

Surficial Geology of the Morristown Quadrangle Essex and Morris Counties, New Jersey

New Jersey Geological Survey
Open-File Map 67
2006

pamphlet to accompany map

Table 1.--Selected well and boring records.

Well No.	Identifier ¹	Depth to bedrock or driller's log with depth and description ²	
1	25-28337	0-70 70-100	clay and boulders (Qcg over Qwg) granite
2	25-3129	>100	(Qf over Qwg)
3	25-14171	0-40 41-116 116-118 118-123	fine silt (Qs over lake-bottom sediment of glacial Lake Denville) gray clay (lake-bottom sediment of glacial Lake Denville) boulders (Qcg or Qwg?) large gravel (Qwg?) yield 34 gpm
4	25-23374	abbreviated log 04 4-36	fill (af) brown silt, sand, gravel, boulders (Qal over Qwg)
5	25-15539	0-49 49-158	overburden with boulders (Qis over Qcg) granite
6	25-24143	5	
7	25-40385	0-25	glacial till (Qf over Qwg)
8	25-12908	0-5 5-23 23-272	boulders, gravel, and sandy clay (Qf) sand stone (Qwg?) gray granite
9	25-3167	0-9 9-30 30-150	earth and clay (Qcg) sand and gravel (Qwg or Qmt) granite rock
10	25-3168	0-6 6-12 12-35 35-150	top soil and clay (Qcg) boulders (Qcg or Qmt) sand and gravel (Qmt or Qwg) granite rock
11	25-3169	0-8 8-36 36-195	clay (Qcg) sand and gravel (Qmt or Qwg) granite rock
12	P42 Canace and others, 1993	abbreviated log 0-72 72-78	fine-to-coarse brown sand, gravel, boulders (Qtmn) fractured gray rock and sandy decomposed rock (Qwg)
13	25-30560	0-50 50-60 60-80 80-120	brown silt, sand and boulders (Qtmn) medium-to-fine sand and boulders (Qtmn) brown coarse sand and gravel (Qtmn) coarse sand and boulders (Qtmn)

14	25-13422	0-2	loam (Qtmn)	
		2-8	clean sand (Qtmn)	
		8-67	muddy sand and clay (Qtmn)	
		67-69	coarse sand (Qtmn)	
		69-70	silty sand and clay (Qtmn)	
		70-80	clean sand (Qpc or Qtmn)	
		80-81	boulder	
15	25-11377	0-43	sand, gravel, small boulders (Qpmf over Qr)	
		43-75	fine sand, silt with clay (Qpml)	
		75-79	coarse sand (Qis)	
		79-90	fine sand, silt (Qisl)	
		90-96	coarse sand (Qis)	
		96-110	sand and fine gravel (Qis)	
		110-125	coarse sand and gravel (Qis or Qf)	
		125-155	clean sand and gravel (Qis or Qf)	
		155-188	sand and gravel, not so clean (Qis or Qf)	
		188-196	sandy clay (Qisl)	
		196-200	broken granite rock	
		screened 161-171, yield 350 gpm		
		16	25-11584	160
17	25-11585	0-50	gravel with very little sand (Qpmf over Qr)	
		50-90	sand and gravel mix (Qpc)	
		90-105	clean coarse sand (Qpc)	
		105-160	sand and gravel (Qis or Qf)	
		screened 140-160, yield 831 gpm		
18	25-11750	0-150	sand, gravel, boulders (Qpmf over Qr, Qpc, Qf?)	
		150-178	sand and very coarse gravel (Qis)	
19	25-13421 Vecchioli and Nichols, 1966, area 4, test well 1	0-1.5	fill	
		1.5-38	sand, very fine- to fine-grained, silty, gray, with some medium- and coarse-grained sand from 5 to 15 feet, few boulders from 16 to 18 feet (Qpmf)	
		38-50	till, yellowish brown (Qn)	
		50-52	sand, fine-grained, gray, with fine to coarse gravel, poorly sorted (Qpc)	
		52-69	sand, fine-grained, silty, gray (Qpcl)	
		69-86	till, yellowish brown (Qf or Qis)	
		86-151	sand, coarse and very-coarse grained, silty, with fine to coarse gravel, poorly sorted gravel (Qis)	
		151-162	till, yellowish brown, pebbles and cobbles highly weathered (Qf)	
		162-199	sand, fine- to coarse-grained, with some fine to coarse gravel and few cobbles, poorly sorted in part, thin to thick lenses of sandy till at 175 feet, 190 feet and 194 feet (Qis)	
		199-209	till, yellowish brown (Qf)	
		209-211	sand, coarse-grained, with gravel and cobbles (Qis)	
		211-213	sand, fine-grained, silty, yellowish brown, very compact (Qisl)	
		screened 191-199, yield 260 gpm		
20	25-618	0-70	clay (Qpmf over Qn)	
		70-73	sand (Qpc)	
		73-169	conglomerate	
21	area 4, other well 2, Vecchioli and Nichols, 1966	0-53	clay and small stones (Qpmf over Qr)	
		53-120	sand and gravel, water-bearing (Qpc)	
		120-124	gray clay (Qpcl)	
		124-155	sand and gravel, uniform, water-bearing	
		screened 90-118, yield 500 gpm		
22	25-17228	0-5	gray sandy clay (Qal)	
		5-10	brown sand streaks of gray clay (Qal)	
		10-30	brown sand and boulders (Qpmf)	
		30-70	boulders, brown sand and gravel, streaks of clay (Qr)	
		70-101	boulders, sand and gravel (Qpc)	
		101-104	weathered rock (probably Qb)	
		104-107	rock (boulder?)	

23	25-18850	0-18	fine silty sand (Qal)
		18-34	clay with sand, gravel (Qpmf)
		34-59	sand, gravel, hardpan, boulders (Qr)
		59-100	sandy clay with some sand layers (Qpc and Qpcl)
		100-116	sandy clay with stones (Qb)
		116-119	sand and gravel (Qb or Qis)
		119-127	sand and gravel with some clay (Qb or Qis)
		screened 107-127, yield 910 gpm	
24	P41 Canace and others, 1993	0-30	gray clay, sand (Qpmf)
		30-42	brown clay, sand (Qr)
		42-80	water-bearing sand, gravel with boulders (Qpc0)
		screened 60-80, yield 750 gpm	
25	25-12508	0-12	fine sand (Qtmn)
		12-18	hardpan (Qtmn)
		18-56	cobbles, boulders (Qtmn)
		56-58	boulders (Qtmn)
		58-207	rock
26	25-7546	0-15	clay (Qwg)
		15-17	loose rock (Qwg)
		17-36	granite rock
27	N 25-4-574	0-28	clay and fine sand, mixed (Qal over Qpmf)
		28-73	hardpan, clay and boulders (Qr)
		73-103	fine sand with a little clay (Qpcl)
		103-133	coarse sand to coarse gravel (Qis)
		133-145	fine sand and clay (Qis-Qisl)
		145-173	hardpan with large boulders (Qb)
		173-179 at 179	reddish brown clay (Qisl) soft brownstone (Qisl or bedrock)
28	P34 Canace and others, 1993	0-3	clay (Qal)
		3-5	gravel (Qal or Qpmf)
		5-8	sand and gravel (Qpmf)
		8-34	blue clay (Qpmf)
		34-44	sand, gravel, clay, boulders (Qr)
		44-50	blue clay (Qpcl)
		50-89	sand, gravel, boulders (Qpc)
		89-102	blue clay and boulders (Qb)
		102-136	yellow clay and boulders (Qb)
		136-139	red clay and boulders (Qb)
		139-145	sand and gravel (Qis)
		145-190	red clay (Qisl)
		screened 57-87 and 140-145, yield 600 gpm	
29	25-18849	0-25	brown sandy clay (Qpmf)
		25-34	gray sand and clay (Qpmf)
		34-86	gray hardpan, boulders, sandy streaks (Qr)
		86-92	coarse sand, little clay and gravel (Qpc)
		92-95	hardpan (Qis?)
		95-98	coarse sand with clay (Qis)
		98-110	hardpan, sand and clay (Qb)
		110-113	clay (Qb)
		113-134	hardpan, sandy (Qb or Qis)
		134-139	hardpan, sand and gravel (Qb or Qis)
		screened 119-139, yield 900 gpm	
30	25-7381	0-37	sandy clay (Qpmf)
		37-50	hardpan (Qr)
		50-58	gravel, some sand and clay (Qr)
		58-63	hardpan, gravel with some sand and gray clay (Qr)
		63-144	gray sandy clay, some gravel (Qpc, Qpcl)
		screened 105-141, yield 600 gpm	
31	P132 Canace and others, 1993	0-4	yellow clay (Qpmf)
		4-6	fine brown sand (Qpmf)
		6-10	sandy brown clay (Qpmf)

