	30	Clayey silt intercalated with silt, dark grayish-brown to greenish-gray, calcareous, platy, iron stains abundant, some organics, few sand and clay layers; (Lacustrine Rhythmites).

					660	30	Clayey silt, dark grayish-brown to greenish-gray, calcareous, massive, iron stains abundant, some organics; (Lacustrine).
Pennsylvanian	Desmoinesian		Carbondale Formation		714	54	Silty clay, greenish-gray, calcareous, massive to platy, iron stains common, abundant mica flakes.

Core 559

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene	Cahokia Alluvium			24	24	Clayey silt, brown to brownish-yellow, calcareous, massive to granular, silans abundant, iron stains abundant, mottled, abundant organics.
	Pleistocene	Wisconsinan	Peoria Loess		90	66	Clayey silt; A zones, black, granular, leached, silans common, abundant organics; B zones, dark brown to light olive-brown, leached, massive to blocky, argillans abundant, iron and manganese stains abundant, mottled, some secondary carbonates lower part; (Modern Soil).
					120	30	Silt to clayey silt, brownish-yellow, calcareous, massive, silans common, iron stains abundant, manganese stains few, extremely mottled.
Pennsylvanian	Desmoinesian		Carbondale Formation		134	14	Shale.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 560

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		12	12	Sandy silt with some clay, yellowish-brown.
		Illinoian	Glasford Formation	Toulon Member	48	36	Sand with some silt and pebbles, reddish-brown.
					66	18	Medium to coarse sand, pebbles, little silt, yellowish-brown.
					114	48	Fine to medium sand with pebbles at the top, medium to coarse sand with various sizes of pebbles at the bottom, yellow.
					144	30	Fine to medium sand with medium to very large pebbles, yellow to brownish-yellow.
					180	36	Fine gravel at the top, brownish-yellow; fine, well-sorted sand at the bottom, yellow.
					216	36	Coarse sand with fine pebbles at the top, fine gravel at the bottom, brownish-yellow.
					258	42	Medium to coarse sand, poorly sorted, with all sizes of pebbles, light yellowish-brown to pale yellow to brownish-yellow.
					270	12	Gravel, poorly-sorted, brownish-yellow.
					288	18	Fine to medium sand, with small to medium pebbles, brownish-yellow.
					306	18	Clay, massive with medium to large pebbles, light-gray to gray.
					402	96	Clay, silty, with scattered medium to large pebbles, varved gray to light gray.
					528	126	Clayed silt, platy, alternating lenses of clay, layers of organic matter, some mica flakes, varved brownish-gray to gray.

				Hulick Till Member	588	60	Clay, massive, no silt, gray.
					648	60	Silty clay alternating with clay, massive, varved, gray.
					720	72	Clay, massive with clayey silt at the bottom, organic material, pebbles, gray.

Core 561

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		12	12	Modern soil with roots and organic matter, black.
		Illinoian	Glasford Formation	Radnor Till Member	18	6	Clayey silt, some organic matter, iron stains dark reddish-gray.
					42	24	Clay with some silt, platy, iron stains common, few pebbles, some organic matter, pinkish-gray to to dark grayish-brown.
					90	48	Clay, massive, iron stains and mottling common, some organic material, light gray to yellowish-brown and black.
				Toulon Member	156	66	Fine silty sand, some clay, well-sorted, a few manganese stains, brownish-yellow.
					240	84	Medium to coarse sand, poorly sorted, medium to large pebbles, light yellowish-brown.
				Hulick Till Member	528	288	Clay, massive, with small to medium pebbles, alternating with clayey silt, gray.
					564	36	Clay, massive, with many pebbles and rock fragments, light-olive-gray.
					816	252	Clayey silt, massive, varved, with coal fragments and organic material, gray to dark gray, alternating with lenses of coarse gravel.
					828	12	Silty clay, leached, with limestone and quartz pebbles, iron stains, pockets and lenses of coal, greenish-gray.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 562

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		9	9	Modern soil, sandy silt with many roots and organic material, very dark brown.
					83	74	Sandy silt, massive, with scattered organics, iron stains common, strong brown.
					119	36	Silt, massive, with iron and manganese stains, light brownish-gray.
		Illinoian	Glasford Formation		194	75	Sandy silt, massive, with fragments of weathered shale.
				Toulon Member	245	51	Fine to medium silty sand, moderately well sorted, small to large pebbles, brownish-yellow.
					275	30	Silty clay, sandy, with some pebbles, iron stains, coal fragments, light olive-gray.
				Hulick Till Member	329	54	Silty clay, massive, lenses of dark organic material, calcareous lenses.