		10-20	sandy brown clay, gravel (Qpmf over Qr)
		20-30	clay, boulders (Qr)
		30-37	brown sand (Qpc)
		37-41	clay, boulders (Qr)
		41-94	hardpan, boulders, clay (Qr)
		94-99	coarse sand (Qpc)
		99-105	clay, boulders (Qb or Qis)
		105-127	coarse gray sand, gravel (Qis)
		127-129	hardpan (Qis)
		129-137	coarse gray sand (Qis)
		137-138	hardpan (Qis)
		138-141	boulders (Qis)
		141-151	brown clay (Qisl)
			screened 110-140, yield 745 gpm
32	25-31975	0-82	gravel, sand (Qpmf) yield 50 gpm
33	P37 Canace and others, 1993	abbreviated log 0-7 7-45	fine silty brown sand, trace clay (Qpmf) brown sand, gravel, boulders (Qr)
34	P38 Canace and others, 1993	abbreviated log 0-81	brown silt, fine-to-medium sand and gravel (Qpmf over Qr)
35	45-33	0-31 31-33 33-51 51-57 57-71 71-73 73-89 89-94 94-96 96-129 129-137 137-143	hardpan and clay (Qpmf) fine blue sand (Qpmf) blue clay gumbo (Qr?) fine sand (Qpc) gravel (Qpc) fine sand (Qpc) clay (Qpcl) sand (Qis) red sand (Qis) red clay (Qisl) sand and gravel (Qis) red clay, hardpan (Qb) screened 51-77, yield 500 gpm
36	25-22542	abbreviated log 0-53	brown coarse-to-fine sand, some gravel (Qpmf)
37	25-33909	0-50 50-75	dirt, clay, boulders (Qr) pea gravel (Qpc)
38	P60 Canace and others, 1993	0-136 136-158	no log (Qpmf over Qr) water-bearing sand, flows at 12 gpm (Qpc)
39	25-36273	0-17 17-43 43-63 63-80 80-100	boulders and till (Qr) till and sand (Qr over Qpc) sand and gravel (Qpc) boulder till (Qb) sand and gravel (Qis)
40	25-29415	abbreviated log 0-124 124-144 144-150	sandy silt, gravel-till (Qr) sand and gravel (Qpc) till (Qb)
41	25-25492	0-38 38-48 48-79 79-108 108-127 127-147	gray-brown clay and silt (Qr) brown silt, sand, gravel, cobbles-till (Qr) brown coarse-to-medium sand and gravel, trace silt (Qpc) brown coarse sand and gravel, cobbles, boulders-till (Qb) brown coarse sand, trace silt (Qis) brown coarse sand and gravel, cobbles, silt-till (Qis?)
42	25-29416	abbreviated log	

		0-119	sandy silt, gravel, boulders, brown to reddish brown (Qr)
		119-140	reddish brown fine-to-medium sand, silt layers (Qpc)
43	25-23151	0-5	soil, boulders (Qr)
		5-15	clay (Qr)
		15-25	fine sand (Qpc or Qr)
		25-60	sand, gravel (Qpc or Qr)
44	25-6690	0-65	hardpan and boulders (Qpmf over Qr)
		At 65	fine-to-coarse sand (Qpc)
45	25-40082	0-23	red-brown silty sand (Qr)
		23-75	sandstone (probably Qr)
46	25-12718	0-20	clay with large stones (Qr)
		20-65	clay with small stones (Qr)
		65-80	clay with sand, gravel (Qr over Qpc)
		80-100	water-bearing sand, gravel (Qpc)
		At 100	red shale
		screened 70-100,	yield 525 gpm
47	P57 Canace and others, 1993	0-75	hardpan, boulders (Qr)
		75-81	sand, gravel (Qpc)
		81-85	hardpacked stones (Qpc)
		85-103	sand, gravel (Qpc)
		103-105	hardpan (Qb)
		105-118	hardpan, rock (Qb over bedrock)
		yield 60 gpm	
48	25-6004	0-5	clay (Qr)
		5-68	very tough sand, gravel (Qr)
		68-71	boulders (Qr)
		71-78	loose sand (Qpc)
		78-80	coarse sand, very clean gravel (Qpc)
		80-100	water-bearing sand (Qpc)
		100-106	dirty gravel (Qb)
		106-107	red rock
49	25-3664	0-10	clean yellow clay (Qr)
		10-15	hard gravelly clay, boulders (Qr)
		15-20	sand (Qpc)
		20-25	sand, overburden (Qpc)
		25-40	sand, fine gravel (Qpc)
		40-50	sand with coarse water-bearing gravel (Qpc)
		50-60	clean water-bearing sand (Qpc)
		60-65	sand, gravel, less water (Qpc)
		65-70	water-bearing sand, less flow (Qpc)
		70-75	streaks of yellow clay, trace sand (Qpcl)
		75-80	sticky yellow clay, water-bearing gravel (Qpcl over Qb)
		80-85	sticky red hardpan (Qb)
50	P29 Canace and others, 1993	0-20	clay, boulders (Qr)
		20-49	hardpan (Qr)
		49-52	coarse sand (Qpc)
		52-58	sand, gravel with red clay (Qpc)
		58-72	sand, gravel (Qpc)
		72-77	red clay, sand, gravel (Qpc)
		77-93	red clay (Qpcl)
		93-98	rock
51	25-17118	0-11	overburden (Qr)
		11-68	clay, boulders (Qr)
		68-77	very-fine-to-coarse sand, gravel, stones, boulders (Qpc)
		77-80	clay, boulders (Qb or Qpc)
		80-89	fine-to-coarse sand, gravel, boulders, clay (Qb or Qpc)
		89-94	sandy clay, gravel, large stones (Qb)
		94-96	shale
		screened 60-85,	yield 1100 gpm

52	25-15809		no log, rock at 76 screened 55-70, yield 263 gpm
53	25-41450	0-40	brown medium-to-fine sand, trace brown clay, silt, gravel, cobbles (Qr)
54	P72 Canace and others, 1993	0-26	fine-to-medium brown sand, gravel, boulders, trace clay (Qr)
55	P76 Canace and others, 1993	0-11 11-26	brown silt, clay with boulders, trace gravel (Qr) medium-to-coarse brown sand, silt, gravel, boulders (Qr)
56	25-27258		abbreviated log 0-45 brown sand, gravel, boulders (Qr) 45-60 coarse brown sand (Qpc) 60-65 medium-to-coarse brown gravel (Qpc) 65-90 brown sand and gravel (Qpc) 90-110 fine brown sand and clay (Qpcl) cased to 85, yield 890 gpm
57	25-40965		abbreviated log 0-30 brown sand, gravel, stone, boulders (Qr) 30-50 brown sand, coarse gravel (Qr or Qpc) 50-85 brown sand and gravel (Qpc) screened 70-95, yield 1809 gpm, static level 2.72 feet above land surface
58	25-13417 Vecchioli and Nichols, 1966, area 2, OEP test hole 1	0-11 11-20 20-26 26-47 47-52	silt and clay, laminated with few fine gravel, yellowish brown (Qpml or Qr) clay, slightly silty, trace fine gravel, grayish brown (Qr or Qpml) silt and clay, thinly interbedded, brownish-gray; sandy silt, clayey silt, and silty clay, laminated in part (Qr or Qpml) till, brown (Qr) shale, sandy, reddish brown
59	25-1081	0-5 5-40 40-45	clay (Qpml or Qr) clay, boulders (Qr) gravel (Qpc) cased to 45, yield 10 gpm
60	Vecchioli and Nichols, 1966, area 2, other test hole 1	0-23 23-50 50-84 at 84	clay mixed with sand (Qr) gravel, sand, well flows 100 gpm, water rises 10 feet above land surface (Qpc) clay, hardpan (Qpcl over Qb) red shale
61	25-11106	0-23 23-26 26-30 30-47 At 47	clay and fine sand (Qr or Qpml) water-bearing sand and gravel (Qpc) water-bearing sand and clay (Qpc) water-bearing fine-to-medium sand and gravel (Qpc) clay, hardpan (Qb?) screened 27-47, yield 835 gpm
62	25-12635	0-22 22-50 50-61 61-80 At 80	clay (Qpml) clay, mixed with stones (Qr) water-bearing sand (Qpc) water-bearing coarse sand, gravel (Qpc) red shale screened 55-80, yield 327 gpm
63	P114 Canace and others, 1993	0-50 50-80 at 80	no log sand (Qpc) rock
64	25-13416 Vecchioli and Nichols, 1966, area 2 OEP test hole 2	0-3 3-11 11-20 20-33 33-39	till, yellowish brown (soil on Qst) silt and clay, laminated, sandy in part, light gray (Qpml) clay, laminated, silty in part, yellowish brown (Qpml) silt, laminated, clayey in part, brownish gray with few laminae of brownish gray clay and very fine sand, and few small gravel (Qpml) clay, laminated, silty, yellowish brown, trace fine gravel at 33-35 feet and