Core 563

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		36	36	Silt, massive, some roots and organic matter in the top 18 inches, light yellowish-brown.
					180	144	Silt, massive, a few iron stains, scattered small pebbles, light olive brown to olive-yellow.
		Illinoian	Glasford Formation	Toulon Member	198	18	Sandy silt with various sized pebbles, light yellowish-brown.
					216	18	Very fine sand, well sorted, with small pebbles, yellowish-red.
					252	36	Coarse sand, poorly sorted, with small pebbles, brownish-yellow.
					264	12	Fine sand, well sorted, brownish-yellow.
					312	48	Coarse sand, poorly to moderately well sorted, with small pebbles, yellow.
					432	120	Fine sand, well sorted some iron stains, yellow.
					480	48	Coarse sand, poorly sorted, some silt, various sized pebbles, brownish-yellow.
					570	90	Fine to medium gravel coarse sand, many pebbles.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 564

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		36	36	Silt, some roots in the upper 18 inches, brownish-yellow.
					72	36	Silt, massive.
					180	108	Silt, manganese stains, calcareous, some clay lenses, olive-yellow to very pale brown.
					249	69	Clayey silt, leached, with iron stains, light gray to medium brown.
		Illinoian	Glasford Formation	Toulon Member	419	170	Very fine sand, well sorted, some silt and clay, assorted small pebbles, yellow to brownish-yellow.
					437	18	Fine sand, some clay, iron stains common, greenish-gray.
					461	24	Medium silty sand with numerous pebbles and rock fragments, brownish-yellow.
					479	18	Fine sand, well sorted, some pebbles, coal, and weathered shale fragments, yellowish-brown.
				Hulick Till Member	515	36	Silty clay, massive, some small pebbles and iron stains, gray.

Core 565

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		15	15	Modern soil, silt, massive, with roots and organic material, dark grayish-brown.
					285	270	Silt, platy, some iron and manganese stains, calcareous, brownish-yellow to pale brown.
		Illinoian	Glasford Formation	Toulon Member	336	51	Very fine sand, well-sorted, heavily iron stained, yellowish-red.
					402	66	Coarse sand, poorly-sorted at the top with many pebbles, changing to medium, well-sorted sand at the bottom, strong brown.
					546	144	Coarse sand, moderately well-sorted, few pebbles and a large cobble, brownish-yellow.
					558	12	Sandy, silty clay, with numerous pebbles, gray.
				Hulick Till Member	564	6	Silty clay, massive, pieces of weathered shale and mica flakes, greenish-gray.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 566

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Cahokia Alluvium		36	36	Modern soil, sandy silt with many roots and organic matter, very dark grayish-brown.
					108	72	Sand-silt-clay, with large amounts of carbonaceous clay, coal fragments, weathered shale fragments, iron stains lenses of sand and pebbles, dark gray.
					144	36	Fine clayey sand, well-sorted, with pebbles and iron stains, light gray to gray.
					180	36	Clayey silt, massive, with streaks of organic material, calcareous, gray.
					222	42	Fine gravel changing to clayey silt, numerous sizes of pebbles, coal fragments, dark gray.
	Pleistocene	Illinoian	Glasford Formation	Hulick Till Member	276	54	Silty clay, leached, platy, many mica flakes, greenish-gray.
Pennsylvanian	Desmoinesian		Carbondale Formation		288	12	Weathered shale.

Core 567

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		21	21	Modern soil, clayey silt, massive, many roots and organic material, very dark gray.
					90	69	Clayey silt, massive, iron and manganese stains, pale brown to dark grayish-brown.
					150	60	Very fine silty sand, well-sorted, iron stains, brownish-yellow.
					156	6	Very fine silty sand, well-sorted, heavily iron stained, light gray to light brown.
		Illinoian	Glasford Formation	Toulon Member	174	18	Very fine silty sand, some iron stains, calcareous, gray.
					180	6	Coal, massive, black.
				Hulick Till Member	306	126	Clayey silt, massive, calcareous, iron and manganese stains, pebbles, gray to dark gray.
					330	24	Clayey silt, some pebbles, siltstone with many mica flakes, laminated, platy, greenish-gray.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 568

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Cahokia Alluvium		36	36	Modern soil, clayey silt, massive with roots, organic material and some iron stains, dark gray.
					111	75	Clayey silt, massive, some iron stains and coal fragments, dark gray to light gray.
					186	75	Clayey silt, numerous assorted pebbles, coal fragments, weathered shale fragments, calcareous, pale brown to light brownish-gray.
					210	24	Gravel with some moderately large cobbles and numerous pebbles, pale yellow.
					228	18	Clayey silt with numerous rock fragments, highly calcareous, light brownish-gray.

Core 569

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Spoils		6	6	Clayey silt, massive, roots and organic material, brown.
					144	138	Clayey silt, platy, with lenses of organic material, weathered shale, lignite, and sand, varved, yellowish-brown to light-gray.
					252	108	Silty clay, massive, lenses of sand, pebbles, and lignite, varved, variable greenish-gray to brownish-yellow.
					360	108	Silt, sandy, intercalated with silty clay, lenses of pebles, fine sand, carbonaceous clayey silt, some iron stains, brownish-yellow to light-brownish-gray.
					501	141	Clayey silt with many fragments of black carbonaceous clay, charcoal, coal, and weathered shale, some iron stains, variable greenish-gray to yellowish-brown.
Pennsylvanian	Desmoinesian		Carbondale Formation		504	3	Dense coal, black.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 570

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		9	9	Modern soil, clayey silt, with many roots and organic material, some small pebbles, dark grayish-brown.
					72	63	Clayey silt, some sand, small pebbles, iron stains near base, calcareous, light brownish-gray to grayish-brown.
					180	108	Clayey silt, with many small pebbles, some scattered iron and manganese stains, leached, dark-yellowish-brown to light gray.
		Illinoian	Glasford Formation	Toulon Member	216	36	Clayey sand the top 6 inches, grading into pebbly coarse sand with some silt, yellowish-brown.
					246	30	Coarse gravel, poorly-sorted, yellowish-brown.
					252	6	Silty clay with numerous angular and rounded pebbles, dark grayish-brown, changing to a fine silt with a few iron stains.

Core 571

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		9	9	Modern soil, clayey silt, with many roots and organic material, some small pebbles, dark grayish-brown.
					72	63	Clayey silt, leached, small amounts of organic material, reddish to yellowish-brown.
					114	42	Fine sand, silty, yellow.
		Illinoian	Glasford Formation	Radnor Till Member	162	48	Sand-silt-clay with some iron and manganese stains, grayish-brown.
				Toulon Member	201	39	Fine sand with various sizes of pebbles, yellow.
					229	28	Coarse pebbly sand, yellow.
					234	5	Sandy silt, massive, assorted pebbles, numerous iron stains and weathered shale fragments, light brownish-gray.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 572

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		39	39	Modern soil, clayey silt, with many roots and organic material, some small pebbles, dark grayish-brown.
					72	33	Silty clay, leached, abundant iron stains, small lenses of organic material, light brownish-gray.
		Illinoian	Glasford Formation	Radnor Till Member	99	27	Silty clay, abundant iron stains, grayish-brown.
				Toulon Member	276	177	Fine pebbly sand, poorly-sorted, olive-yellow.
				Hulick Till Member	312	36	Clay, massive, scattered small pebbles, gray.

Core 573

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		12	12	Modern soil, clayey silt, abundant organic material, very dark grayish-brown.
					33	21	Clayey silt, massive, leached, abundant iron stains and organic material, reddish-yellow.
		Illinoian	Glasford Formation	Radnor Till Member	114	81	Clay, massive, iron stains, abundant layered organics, leached, light gray to grayish-brown.
				Toulon Member	216	102	Fine silty sand, olive-yellow.
					234	18	Coarse sand, poorly-sorted, many medium to large pebbles, olive-yellow.
					540	306	Fine gravel, well-sorted, olive-yellow.
				Hulick Till Member	552	12	Silty clay, gray.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 574