		39-58	little fine to very coarse gravel at 35-39 feet (Qpml) silt and clay, laminated yellowish brown, with partings of very fine-grained sand, some fine gravel, little medium gravel (Qpml)
		58-64	till, brown (Qr)
		64-69	shale
65	25-15804	0-30	hardpan, boulders (Qr)
		30-43	hardpan (Qr)
		43-45	gravel (Qpc)
		45-55	water-bearing gravel (Qpc)
		55-73	fine gravel with weathered rock (Qpc)
		73-75	sand (Qpc)
		75-85	light gray clay (Qpcl)
		85-105	brown sand (Qis or Qpcl)
		105-112	red sand, soft red shale (Qb)
		112-120	red shale
66	P119 Canace and others, 1993	0-45	clay (Qr)
		45-60	water-bearing sand, gravel (Qpc)
		60-65	fine sand (Qpc or Qb)
		at 65	red shale
		screened 45-65,	yield 250 gpm
67	P121 Canace and others, 1993	0-45	clay (Qr)
		45-60	water-bearing sand, gravel (Qpc)
		60-65	fine sand (Qpc or Qb)
		at 65	red shale
		screened 45-65,	yield 370 gpm
68	25-9131	0-5	clay (Qr)
		5-15	clay, sand (Qr)
		15-20	gravel, sand, clay (Qr)
		20-70	water-bearing sand and gravel (Qpc)
		at 70	red shale
		screened 40-70,	yield 650 gpm
69	25-15805	0-30	sand, clay (Qr)
		30-38	fine sand (Qpc)
		38-65	fine sand, gravel (Qpc)
		65-68	sand with red shale (Qpc or Qb)
		68-76	hard red shale
70	25-10864	0-33	hardpan, clay (Qr)
		33-40	water-bearing sand, gravel (qpc)
		cased to 40,	yield 15 gpm
71	25-13413 Vecchioli and Nichols, 1966, area 2, OEP test well 1	abbreviated log	
		0-10	till, yellowish brown (Qr)
		10-12	very-fine-to-coarse sand, some fine gravel (Qpc)
		12-15	till, yellowish brown (Qr)
		15-90	fine-to-coarse sand, some gravel (Qpc)
		90-125	till, yellowish brown, some gravel is moderately to very weathered (Qb)
		125-126	medium-to-coarse sand, silty, clayey, with fine-to-medium gravel (Qb)
		126-133	shale
		screened 79-89,	yield 258 gpm
72	25-15036	0-30	hardpan, boulders (Qr)
		30-60	yellow clay (Qpcl)
		60-80	red clay (Qisl)
		80-120	red sandstone
73	25-7953	0-30	hardpan, boulders (Qr)
		30-91	hardpan (Qpc?)
		91-101	soft to hard red shale (Qb?)
		101-140	red shale
74	25-27259	abbreviated log	
		0-30	brown sand, stones, gravel, boulders (Qr)
		30-100	brown sand, gravel (Qpc)

75	25-18318	0-12	silty brown sand with boulders (Qr)
		12-28	hardpan with small cobbles (Qr)
		28-34	sandy hardpan (Qr)
		34-37	water-bearing coarse gravel (Qpc)
		37-42	small boulders with loose sand, small cobbles (Qpc)
		42-66	soft silty sand with small cobbles (Qpc)
		66-84	silty sand, gravel (Qpc)
		84-88	water-bearing sand, gravel (Qpc)
		88-103	water-bearing silty sand (Qpc)
		screened 78-103, yield 1002 gpm	
76	25-37615	0-40	clay and boulders (Qr)
		40-45	sand, gravel, boulders (Qpc)
		45-60	sand, gravel, clay, boulder (Qpc)
		60-81	boulder, clay, little gravel (Qpc)
		81-89	large gravel (Qpc)
		89-93	clay and gravel (Qpc)
		93-97	boulders, gravel and sand (Qpc)
		97-102	clay and gravel (Qb)
screened 50-100, yield 100 gpm			
77	25-41874	0-40	yellow brown sand, gravel, trace silt (Qr)
		40-94	brown silt, gravel, fine sand, clay (Qr over Qpc)
		94-101	reddish brown clay with rock fragments and weathered rock (Qb over bedrock)
78	25-11876	0-58	clay (Qr)
		58-80	coarse sand (Qpc)
		at 80	red shale
79	25-41875	0-20	fine brown stiff silty clay (Qr)
		20-80	reddish brown silt, some medium to coarse gravel and fine sand (Qpc)
		80-104	yellow brown fine-to-medium sand and gravel, some clay, trace silt (Qpc)
		at 104	reddish brown clay with rock and rock fragments (Qb over bedrock)
80	25-30920	abbreviated log	
		0-12	red brown clayey silt with a little sand and gravel (Qr)
		12-47	brown coarse-to-fine sand, little gravel and silt (Qpc)
		47-50	brown clayey silt, little sand (Qpcl)
81	25-41876	0-20	reddish brown silty clay, trace fine sand and coarse gravel (Qr)
		20-70	yellow brown clayey fine sand, trace medium gravel (Qpc)
		70-78	grayish brown silty medium-to-coarse sand, trace clay, cobbles (Qpc)
		78-109	yellow brown clayey fine sand, trace silt, cobbles (Qb or Qpc)
		at 109	reddish brown silty clay some weathered rock
82	25-7034	0-5	clay (Qr)
		5-50	clay, boulders (Qr)
		50-58	dirty sand (Qpc)
		58-81	sand, gravel (Qpc)
		81-96	clay, gravel (Qb or Qpc)
		screened 52-81, yield 300 gpm	
83	25-6488	0-4	fill
		4-38	boulders (Qr)
		38-77	hardpan (Qr)
		77-95	water-bearing coarse sand (Qpc)
		95-99	clay (Qb or Qpcl)
		At 99	red rock
		screened 76-95, yield 100 gpm	
84	25-14192	0-18	gray clay (Qr)
		18-60	clay (Qr)
		60-80	sand, gravel (Qpc)
		screened 65-80, yield 430 gpm	
85	25-41276	0-5	gray clay (Qr)
		5-10	fine sand and gravel (Qpc)

		10-48	gravel, cobbles and sand (Qpc)
		48-90	boulders, gravel, and sand (Qpc)
		90-92	gray silt (Qpcl)
		92-97	red clay (Qb)
		97-550	red and gray shale
86	25-42737	0-12	clayey silt (Qr)
		12-55	glacial till (Qr)
		55-80	coarse gravel (Qpc)
		80-90	fine-to-coarse sand (Qpc)
		90-95	clay, weathered shale
87	25-42736	0-12	clayey silt (Qr)
		12-45	glacial till (Qr)
		45-70	medium-to-coarse silty clay with little clay (Qpc)
		70-80	coarse gravel (Qpc)
		80-105	clay, weathered shale
88	25-43968	abbreviated log	
		0-45	brown clayey silty sand and gravel (Qr)
		45-91	gravel, cobbles, medium-to-fine sand, boulders at base (Qpc)
89	25-7589	0-4	yellow clay, boulders (Qr)
		4-43	gray clay, boulders (Qr)
		43-60	medium gravel, coarse sand (Qpc)
		60-73	yellow clay (Qb?)
		73-92	red shale
		adjacent production well (25-7620) screened 55-65, yield 715 gpm	
90	25-13418 Vecchioli and Nichols, 1966, area 3, OEP test hole 1	0-60	till, brown, few boulders (Qb)
		60-62	gravel, fine, and very coarse sand (Qpc)
		at 62	boulders (Qpc)
91	25-3093	0-45	clay, small stones (Qr)
		45-50	sand (Qpc), yield 50 gpm
92	25-1080	0-10	gravel (Qr)
		10-40	clay, boulders (Qr)
		40-43	gravel (Qpc)
		cased to 55, yield 10 gpm	
93	25-12151	0-15	hand-dug well
		15-41	clay (Qr)
		41-53	hardpan with some stones (Qr)
		53-62	soft gray shale
		62-139	gray and red shale
94	25-1219	0-40	clay, boulders (Qr)
		40-50	sand (Qpc)
		cased to 50, yield 10 gpm	
95	25-1081	0-5	clay (Qr)
		5-40	clay, boulders (Qr)
		40-45	gravel (Qpc)
		cased to 45, yield 10 gpm	
96	25-1109	0-10	clay (Qr)
		10-40	clay, boulders (Qr)
		40-47	sand, gravel (Qpc)
		cased to 47, yield 12 gpm	
97	25-13259	0-48	clay (Qpml over Qr)
		48-63	fine sand, silt (Qpc, Qpcl)
		63-65	clay (Qpcl)
		65-92	sand, gravel (Qis)
		92-112	fine brown sand with clay (Qis, Qisl)
		112-114	red silt, soft red shale (Qb on rock)

98	25-1126	0-30 30-40	hardpan (Qr) sand (Qpc) cased to 40, yield 10 gpm
99	25-22472	0-50 50-93 93-98	sand, gravel (Qr) fine sand (Qpc) gravel (Qpc), yield 7 gpm
100	25-1234	0-22 22-32 32-42	clay (Qr) boulders (Qr) sand (Qpc) cased to 42, yield 10 gpm
101	25-15238	70	
102	25-24496	0-95	sand, gravel (Qtmm over Qpmd) cased to 88, yield 25 gpm
103	N 25-3-964	0-100	boulders and sand (Qtmm over Qpmd)
104	25-617	0-124 124-134	clay, hardpan and rock (Qtmm) granite gneiss
105	25-585	0-140 140-151	clay and hardpan (Qtmm) granite gneiss
106	25-21011	0-50 50-120	clay (Qcg over Qwg) granite
107	25-24869	0-39 39-100	mud and water (Qcg) granite
108	25-21274	0-39 39-98	clay, stones, sand (Qcg) granite
109	25-24168	0-37 37-399	clay, sand, gravel (Qcg) granite
110	25-2195		abbreviated log 0-44 yellowish brown sandy clay and boulders (Qmt over Qtmm) 44-87 yellowish brown sandy clay, a couple of beds of sand and gravel (Qpml, Qpmd) 87-91 broken rock
111	25-695	0-18 18-33 33-83 83-174	dirt and stones (Qmt) gravel and stones (Qmt) sand, stones, and clay (Qtmm) granitic rock
112	25-9272		abbreviated log 0-63 fine-to-coarse sand, boulders, stones (Qtmm) 63-103 coarse sand and gravel (Qpmd) 103-107 fine sand, some small gravel (Qpmd) screened 87-107, yield 518 gpm
113	25-4274		abbreviated log 0-40 fine sand with clay (Qtmm) 40-77 sand, gravel, clay, boulders (Qtmm) 77-101 sand (Qpmd) 101-105 clay (Qpml) screened 58-102, yield 500 gpm
114	25-4271		abbreviated log 0-63 sand, gravel, clay, boulders, hardpan (Qtmm) 63-96 coarse sand and gravel (Qpmd) 96-109 dirty sand (Qpmd) screened 76-108, yield 1000 gpm