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		21	21	Modern soil, clayey silt, abundant roots and organic material, dark brown.
		Illinoian	Glasford Formation	Radnor Till Member	138	117	Clayey silt, abundant iron and manganese stains, wood fragments, weathered shale fragments, pale brown to yellowish-brown.
				Toulon Member	156	18	Clayey sand, some iron stains, a few large pebbles, light gray.
					180	24	Sand-silt-clay, small to medium pebbles, charcoal, light brownish-gray to yellowish-brown.
					189	9	Fine gravel, poorly-sorted, little sand, brownish-yellow.
					216	27	Sand, pebbly, poorly-sorted, brownish-yellow.
					240	24	Sand-silt-clay, iron stains common, lignite, weathered shale fragments, very large pebbles and cobbles, calcareous, light gray to reddish-yellow.
					303	63	Fine to medium gravel, poorly-sorted, coarse sand and silt, brownish-yellow.
					310	7	Fine sand, well-sorted, reddish-yellow.
					335	25	Very coarse sand, poorly-sorted, small to medium pebbles, brownish-yellow.
					360	25	Fine sand, well-sorted, some coal fragments, brownish-yellow.
					504	144	Fine to medium gravel, poorly-sorted, coarse sand and silt.

Core 577

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		60	60	Clayey silt, rubble, yellowish-brown.
	Pleistocene	Wisconsinan	Peoria Loess		324	264	Silt, massive, some iron staining, brown.
		Illinoian	Glasford Formation	Toulon Member	408	84	Sand, moderate to poor sorting, fine to coarse in size, yellow to brownish-yellow.
				Hulick Till Member	504	96	Silty clay, blue gray, platy near contact with shale.
Pennsylvanian	Desmoinesian		Carbondale Formation		510	6	Shale, dark olive-green, flaky.

Core 578

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		156	156	Silt, massive, sandy layers, some iron staining, medium brown to olive-yellow.
		Illinoian	Glasford Formation	Toulon Member	384	228	Sand, fine to coarse, gravel layers, well to poorly-sorted, yellow to brownish-yellow.
				Hulick Till Member	516	132	Silty clay, massive, pebbly, some mottled zones, gray to brown-gray.
Pennsylvanian	Desmoinesian		Carbondale Formation		520	4	Shale, platy, dark olive-green.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 579

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		144	144	Silt, massive, olive-brown to olive-yellow.
		Illinoian	Glasford Formation	Toulon Member	336	192	Sand, fine to coarse, with gravel layers, well to poorly-sorted, yellow to brownish-yellow.
					420	84	Silt, clayey, brown.
				Hulick Till Member	468	48	Silty clay, massive, pebbly, some iron stains, gray.
Pennsylvanian	Desmoinesian		Carbondale Formation		480	12	Shale, blue-green, platy.

Core 580

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		60	60	Clayey silt, pebbles, cobbles, yellow-brown.
	Pleistocene	Wisconsinan	Peoria Loess		264	204	Silt, massive, some iron stains, brown to yellow-brown.
		Illinoian	Glasford Formation	Radnor Till Member	288	24	Clayey silt, massive, pebbly, iron stains, grayish-brown.
				Toulon Member	540	252	Sand, fine to coarse, gravel layers, yellow to brownish-yellow.
				Hulick Till Member	558	18	Silty clay, some sand and gravel, gray to blue-gray.

Core 581

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Illinoian	Peoria Loess		264	264	Silt, massive, some iron stains, light brown.
		Wisconsinan	Glasford Formation	Toulon Member	420	156	Sand, fine to coarse, gravel and gravel layers, silt, yellow to brownish-yellow.
				Hulick Till Member	468	48	Silty clay, massive, numerous pebbles, brownish-gray.
					528	60	Clay, gray.

Core 582

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		54	54	Silt, sand, cobbles, rubble, yellow-brown.
	Pleistocene	Wisconsinan	Peoria Loess		276	222	Silt, massive, some iron stains, brown.
		Illinoian	Glasford Formation	Radnor Till Member	318	42	Clayey silt, massive, pebbly, some iron stains, gray.
				Toulon Member	492	174	Sand, fine to coarse, layers of gravel, yellow to brownish-yellow.