115	25-3477	0-20 20-30 30-51 51-71	hardpan and boulders (Qtmn) sand and clay (Qtmn) clean sand, some gravel, makes water (Qpmd) fine sand, reddish clay from 66-66.5 (Qpmd)
			screened 38-70, yield 850 gpm
116	25-4273	0-77 77-101 101-105	abbreviated log sand, clay, gravel, boulders (Qtmn) sand (Qpmd) clay (Qpml)
117	25-731	0-30 30-85 85-135	sand and boulders (Qmt) gravel (Qtmn) granite
118	25-13345	0-80 80-145 At 145	yellow clay (Qtmn) dirty sand (Qpmd) clean sand (Qpmd)
			cased to 145, yield 20 gpm
119	25-21288	0-55 55-165	hardpan and boulders (Qn) sand, gravel (Qpc)
			screened 160-165, yield 40 gpm
120	45-317	0-35 35-60	clay and hardpan (Qn) water-bearing gravel stratum (Qpc)
121	45-316	0-35 35-60	clay and hardpan (Qn) water-bearing gravel stratum (Qpc)
122	25-21431	0-3 3-20 20-40 40-55 55-134	fill gray clay (Qs over Qpml) gray clay with sand (Qn) gray clay, sand, gravel (Qn) gravel, sand (Qpc)
			screened 106-134, yield 948 gpm
123	25-15806	0-20 20-70 70-125 125-165 165-176	hardpan and boulders (Qr) brown sand (Qpc) sand, fine, wet but no water (Qpc) clay (Qpcl) red shale rock
124	P128 Canace and others, 1993	0-1 1-3 3-15 15-17 17-50 50-60 60-170 170-196 196-198	fill black muck (Qs) clay (Qpml) sand and gravel (Qr) hardpan and boulders (Qr) brown sand and gravel (Qpc) yellow hardpan (Qpcl) tan clay and sand (Qb) red rock
125	25-17949	0-35 35-40 40-61 61-75	hardpan (Qr) gravel (Qpc) clay (Qpcl) red rock
126	25-13419 Vecchioli and Nichols, 1966, area 3, OEp test hole 2	0-6 6-19 19-22 22-36 36-40 40-58 58-69 69-99	clay and silt, laminated, yellowish brown, trace fine gravel (Qpml over Qr) till, brown (Qr) clay, silty, with silt and clayey silt, brownish gray, trace sand to fine gravel (Qr) till, brown to yellowish brown, some crystalline pebbles moderately weathered (Qr) sand, interbedded fine-to-medium and fine-to-coarse sand, little silt (Qpc) till, yellowish brown, crystalline pebbles moderately to very weathered (Qb) sand, very-fine-grained, silty, yellowish brown (Qisl) till, brown to yellowish brown, crystalline pebbles very weathered to extremely weathered (Qb)

		99-100 100-109	sand, medium- to very-coarse-grained, silty, little clay, poorly sorted (Qb) gray shale
127	25-39652	0-26 26-46	glacial till (Qr) fine sand, boulders (Qpc)
128	25-13420 Vecchioli and Nichols, 1966, area 3 OEP test hole 3	0-3 3-8 8-10 10-29 29-70 70-95 95-110	clay (Qpml) till, brown (Qr) sand, very-fine to coarse grained, poorly sorted, silty (Qr) till, brown (Qr) sand, fine-to-coarse grained (Qpc) till, brown (Qb) reddish brown shale
129	25-13904	0-30 30-80 80-100 100-247	open well sand (Qpc) red sandstone very soft gray rock
130	25-28560	0-100 100-200	overburden with layers of clay, hardpan, and sand (Qr over Qpc) red shale
131	25-41520	90	
132	25-39088	abbreviated log 0-33 33-58	gray to reddish brown clay (Qpml) gray to brown clayey sand with gravel and boulders (Qr)
133	25-39092	abbreviated log 0-29 29-57	reddish brown to gray clay (Qpml) reddish brown, brown, gray silty and to sandy silt with gravel and boulders (Qr)
134	25-39091	abbreviated log 0-22 22-57	red-brown to gray clay (Qpml) gray to brown clayey silty sand with gravel and boulders (Qr)
135	25-37073	0-90 90-250	clay with layers of fine sand (Qpml over Qr over Qpc) red shale
136	25-33384	90	
137	25-1340	0-55 55-60	boulders, clay (Qr) sand (Qpc) cased to 60, yield 20 gpm
138	25-36770	0-12 12-43	brown hardpan (Qr) brown sand and gravel (Qpc)
139	25-12558	0-70 70-100 100-193	clay and boulders (Qr) sand and clay (Qpc) red sandstone
140	25-21923	0-31 31-76 76-115 115-165	hardpan and gravel with some large boulders (Qr) light brown clayey sand and gravel (Qpc) light brown clay (Qpcl) red shale
141	25-37779	0-35 35-60 60-86	clay, boulders, cobbles, sand (Qr) sand and cobbles (Qpc) cobbles, some clay and till (Qpc, Qpcl, Qb)
142	25-40188	0-12 12-57 57-58 58-84 84-88	clay, sand, gravel (Qr) sand, gravel, cobbles (Qpc) silty clay (Qpcl) gravel, sand, boulders (Qpc or Qis) till (Qb)
143	25-37421	0-47	sand, gravel, boulders (Qr)

		47-90	sand and gravel (Qpc)
144	N 25-14-236	0-10 10-14 14-65 65-80 80-96 96-130 130-410	clay (Qr) boulders (Qr) sandy clay (Qpc) clay and gravel (Qpc or Qis) coarse sand and gravel (Qpc or Qis) clay (Qpcl or Qisl) red shale
145	25-25950	abbreviated log 0-20 20-55 55-60 60-108 108-121 121-126 126-129 129-133	yellow, brown sandy clay (Qr) brown sandy clay with gravel and stones (Qr) fine brown silty sand with clay (Qpc or Qr) sand and gravel with a little clay (Qpc) sandy red clay quite sticky (Qb) light brown silty sand and clay with layers of gray shale red clay with layers of red soft shale soft red shale
146	25-42793	0-5 5-27 27-62	clay (Qr) sand and gravel (Qr or Qpc) sand, gravel, boulders (Qpc)
147	25-28144	0-50 50-65 65-200	clay and gravel mixed (Qr over Qpc) red hardpan (Qb) red shale
148	25-21574	0-59 59-68 68-89 89-92 92-130	hardpan, large stones, clay (Qr) fine silty sand (Qpc) water-bearing sand and gravel with fine sand (Qpc) hardpan, large stones (Qb) brown and gray shale
149	25-22730	0-3 3-50 50-54	gray clay (Qpml) hardpan (Qr) sand, gravel (Qpc) cased to 54, yield 25 gpm
150	25-19957	0-28 28-34 34-51 51-57 57-61	existing well silty sand (Qr) hardpan and stones (Qr) heaving water-bearing sand and gravel (Qpc) choice water-bearing sand and gravel (Qpc)
151	25-14808	0-10 10-30 30-55	clay and boulders (Qr) hardpan (Qr) sand (Qpc) cased to 55, yield 50 gpm
152	25-14402	0-10 10-53	hardpan and boulders (Qr) sand and gravel cased to 53, yield 50 gpm
153	25-14983	0-28 28-41 41-52	hardpan, stones, boulders (Qr) clay (Qpcl) water-bearing sand and gravel cased to 52, yield 20 gpm
154	P136 Canace and others, 1993	0-5 5-15 15-52 52-59 59-61 61-64 64-68 68-88 88-94 94-100	fill, boulders (Qr) clay (Qr) stones, gravel (Qr) sand, gravel (Qpc) stones (Qpc) sand, gravel (Qpc) sand, trace clay (Qpc) coarse sand (Qpc) sand, gravel (Qpc) hard shale

155	25-19609	0-41 41-67 67-71 cased to 71, yield 12 gpm	old well water-bearing silty sand (Qpc) water-bearing sand, gravel (Qpc)
156	25-24012	0-14 14-38 38-46 46-65 cased to 65, yield 15 gpm	hardpan and stones (Qr) sand and gravel with large stones and boulders (Qpc) fine sand (Qpc) water-bearing sand and gravel (Qpc)
157	25-13420 Vecchioli and Nichols, 1966, area 2, OEP test hole 3	abbreviated log 0-4 4-43 43-50 50-59 59-63 63-70 70-75	brown clay (Qr) yellowish brown till (Qr) sand (Qpc) till (Qpc or Qr) sand (Qpc) till (Qb) reddish brown shale
158	25-9725	0-48 cased to 48, yield 35 gpm	sand, gravel (Qr over Qpc)
159	25-15974	0-20 20-60 cased to 60, yield 60 gpm	hardpan and clay (thin Qpmf over Qr) sand (Qpc)
160	25-13311	0-10 10-113 113-120	sand, gravel, clay (Qr) sand and gravel (Qpc) soft shale
161	25-9838	>50 screened 43-50 in gravel (Qpc), yield 110 gpm	
162	25-7655	0-15 15-75 75-80 80-110	fine sand (Qst) clay (Qpml) red hardpan (Qr) red sandstone
163	25-8517	0-75 75-80 80-85 85-100	sand then hit clay (Qst over Qpml) fine sand (Qpml) red hardpan (Qr) red sandstone
164	25-9973	0-21 21-81 81-85 85-103	sand (Qst) clay (Qpml) hardpan (Qr) red shale
165	25-38637	0-26 26-50	clay, sand, gravel (Qr) sand, gravel (Qpc)
166	N 25-14-261	60	
167	25-25580	abbreviated log 0-21 21-54	red-brown silty sand, cobbles (Qr) fine-to-coarse sand, gravel, trace silt (Qpc or Qr)
168	25-21078	0-20 20-41 41-90 90-600	overburden (Qr) sand (Qpc) red clay (Qb) red and gray shale
169	25-37196	abbreviated log 0-48 48-58	brown sand, silt, gravel, till (Qr) gray shale rock
170	25-8954	0-80	clay and hardpan (Qr over Qb)