Core 583

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		144	144	Silt, massive, some iron stains, brown.
		Illinoian	Glasford Formation	Toulon Member	540	396	Sand, fine to coarse, layers of gravel, poorly- to well-sorted, yellow to brownish-yellow.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 584

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		84	84	Silt, massive, some sand, olive-brown to olive-yellow.
		Illinoian	Glasford Formation	Toulon Member	468	384	Sand, fine to coarse, gravel, yellow to brownish-yellow.
				Hulick Till Member	540	72	Silty clay, massive, pebbly, iron stains, brown to brown-gray.

Core 586

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		18	18	Sand, cobbles, rubble.
	Pleistocene	Wisconsinan	Peoria Loess		288	270	Silt, clayey silt, massive, some iron stains, brown to yellowish-brown.
		Illinoian	Glasford Formation	Toulon Member	444	156	Sand, gravel, poorly sorted, yellow to yellowish-brown.
					504	60	Silty clay, pebbly, brown.
				Hulick Till Member	510	6	Silt, light green, platy.

Core 587

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		24	24	Sand, silt, cobbles.
	Pleistocene	Wisconsinan	Peoria Loess		354	330	Silt, massive, some sand, yellow-brown to brown.
		Illinoian	Glasford Formation	Toulon Member	444	90	Sand, fine to coarse, gravel, poorly sorted, some silt, some iron stains, yellow-brown.
					504	60	Clayey silt, some sand, pebbles, brown to gray-brown.
				Hulick Till Member	540	36	Clay, silty-clay, massive, gray to blue-gray.

Core 588

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		30	30	Sand, silt, cobbles, rubble.
	Pleistocene	Wisconsinan	Peoria Loess		240	210	Silt, massive, some sand, yellow-brown to brown.
		Illinoian	Glasford Formation	Toulon Member	456	216	Sand, silty sand, medium to coarse, more compact and pebbly at base, iron stains, yellow-brown to brown.
				Hulick Till Member	504	48	Clay, silty clay, dense, gray.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 589

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		24	24	Sand, cobbles, silt, rubble.
	Pleistocene	Wisconsinan	Peoria Loess		252	228	Silt, massive, some sand, slightly calcareous near base, brown to yellow-brown.
		Illinoian	Glasford Formation	Toulon Member	432	180	Sand, medium to coarse, pebbly at base, yellow to yellow-brown.
				Hulick Till Member	504	72	Clay, dense, gray to blue-gray.

Core 590

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Fill		48	48	Sand, clay, rubble.
	Pleistocene	Wisconsinan	Peoria Loess		372	324	Silt, massive, some sandy layers, brown to yellow-brown.
		Illinoian	Glasford Formation	Toulon Member	438	66	Sand, medium to coarse, iron stained, yellow to reddish-yellow-brown.
				Hulick Till Member	528	90	Clay, dense, some sand, blue-gray.

Core 591

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		216	216	Silt, massive, sandy, brown to yellow-brown.
		Illinoian	Glasford Formation	Toulon Member	396	180	Sand, poorly-sorted, gravel, yellow-brown.
				Hulick Till Member	462	66	Clay, silty clay, dense, gray to blue-gray.

Core 592

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		108	108	Silt, sandy silt, modern soil developed in upper 36 inches, brown to yellow-brown.
		Illinoian	Glasford Formation	Toulon Member	336	228	Sand, gravel layers, poorly sorted, yellow-brown to light brown.
				Hulick Till Member	402	66	Clay, silty clay, gray.

Core 594

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		282	282	Silt, massive, some sandy silt layers, yellow-brown to brown.
		Illinoian	Glasford Formation	Toulon Member	408	126	Sand, pebbly sand, gravel, poorly sorted, light yellow-brown.
				Hulick Till Member	474	66	Clay, silty clay, dense, gray.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 597

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Illinoian	Glasford Formation	Toulon Member	330	330	Sand, silty sand, pebbly sand, poorly sorted, light brown to yellow-brown.
					402	72	Silty clay, sand, pebbles, brown-gray.

Core 599

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Illinoian	Glasford Formation	Toulon Member	246	246	Sand, silty, pebbly, poorly sorted, some well sorted layers of fine sand, light yellow-brown to light brown.
					276	30	Clayey silt, pebbly, brown.
				Hulick Till Member	372	96	Clay, silty clay, some pebbles, dense, gray.

Core 600

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		36	36	Silt, massive, brown.
		Illinoian	Glasford Formation	Toulon Member	312	276	Sand, silty, pebbly, layers of fine, clean, well sorted sand, light brown to yellow-brown.
					324	12	Silty, sandy, clay, pebbles, brown.
				Hulick Till Member	396	72	Silty clay, pebbly, dense gray.

Core 601

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		48	48	Silt, massive, brown.
		Illinoian	Glasford Formation	Toulon Member	312	276	Sand, silty, pebbly, grades from clean, fine, sand, and to coarse pebbly sand, light brown to yellow-brown.
					324	12	Silty-sand-clay, pebbles, brown.
				Hulick Till Member	396	72	Silty clay, pebbly, dense, gray.

Core 602

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		120	120	Silt, modern soil developed in upper 36 inches, massive, brown.
		Illinoian	Glasford Formation	Toulon Member	180	60	Sand, loose, iron stained at top, moderately-sorted, light brown to reddish-brown.
					264	84	Sandy silt, dense, massive, gray-brown to brown.
				Hulick Till Member	372	108	Clay, dense, gray.
					480	108	Clay, silty clay, mottled brown-gray, dense.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 603

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		36	36	Silt, modern soil developed in the entire 36 inches, loamy, decomposed organic debris.
		Illinoian	Glasford Formation	Toulon Member	150	114	Clayey silt, sandy, pebbly, gray to brown-gray.
				Hulick Till Member	234	84	Clay, silty clay, pebbly, cobbly towards base, gray and mottled gray-reddish-brown.
Pennsylvanian	Desmoinesian		Carbondale Formation		240	6	Shale, platy, light-green.

Core 604

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		126	126	Silt, massive, modern soil developed in upper 24 inches.
		Illinoian	Glasford Formation	Toulon Member	186	60	Silt, clayey silt, coal fragments brown to dark brown.
				Hulick Till Member	234	48	Clay, silty clay, dense, gray.

Core 605

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Cahokia Alluvium		234	234	Modern soil developed in upper 54 inches, sand, silt, gravel in uneven layers.

Core 606

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		36	36	Silt, modern soil developed in upper 30 inches, loam, dark brown.
		Illinoian	Glasford Formation	Toulon Member	234	198	Silt, clayey silt, pebbly, massive, dense, brown-gray, cobbly at base.

Core 607

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Holocene		Cahokia Alluvium		294	294	Modern soil, loam, developed in upper 60 inches, sand, silt, clay, reworked glacial deposits.

Core 608

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		234	234	Silt, massive, light brown.
		Illinoian	Glasford Formation	Toulon Member	330	96	Sand, moderately sorted, medium to coarse, light brown to yellow-brown.
					432	102	Silt, clayey silt, sandy and pebbly layers, brown to grayish-brown.
				Hulick Till Member	720	288	Clay, silty clay, some pebbly layers, dense, massive, gray to olive-gray.
Pennsylvanian	Desmoinesian		Carbondale Formation		744	24	Shale, platy, greenish-gray.

Table 8.--Stratigraphic classification and lithologic description of glacial materials penetrated by wells--Continued

Core 609

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		216	216	Silt, massive, yellowish-brown.
		Illinoian	Glasford Formation	Toulon Member	396	180	Sand, medium to coarse, poorly sorted, light yellowish-brown.
					480	84	Silt, clayey silt, pebbly, brown to gray-brown.
				Hulick Till Member	612	132	Clay, silty clay, dense, blocky, gray to dark gray.
Pennsylvanian	Desmoinesian		Carbondale Formation		624	12	Shale, green-gray, platy.

Core 610

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		294	294	Silt, massive, some clayey silt layers, light yellowish-brown.
		Illinoian	Glasford Formation	Toulon Member	312	18	Sand, silty, well sorted, medium, light brown.
				Hulick Till Member	360	48	Clay, silty clay, dense, massive, gray to blue-gray.

Core 611

System	Series	Stage	Formation	Member	Depth (inches)	Thickness (inches)	Lithology
Quaternary	Pleistocene	Wisconsinan	Peoria Loess		78	78	Silt, modern soil developed in upper 24 inches, massive, light brown.
		Illinoian	Glasford Formation	Toulon Member	79	1	Sand, medium, well sorted, iron stained, reddish-brown.
					270	191	Silt, clayey silt, sand layers, cobbly at base, brownish-gray.
				Hulick Till Member	294	24	Clay, silty clay, dense, gray.
Pennsylvanian	Desmoinesian		Carbondale Formation		300	6	Shale.