		80-400	red sandstone
171	25-11890	0-45 45-500	hardpan (Qr over Qb) red rock
172	25-5374	0-58 58-400	clay and sand (Qr over Qb?) red and gray rock
173	25-7875	0-20 20-45 45-543	fill sand and gravel, no water (Qr over Qpc?) red and gray rock
174	25-11704	0-50 50-69 69-97 screened 58-78, yield 550 gpm	hardpan and cobbles (Qr) sand and gravel (Qpc) no samples, well flows (Qpc or Qpcl)
175	25-17606	0-8 8-41 41-64 64-66	clay, fill boulders, sand, gravel (Qr over Qpc) sand, gravel (Qpc) rotten rock and yellow clay (Qpcl?)
176	25-3527	0-58 58-88 88-138 138-141 141-144	brown clay and boulders (Qr) sand and gravel (Qpc) clay and boulders (Qpcl, Qisl, Qis?) sand and gravel (Qis) hardpan to top of rock (Qb)
177	25-48	abbreviated log 0-20 20-53 53-115 115-134 screened 84-116, yield 1000 gpm	clay (Qr) mix of hard sandy clay, rocks stones (Qr) fine-to-coarse sand with clay (Qpc, Qpcl, Qisl) clay, sand, stones, clay, gravel (Qb?)
178	25-25562	abbreviated log 0-65 65-95 95-124 124-137 137-140 140-141	gray sandy clayey hardpan with gravel (Qr) sand and gravel with some silt and clay (Qpc) sandy clay (Qpcl, Qisl) clay with sand and gravel (Qis?) red hardpan with layers of red clay (Qb) red shale
179	25-25834	abbreviated log 0-91 91-115 115-138 138-140 140-143	sandy gray clay to silty sand and gravel, hardpan (Qr over Qpc) light brown fine sand and clay (Qpcl or Qisl) yellow silty sand and clay (Qisl) red hardpan (Qb) red shale
180	25-42939	abbreviated log 0-46	red brown clayey silt, trace sand and gravel (Qr)
181	25-13372	0-20 20-31 31-310 310-384	boulders and clay (Qr) sand and clay (Qpc, Qpcl) red clay, sand and gravel (Qis, Qisl, Qb over Qwc) conglomerate rock
182	25-13594	0-34 34-90 90-100	sandstone and boulders (Qn) sand and gravel (Qpc) rock
183	25-3898	0-100 100-136	dead sand (Qtmn over Qpmd) red shale
184	25-14440	0-25 25-47 47-70 70-81	sand and boulders (Qpmd) sand and clay, gravel (Qpmd) clay (Qpml) sand and granite, trace of clay (Qwg)

cased to 81, yield >20 gpm

185	25-13068	0-38 38-68 68-80	gravel and boulders (Qpmd) sand (Qpmd) brown granite
186	25-21376	14	
187	25-14142	11	
188	25-14116	abbreviated log 0-112 112-171	clay, sand, and stones (Qpmd over Qwg) soft and hard rock
189	25-8493	abbreviated log 0-142 142-145	sand, clay, gravel, stones (Qpmd over Qwg) weathered rock
190	25-13667	0-27 27-76 76-99 99-106 106-112	sand, gravel, large boulders (Qpmd topsets) sand with few stones (Qpmd foresets) clay (Qpml) conglomerate rock water-bearing sand and gravel (Qwc)
191	25-33204	0-34 34-60 60-95 95-130 130-131	gravel and large rocks, coarse sand (Qpmd topsets) fine-to-medium sand, fine sand (Qpmd) fine silty sand, small clay streaks (Qpmd over Qpml) silt and clay (Qpml) rock
192	25-27106	abbreviated log 0-15 15-25 25-46 46-78 78-133 133-134 134-137	hardpan with large boulders and cobbles (Qpmd topsets) sand and gravel (Qpmd topsets) silty sand and gravel (Qpmd) gray silty fine sand, some gravel and clay (Qpmd) gray silt and clay (Qpml) hardpan with hard clay (Qwg?) granite
193	25-33621	abbreviated log 0-40 40-55 55-78 78-127 127-130 130-132	gravel and large rocks, coarse sand (Qpmd topsets) fine-to-medium sand (Qpmd) fine sand and silt, small clay streaks (Qpmd) gray silty clay (Qpml) fine-to-medium sand (Qwg?) very tough drilling (gneiss bedrock)
194	25-26159	abbreviated log 0-21 21-42	brown sand and gravel (Qpmd topsets) brown-gray medium-to-fine sand (Qpmd)
195	25-17798	93	
196	25-13488	0-12 12-46 46-57 57-141	hard clay (Qwg) sand, stone and clay (Qwg) rotten dark brown granite gray granite
197	25-15132	0-25 25-150 150-157	sand (Qpmd) clay (Qpml) sand (Qwg?) cased to 157, yield 15 gpm
198	25-8387	abbreviated log 0-9 9-81 81-88 88-91 91-104	sand and boulders (Qal) gray clay (Qpml) gray sandy hardpan, boulders (Qcg?) brown coarse sand and gravel (Qcg?) yellow sandy hardpan (Qwg?)

		104-134	yellow rock
199	25-27154	0-13 13-27 27-36 36-50	silty clay (Qpmd or Qr) rocks and gravel (Qpmd or Qr) clay silt (Qpmd or Qr) sand and gravel (Qpmd)
200	25-29531	>134	
201	25-41021	0-22 22-50	red-brown silty sand and gravel, little clay, some cobbles, few boulders (Qr) red-brown sand and gravel, coarse gravel and cobbles (Qpmd)
202	25-35190	0-21 21-69 69-71	red-brown clayey silt with some sand, trace fine gravel, grading to well graded sand (Qr) brown well graded sand (Qpmd) red brown clayey fine sand with some gravel (Qpmd)
203	25-1890	abbreviated log 0-28 28-54 54-75 75-93 93-111 111-119 119-153 153-162 162-170 170-203 203-207	reddish brown hardpan and boulders (Qr) fine sand with clay (Qpmd) fine-to-coarse sand (Qpmd) grayish fine dirty soupy sand (Qpml) red hardpan (Qb) reddish brown hard clay (Qisl) red clay (Qisl) reddish brown sandy hardpan (Qb) cemented sand (Qis) reddish brown clay (Qisl) brown rock
204	25-26056	abbreviated log 0-7 7-14 14-35 35-50 50-64	silty brown clay with some cobbles (Qr?) silty brown sand, gravel (Qpmd) silty fine-to-medium sand (Qpmd) brown silt with layers of silty clay and some small gravel (Qpml) brown silt and some medium sand with small pebbles (Qpml)
205	25-43340	0-25 25-60 60-80 80-82	silty till (Qr) fine-to-coarse sand (Qpmd) fine-to-medium sand with silt and clay lenses (Qpmd over Qpml) fine-to-coarse sand (Qis?)
206	25-13244	abbreviated log 0-28 28-33 33-45 45-55 55-90 90-93 93-110 screened 75-85, yield 100 gpm	brown hard pan (Qr) clean sand and gravel (Qpmd) fine brown sand (Qpmd) brown hard pan very sandy large stones (Qr) sand and gravel (Qpmd) fine-to-medium sand with clay (Qpmd, Qpml) hard pan, small stones (Qb) screened 75-85, yield 100 gpm
207	25-13998	0-40 40-190 190-400	sand and clay (Qtmr) sand and clay and boulders (Qtmr over Qpmd) soft red sandstone
208	25-37534	abbreviated log 0-73	sand and gravel (Qpmd)
209	25-23858	>125	
210	25-14092	abbreviated log 0-105 105-110 110-132 132-134 134-149 149-177 177-320	brown to gray sand (Qpmd) hard pan (Qr) gray clay (Qpml) sand and gravel (Qis?) red and brown clay (Qb over Qisl) red clay (Qisl) red and gray shale

211	25-31696	abbreviated log 0-42 tan and brown sand and gravel (Qpmd) 42-45 decomposed red shale (probably Qpml or Qr)
212	25-42108	abbreviated log 0-25 brown medium-to-coarse sand (Qpmd) 25-47 brown, white medium-to-fine sand (Qpmd) 47-75 brown fine sand (Qpmd)
213	25-35081	abbreviated log 0-68 coarse brown sand and gravel (Qpmf) 68-70 brown silt (Qpmd)
214	25-14162 Vecchioli and others, 1967, OEP test hole 15	0-5 medium sand (Qal) 5-20 sandy silty till (Qr) 20-26 clayey silt with some gravel (Qr) 26-58 brown silty clayey sandy till (Qr) 58-72 very fine to very coarse sand (Qpc) 72-89 very compact, brown, silty clayey sandy till (Qb) 89-100 shale, extremely weathered
215	N 25-14-182	0-28 yellow sand and clay (Qst over Qr) 28-70 blue clay (Qr over Qpc, Qpcl) 70-95 red clay (Qb) 95-96 sand (Qb, Qis) 96-152 red rock
216	25-14161 Vecchioli and others, 1967, OEP test hole 16	0-2 fill 2-4 yellowish brown silty fine sand (Qal) 4-11 silty clayey sandy brown till (Qr) 11-13 brown clayey silt (Qr) 13-20 silty sandy brown till (Qr) 20-27 coarse sand (Qpc) 27-41 silty sandy brown till (Qr) 41-45 fine gravel, water-bearing (Qpc) 45-48 sandy silty gravelly brown till (Qr) 48-68 fine sand, little coarse sand (Qpc) 68-94 medium-to-coarse sand, little fine sand, water-bearing (Qpc) 94-128 laminated brown clayey silt (Qpcl) 128-143 silty clayey sandy brown till, very weathered (Qb) 143-148 shale screened 75-85, yield 105 gpm
217	25-19683	0-19 hardpan and stones (Qr) 19-66 clay (Qpcl) 66-98 water-bearing heaving sand (Qis) 98-125 water-bearing sand and gravel (Qis) cased to 125, yield 15 gpm
218	25-19787	0-4 clay (Qst or Qr) 4-28 hardpan and stones (Qr) 28-57 clay (Qpcl) 57-69 silty sand (Qis) 69-130 water-bearing heaving sand and gravel (Qis) cased to 130, yield 15 gpm
219	25-12627	0-22 hardpan (Qst) 22-46 clay (Qpml) 46-68 hardpan and stones (Qr) 68-128 silty water-bearing sand and gravel (Qpc) cased to 128, yield 30 gpm
220	25-21158	abbreviated log 0-20 brown sand and boulders (Qr) 20-60 brown sand and gravel (Qpc) 60-70 brown sand and some gray clay (Qpcl) 70-75 reddish brown clay (Qisl) 75-135 gray to brown to reddish brown sand, a little gravel (Qis)

221	25-5031	0-15 15-65 65-95 95-107 107-132 132-140 140-150 screened 108-128, yield 320 gpm	sand and boulders (Qst over Qr) sand and gravel (Qpc) sand, gravel, and clay (Qpc over Qpcl) yellow clay (Qisl) coarse sand and gravel (Qis) yellow clay (Qisl) very fine sand (Qis)
222	25-19030	0-50 50-123 cased to 123, yield 15 gpm	sand (Qr over Qpc) gravel (Qpc, Qis)
223	25-14231	>70	
224	25-13744	0-20 20-45 45-65 cased to 61, yield >20 gpm	sand (Qpmf) gray clay (Qr?) sand, gravel (Qpc)
225	25-13911	0-45 45-55 55-90 90-95 cased to 95, yield 7 gpm	sand, gravel, clay (Qtmr) sand, gravel (Qpc) sand (Qpc) sand, gravel (Qpc or Qis)
226	25-22516	abbreviated log 0-20 20-75 75-85 85-90 90-100	brown sand and gravel (Qal over Qst) gray clay (Qpml) gray clay, brown sand and stones (Qr) muddy sand and gravel (Qpc) gray slate
227	25-11349	0-38 38-41 41-65 65-75 screened 56-67, yield 120 gpm	fill and clay (Qst over Qpml) brown sand (Qpmf) gravel (Qpmf) slate
228	25-14205	0-65 65-115 screened 85-115, yield 1500 gpm	clay (Qpml over Qr over Qpcl) sand and gravel (Qis)
229	25-13672	>130 screened 100-110 in gravel (Qis?), yield 484 gpm	
230	Vecchioli and others, 1967, N. J. P&L test well 4	0-30 30-120 120-130 130-135	till (Qr) sand and gravel (Qpc, Qis) till (Qb) rock
231	N 25-14-365	0-7 7-40 40-60 60-90 90-130 130-157 157-303	yellow clay (Qpml) hardpan (Qr) fine sand (Qpc) coarse sand and gravel (Qpc or Qis) coarse sand, water (Qpc or Qis) clay and gravel mixed (Qb) varicolored shale and sandstone
232	25-26394	0-8 8-17 17-33 33-35 35-67 67-102	fill wood, sand, some gravel and stones (Qal) soft gray clay and fine sand (Qpml) coarse sand and cobbles (Qr?) gray clay (Qpcl) sand, stone, gravel, cobbles, some clay balls (Qis)
233	25-3988	0-25	sand, gravel, and stone (Qr)

		25-92	sand and gravel, water (Qpc)
		screen 82-92,	yield 60 gpm
234	25-32834	0-50	clay, gravel (Qr)
		50-77	gravel (Qpc)
235	25-25615	0-27	brown fine silty sand with some clay and some cobbles and gravel (Qr)
		27-72	brown fine-to-medium sand with some gravel, some silt, trace cobbles, trace clay (Qpc)
236	25-25616	0-25	brown fine silty sand with trace of clay and trace of cobbles (Qr)
		25-67	brown fine-to-medium sand with some gravel, some silty clay, trace cobbles (Qpc)
237	25-31350	0-12	brown sand, clay (Qr)
		12-24	stones (Qr)
		24-75	fine brown sand and stones (Qpc)
238	25-40823	0-50	brown fine sand, trace clay, silt, fine gravel (Qr)
		50-70	brown coarse-to-fine sand, trace silt, trace gravel and cobbles (Qpc)
239	25-29364		abbreviated log
		0-40	red-brown silty sand and gravel (Qr)
		40-64	red-brown medium-to-coarse sand and gravel (Qpc)
240	25-29362		abbreviated log
		0-62	brown, red-brown silty sand and gravel (Qr)
241	25-43888	0-25	clay and sand (Qr)
		25-92	sand and gravel (Qpc)
242	25-40790	0-10	fill
		10-18	brown clayey till (Qr)
		18-40	brown medium-to-fine sand, some coarse-to-fine gravel, trace cobbles (Qpc)
243	25-34045	0-13	brown, light brown varved silt, clayey silt, clay (Qr?)
		13-100	light red brown coarse-to-fine sand, little gravel, little silt (Qpc)
		100-122	brown-gray medium-to-fine sand, trace silt (Qpc)
244	25-43889		abbreviated log
		0-11	clay and gravel (Qr)
		11-100	sand and gravel (Qpc)
		100-125	sand, gravel and clay (Qpc, Qb?)
		125-126	clay, red shale
245	25-13563		abbreviated log
		0-23	clay, gravel, boulders (Qr)
		23-101	sand and gravel (Qpc)
		101-106	blue and red shale
246	25-34051	0-18	brown fine-to-coarse sand and gravel, shale fragments, some silt (Qr)
		18-122	brown coarse-to-fine sand, trace gravel and silt (Qpc)
247	25-34054		abbreviated log
		0-30	gray-brown fine-to-coarse sand and gravel, some silt (Qr)
		30-41	gray-brown fine-to-coarse sand and silt, trace fine gravel, wet (Qr or Qpc)
		41-47	red-brown clayey silt and coarse-to-fine sand (Qb or Qpcl)
		47-50	red-brown weathered shale (anomalous depth to rock, not contoured, Qpcl?)
248	25-40812		abbreviated log
		0-12	brown sand and silt, trace gravel (Qr)
		12-50	brown-gray sand, little silt (Qpc)
		50-85	brown sand and gravel, little silt (Qpc)
		85-140	brown-gray sand, little gravel (Qpc)
		at 140	siltstone
249	25-13476		abbreviated log
	Vecchioli	0-28	yellowish brown till (Qr)
	and Nichols,	28-40	brown silt and fine sand (Qpcl, Qpc)

	1966, area 1 OEP test well 1	40-136 136-141 screened 113-123, yield 360 gpm	medium-to-coarse sand (Qpc) reddish gray shale
250	25-13679 Vecchioli and Nichols, 1966, area 1 OEP test well 2	abbreviated log 0-4 4-23 23-50 50-56 56-120 120-125 screened 100-110, yield 350 gpm	gray clay (Qs) brown till (Qr) coarse sand (Qpc) gravel (Qpc) coarse sand (Qpc) reddish brown siltstone
251	25-15311	0-4 4-15 15-35 35-42 cased to 42, yield 50 gpm	fill clay (Qr) hardpan and boulders (Qr) sand (Qpc)
252	25-13477	abbreviated log 0-1 1-31 31-35 35-44 44-48 48-50 50-61	swamp muck (Qs) brown till (Qr) sand (Qpc) brown till (Qr) medium-to-coarse sand (Qpc) brown till (Qb) reddish brown shale
253	25-11113	108	
254	25-11341	0-40 40-85 85-95 95-111 111-168	gravel, boulders (Qr) sand and gravel (Qpc) sand (Qpc) red clay (Qb) red rock
255	25-11342	0-45 45-75 75-97 97-143	gravel and boulders (Qr) sand, gravel (Qpc) red clay (Qb) red rock
256	25-11114	0-50 50-120 120-150	gravel, boulders (Qr) sand (Qpc) red rock
257	25-11329	0-40 40-87 cased to 87, yield 18 gpm	gravel, boulders (Qr) sand, gravel (Qpc)
258	25-11330	0-50 50-92 92-95 95-141	gravel, boulders (Qr) sand, gravel (Qpc) red rock clay (Qb) red rock
259	25-11343	0-50 50-60 60-68 68-108	gravel, boulders (Qr) sand, gravel (Qpc) red clay (Qb) rock
260	25-11331	0-50 50-90 90-100 100-145	gravel and boulders (Qr) sand, gravel (Qpc) clay (Qb) red rock
261	25-12326	0-21 21-53 53-79 79-84 84-90	clay and stones (Qr) sand and heavy gravel (Qpc) water-bearing silty sand and gravel (Qpc) clay (Qpcl) water-bearing sand and gravel (Qpc)