Table 9.--Coordinates for wells

Well No.	Coordinates (ft) Northing	Easting	Well No.	Coordinates (ft) Northing	Easting
501	12,384.6	14,961.8	542	12,036.0	14,643.0
502	12,406.6	14,860.3	543	12,343.0	14,768.0
503	12,255.7	14,945.2	544	12,585.0	14,137.0
504	12,247.7	14,823.0	545	12,602.0	14,144.0
505	12,113.6	14,816.4	546	12,092.0	14,194.0
506	12,096.0	14,976.9	547	12,843.0	14,672.0
507	12,132.5	14,483.7	548	12,295.0	13,729.0
508	12,327.0	14,315.1	549	12,114.0	14,313.0
509	12,098.4	14,192.9	550	12,663.0	14,470.0
510	11,941.6	14,257.8	551	12,165.0	13,957.0
511	12,302.6	13,724.4	552	11,962.0	14,444.0
512	11,924.7	14,867.6	553	12,610.0	13,817.0
513	12,875.3	13,843.5	554	12,395.0	14,457.0
514	12,886.4	14,226.4	555	12,895.0	14,477.0
515	12,887.2	14,108.1	556	12,897.0	14,484.0
516	12,894.0	14,471.5	557	12,898.0	14,490.0
517	12,848.8	14,664.4	558	12,900.0	14,477.0
518	12,871.5	14,746.9	559	11,968.0	14,447.0
519	12,607.0	13,814.3	560	12,810.4	15,479.5
520	12,593.3	14,142.7	561	12,508.8	15,771.6
522	12,161.9	13,969.2	562	12,360.4	15,550.0
523	12,084.8	14,648.5	563	12,686.2	15,040.6
524	11,948.2	14,669.2	564	13,022.0	15,034.1
525	11,763.0	14,966.3	565	12,563.5	15 030.4
526	12,014.2	14,779.6	566	12,171.6	15,558.8
527	12,015.5	14,670.3	567	12,011.0	15,080.6
528	12,083.3	14,484.5	568	11,845.6	15,094.6
529	12,114.6	14,322.6	569	13,364.5	15,096.4
530	11,882.1	14,104.1	570	13,210.8	15,235.0
531	11,892.3	13,885.9	571	12,870.1	15,630.0
532	12,028.8	13,810.0	572	12,717.6	15,813.7
533	12,638.0	13,919.0	573	12,588.3	16,047.9
534	12,742.0	14,420.0	574	12,590.3	16,386.1
535	12,667.5	14,461.7	575	12,727.4	15,134.3
536	12,671.3	14,630.5	576	12,786.3	15,084.0
537	12,417.6	14,811.6	577	12,616.0	14,917.0
538	12,416.0	14,075.0	578	12,644.0	15,044.0
539	12,423.0	14,075.0	579	12,655.0	15,133.0
540	12,086.0	14,650.0	580	12,685.0	14,928.0
541	12,036.0	14,620.0	581	12,779.0	15,135.0

Table 9.--Coordinates for wells--Continued

Well No.	Coordinates (ft) Northing	Easting	Well No.	Coordinates (ft) Northing	Easting
582	12,512.0	14,927.0	597	12,791.0	15,401.0
583	12,732.0	15,042.0	598	Boring	
584	12,686.0	15,135.0	599	12,768.0	15,400.0
585	12,255.0	14,930.0	600	12,825.0	15,396.0
586	12,679.0	14,754.0	601	12,828.0	15,430.0
587	12,700.0	14,798.0	602	12,206.0	15,121.0
588	12,527.0	14,815.0	603	11,750.0	15,096.0
589	12,615.0	14,813.0	604	11,634.0	15,074.0
590	12,661.0	14,876.0	605	12,318.0	15,886.0
591	12,811.0	15,278.0	606	12,132.0	15,940.0
592	12,755.0	15,305.0	607	12,365.0	16,196.0
593	Boring		608	12,492.0	15,256.0
594	12,833.0	15,208.0	609	12,342.0	15,130.0
595	Boring		610	12,370.0	15,383.0
596	Boring		611	12,191.0	15,227.0

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