		90-141	red shale
262	Vecchioli and Nichols, 1966, area 1 other well 1	abbreviated log 0-10 10-15 15-127 127-130	brown silty clay (Qr) brown silty clayey sand (Qr) medium-to-very-coarse sand, fine gravel (Qpc) red shale
263	25-14182	0-5 5-7 7-16 16-21 21-30 30-38 38-64 64-121 121-124	brown sand fill topsoil (Qs) dark gray clay (Qs over Qpml) brown and gray clay (Qpml) clay and silty fine sand (Qpml) gray clay, gravel, stones (Qr) stone, medium-to-coarse gravel (Qpc) sand, gravel, stones (Qpc) dirty very coarse sand, gravel, large stones (Qpc or Qb) screened 82-118, yield 1557 gpm
264	25-14181	abbreviated log 0-2 2-4 4-11 11-24 24-31 31-124 124-128	fill topsoil (Qs) gray clay (Qs) silty gray sand (Qst or Qpml) silty gray clay (Qpml) gravel, stones, sand (Qpc) slate screened 75-122, yield 1500 gpm
265	25-13653 Vecchioli and Nichols, 1966, area 1 OEP test well 3	abbreviated log 0-3 3-10 10-37 37-39 39-108 108-116 116-124 124-129	swamp muck brownish gray clay (Qr) brown till (Qr) silt and fine sand (Qpc) coarse sand with some gravel (Qpc) pebbly till (Qb or Qpc) sand and gravel (Qpc or Qis) reddish brown shale screened 99-108, yield 330 gpm
266	Vecchioli and Nichols, 1966, area 1 OEP test well 4	abbreviated log 0-7 7-39 39-74 74-89 89-98	brown clay, little fine gravel (Qr) brown till, few boulders (Qr) medium-to-coarse sand, some fine gravel (Qpc) yellowish brown till (Qb) brown till (Qb) screened 60-70, yield 315 gpm
267	25-13475 Vecchioli and Nichols, 1966, area 1 OEP test hole 1	abbreviated log 0-1 1-31 31-35 35-44 44-48 48-50 50-61	swamp muck brown till (Qr) fine-to-coarse sand, some silt, little clay (Qpc) brown till (Qr) medium-to-very-coarse sand (Qpc) brown till (Qb) reddish brown shale
268	25-14981	0-4 4-60 60-65 65-75	topsoil and fill clay (Qr) hardpan (Qr) sand (Qpc) cased to 75, yield 20 gpm
269	24-42455	0-15 15-29 29-45 45-62	medium sand (Qr?) fine-to-medium sand (Qpc) fine-to-medium sand with cobble (Qpc) medium sand (Qpc)
270	25-35985	0-8	clay (Qr?)

		8-50	fine sand and gravel (Qpc)
271	25-14872	0-5	topsoil and hardpan (Qpml)
		5-15	clay (Qpml)
		15-25	sand and clay (Qr?)
		25-35	fine sand (Qpc)
		35-55	gravel and sand (Qpc)
		55-58	red hardpan (Qb)
		58-78	red shale
272	25-7639	0-40	sand and gravel (Qpmf)
		40-49	clay (Qpml or Qr)
		49-55	dirty sand (Qr?)
		55-62	clay (Qpcl)
		62-80	clay and sand (Qpcl)
		80-90	clay (Qpcl or Qb)
		90-272	red shale rock
273	25-28444	abbreviated log	
		0-28	silt and sand (Qpmf)
		28-40	gray silty clay (Qpml)
		40-67	till-cobbles and gravel, fine-to-medium sand and silt (Qr)
274	25-4586	0-33	hardpan (Qpmf over Qr)
		33-77	sand and gravel (Qpc)
		cased to 77, yield 20 gpm	
275	25-43101	0-12	gray-brown clay, trace medium-to-fine sand (Qr)
		12-55	brown coarse-to-fine sand, trace clay and gravel (Qpc)
276	25-14873	0-10	clay (Qpml)
		10-30	hardpan and clay (Qr)
		30-80	sand and gravel (Qpc)
		80-100	gravel and clay (Qpc or Qis)
		100-110	sand and clay (Qpcl or Qis)
		110-125	red hardpan (Qr)
		125-135	red shale
277	25-1830	abbreviated log	
		0-12	gray clay (Qpml)
		12-26	boulders, clay, hardpan (Qr)
		26-47	red hardpan (Qr)
		47-94	sand with some clay and gravel (Qpc)
		94-109	sandy clay (Qpcl)
		109-120	reddish fine sandy clay (Qb?)
		120-128	red shale
278	25-2193	0-5	black dirt (Qs)
	Vecchioli	5-25	brownish gray clay (Qpml)
	and Nichols,	25-43	brown hardpan (Qr)
	1966, area 1	43-47	sand and gravel, clay binder (Qpc or Qr)
	other well	47-109	medium and coarse sand (Qpc)
	7	109-118	red hardpan (Qr)
		118-121	brown hardpan (Qr)
		at 121	red rock
		screened 100-110, yield 210 gpm	
279	25-12423	0-6	sand and gravel fill
	Vecchioli	6-11	hardpan and boulders (Qr)
	and Nichols,	11-23	clay, hardpan and boulders (Qr)
	1966, area 1	23-53	cemented sand, seams of hardpan and boulders (Qr, Qpc)
	other well	53-77	medium sand (Qpc)
	1	77-88	clay (Qpcl)
		88-101	sand, some gravel (Qis)
		101-103	sandy clay with some gravel (Qb?)
		screened 67-103, yield 735 gpm	
280	25-20415	abbreviated log	
		0-27	boulders, rock, sand (Qr)

		27-45	sandy clay and gravel (Qr)
		45-73	hard brown clay (Qpcl)
		73-102	clay and stones (Qis?)
		102-143	clayish sand and gravel (Qis?)
		screened 86-136, yield 876 gpm	
281	25-35724	0-48	red brown glacial till (Qr)
		48-51	red brown coarse-to-fine sand (Qpc)
282	25-14163	0-60	silty sandy dense brown till (Qr)
	Vecchioli	60-67	very-fine-to-fine sand, silty, brown (Qpc)
	and others,	67-76	clayey sandy yellowish brown till (Qb)
	1967, OEP	76-78	clay with shale fragments
	test hole 6	78-84	reddish brown shale
283	25-14148	abbreviated log	
	Vecchioli	0-10	yellow-brown till (Qr)
	and others,	10-25	very fine silty clayey brown sand, some pebbles (Qr)
	1967, OEP	25-33	brown clayey till (Qr)
	test hole 5	33-65	sand and gravel (Qpc)
		65-81	sand and silt (Qpc, Qpcl)
		81-85	reddish brown clayey silt with shale fragments (Qb)
		85-87	coarse sand (Qis)
		87-91	gray and red shale
284	25-14150	abbreviated log	
	Vecchioli	0-20	dark gray clay (Qpml)
	and others,	20-47	clayey brown till (Qr)
	1967, OEP	47-124	coarse sand and gravel (Qpc)
	test hole 4	124-130	red and gray shale
		screened 110-120, yield 300 gpm	
285	Vecchioli	0-12	no log
	and Nichols,	12-27	clay (Qpml)
	1966, area 1	27-35	boulders (Qr)
	other test	35-60	gravel and fine sand (Qpc)
	hole 2	60-87	fine sand and clay (Qpc, Qpcl)
		87-118	gray rock
		118-145	red rock
286	Vecchioli	0-11	brown clay (Qr)
	and Nichols,	11-35	brown hardpan with boulders (Qr)
	1966, area 1	35-38	brown clay (Qr)
	other test	38-55	sand (Qpc)
	hole 1	55-65	sand and clay lenses (Qpc, Qpcl)
		65-70	hardpan (Qb)
		70-71	sand (Qis)
		71-75	sandy hardpan (Qb)
		75-77	rock
287	25-9086	abbreviated log	
		0-10	brownish red silty sand with gravel (fill?)
		10-20	very clayey coarse sand (Qpml?)
		20-43	brown clay with coarse sand (Qpml)
		43-49	brown clay with coarse sand and gravel (Qr)
		49-65	silty fine-to-coarse sand (Qpc)
		65-70	silty gravel (Qb?)
		70-80	gray clay with shale fragments (Qb or Qws)
		80-108	gray shale
		108-140	soft red shale
288	25-6558	0-40	clay and stones (Qr)
		40-80	red clay and stones (Qr)
		80-120	sand and gravel (Qpc)
		120-132	sandy clay (Qpcl)
		screened 109-119, yield 222 gpm	
289	25-15953	0-5	red clay (Qpml)
		5-8	black muck (Qpml)

		8-71	red clay, gravel, boulders (Qr)
		71-78	fine-to-medium sand (Qpc)
		78-88	coarse sand and small gravel (Qpc)
		screened 71-88, yield 150 gpm	
290	25-38780	abbreviated log	
		0-6	fill
		6-10	black peat
		10-17	brown and gray varved clay (Qpml)
		17-27	reddish brown clay (Qpml)
		27-41	reddish brown silty clayey sand and gravel, cobbles and boulders (Qr)
291	Hoffman and others, in review, W885	>62	screened 51-62, yield 200 gpm
292	25-43287	0-5	fill
		5-36	clay, sand, gravel, boulders (Qr)
		36-57	decomposed red shale (probably Qpcl)
		57-130	red shale
293	25-8244	90	
294	25-42452	abbreviated log	
		0-70	brown sand, gravel, trace silt (Qr over Qpc)
295	25-28315	abbreviated log	
		0-35	glacial moraine--clayey silty sand with gravel, cobbles, boulders (Qr)
		35-45	decomposed red shale
		45-75	red shale
		75-106	blue-gray hard shale
296	N 25-14-514	0-17	clay with small stones (Qpml over Qr)
		17-26	coarse gray sand with stones (Qpc)
		26-36	coarse brownish gray sand with trace clay (Qpc)
		36-44	hard brown clay and grit (Qr or Qpcl)
		44-49	fine brown sandy clay with grits (Qr or Qpcl)
		49-56	light brown clay with grits (Qpcl)
		56-76	reddish brown clay and grits (Qpcl or Qb)
		76-80	red shale
297	N 25-14-514	abbreviated log	
		0-28	gray and brown clay, sand, stones, grit (Qr)
		28-38	hard brown clay, grit (Qr)
		38-64	coarse gray sand and gravel, artesian water conditions (Qpc)
		64-71	hard red clay changing to hard shale
298	25-4167	abbreviated log	
		0-23	sand, gravel, boulders (Qr)
		23-98	sand and gravel (Qpc)
		98-133	yellow water-bearing sand (Qpc or Qis)
		at 133	sand and clay (Qb or Qisl)
		screened 107-132, yield 350 gpm	
299	25-4053	>133	good water-bearing sand at 114 (Qpc or Qis)
		screened 113-133, yield 220 gpm	
300	25-34901	abbreviated log	
		0-37	brown clay and gravel (Qr)
		37-65	sand and gravel (Qpc)
		65-90	sand with clay (Qpcl)
		90-100	hard red clay with sand and gravel (Qb)
		100-130	brown and red shale
301	25-26582	>80	
302	25-34058	0-110	gravel/sand/clay (Qtmr over Qpc over Qpcl)
		110-122	sand (Qis?)
		122-135	rock

		135-470	shale
303	25-22434	0-90	boulders, silt (Qtmr)
		90-142	fine sand, silt (Qpc, Qpcl)
		142-171	red and gray clay (Qisl)
		171-175	gravel and coarse sand, water (Qis)
		175-300	hard red shale
304	25-10487	0-71	clay, gravel, boulders (Qtmr)
		71-165	sand, gravel, some clay (Qpc, Qpcl)
		165-205	coarse sand (Qis)
		205-220	dirty sand, some gravel (Qb?)
		220-271	coarse sand and gravel
		screened 241-271,	yield 236 gpm
305	25-18982	0-50	sand and large gravel (Qtmr)
		50-130	clay and sand (Qpml)
		130-160	sand (Qis)
		160-189	sand and gravel (Qis)
		189-210	sand (Qis)
		210-218	hard red clay (Qb)
		218-231	sand and gravel (Qis)
		screened 221-231,	yield 20 gpm
306	25-9253		abbreviated log
		0-50	brown clay and boulders (Qtmr)
		50-120	brown clay and stones (Qtmr, Qpcl)
		120-171	sand and gravel (Qis)
		171-173	red shale (Qb?)
		173-185	gray like hardpan or rotten rock (Qb?)
		185-188	red shale
307	25-29037		abbreviated log
		0-63	boulders, gravel, clay (Qtmr)
		63-80	fine sand (Qpmd)
		80-101	gravel (Qpmd)
		101-123	brown clay, gravel (Qpml)
		123-170	brown clay (Qpml)
		170-183	gravel with silty clay (Qis)
		183-195	gray and brown sand and clay (Qis, Qisl)
		195-214	rocks and clay (Qb)
		214-237	sand (Qis)
		screened 215-235,	yield 350 gpm
		adjacent well 25-28597	shows >321 to rock
308	25-30478		abbreviated log
		0-62	reddish brown clayey sand with gravel (Qtmr)
		62-81	sand and gravel (Qpmd)
		81-140	gray to reddish brown silty clay (Qpml)
		140-200	sand (Qis)
		200-201	gray weathered shale (Qb?)
309	25-15313	0-120	red sand and gravel (Qtmr over Qpmd)
		120-183	clay (Qpml)
		183-202	sand (Qis)
		202-228	sand and gravel (Qis or Qb)
		228-245	gray shale
		245-253	hard gray rock
310	25-13613	0-47	hardpan with cobbles and boulders (Qtmr)
		47-90	dirty sand and gravel (Qpmd)
		90-150	clay (Qpml)
		150-202	hardpan (Qb or Qis)
		202-207	clay (Qisl)
		207-217	sand (Qis)
		217-224	clay (Qisl)
		screened 211-216,	yield 22 gpm
311	N 25-14-423	0-250	clay and hardpan (Qtmr over Qpmd, Qpml)

		250-270	same, streaks of sand (Qis?)
		270-300	quick sand (Qis)
		300-885	gray and red rock
312	25-13047	150	
313	25-13680	0-38	hardpan and stones (Qpmd, topset gravel)
		38-92	sand and gravel (Qpmd)
		92-140	clay (Qpml)
		140-185	hardpan and stones (Qb or Qr)
		185-207	water-bearing sand and gravel, quite silty (Qis or Qpmf)
		207-262	gray and red shale and sandstone
314	25-13070	0-60	sand, gravel (Qpmd)
		60-100	sand (Qpmd)
		100-175	red clay (Qpml)
315	25-34663		abbreviated log
		0-35	brown clay and gravel (Qtmr)
		35-80	sand (Qpmd)
		80-205	sand and gravel (Qpmf)
		205-224	brown clay and gravel (Qr)
		224-275	fine sand and clay (Qpml)
		275-292	fine sand and gravel (Qis)
		292-299	brown clay and gravel (Qb)
			screened 272-282, yield 257 gpm
316	25-16215	0-18	gravel, clay, boulders (Qtmr)
		18-90	gravel, clay, small stones (Qtmr over Qpmd)
		90-190	fine dirty sand (Qpml)
		190-200	sand and gravel (Qpmf)
		200-235	sand (Qpmf)
		235-238	sand, mixed with clay (Qr?)
			screened 223-233, yield 15 gpm
317	25-38674	0-42	sand, gravel, boulders (Qpmd, topset gravel)
		42-215	sand, some silt, some layers of gravel and boulders (Qpmd over Qpml over Qpmf)
318	25-19279	0-240	silt, clay, sand and gravel (Qpmd over Qpml over Qpmf)
		240-580	shale
319	25-29269		abbreviated log
		0-12	brown silty clayey sand (Qr)
		12-55	sand and gravel (Qpmd)
		55-90	fine sand, silt, clay (Qpml)
320	25-30965		abbreviated log
		0-30	brown sandy silt, boulders (Qr)
		30-75	sand (Qpmd)
		75-115	sand and gravel (Qpmf)
		115-120	brown silt (Qpml)
321	25-14488	0-25	gravel and sand (Qpmd)
		25-80	sand (Qpmd)
		80-125	sand and gravel (Qpmf)
		125-166	brown sand and silt (Qpml)
322	25-35960		abbreviated log
		0-11	fill
		11-23	brown clayey silty sand (Qr)
		23-44	sand and silt (Qpmd)
		44-82	clay and silt (Qpml)
323	25-12786	0-256	sand
		256-507	gray and red shale
324	25-25597	0-10	sand (Qpmd)
		10-15	gravel (Qpmd)

		15-113	clay (Qpml)
		113-425	shale
325	25-8717	0-30	sand (Qpmd)
		30-110	clay (Qr over Qpml)
		110-115	gravel (Qis?)
		115-148	clay (Qisl)
		148-162	gravel (Qis or Qb)
		at 162	rock
326	25-960	0-20	sand, gravel, clay-hardpan (Qpmd)
		20-30	sand, gravel (Qpmd)
		30-40	hardpan (Qr)
		40-60	sand, clay, fine sand (Qpml)
		60-130	clay, some sand and gravel (Qpml over Qb)
		130-142	dry hard gray clay (Qisl or Qb)
		142-330	red and gray clay
327	25-15756	0-10	fill
		10-60	hardpan and boulders (Qpmd)
		60-175	fine silty sand (Qpml, Qisl, Qb)
		175-350	red sandstone
328	N 25-14-178	172	
329	25-3701	0-50	sand and gravel (Qpmd)
		50-90	hardpan (Qr over Qpml)
330	25-15105		abbreviated log
		0-15	fill and sand (Qst)
		15-102	gray clay (Qpml)
		102-113	yellow clay (Qisl)
		113-142	sand and gravel (Qis)
			screened 131-141, yield 15 gpm
331	25-41264		abbreviated log
		0-6	fill
		6-12	medium-to-coarse sand (Qal)
		12-39	silty clay (Qpml)
332	25-32177	0-14	clay and gravel (Qpmd)
		14-165	gray-brown clay and silt (Qpml)
		165-188	soft rotten shale
		188-298	red shale
333	N 25-13-634	0-95	gray muck (Qpmd over Qpml)
		95-?	pinkish gray conglomerate
334	25-31230	>100	
335	25-41391	0-14	weathered gneiss (Qwg)
		14-20	gneiss
336	25-42845	0-9	brown medium-to-fine sand, trace clay and silt (Qwg)
		9-25	yellow tan schist, trace mica
337	25-30436	0-25	sandy hardpan (Qwg)
		25-798	granite
338	25-7631	0-65	clay and stones (Qcg over Qwg)
		65-75	granite rock
		75-82	rotten rock and gray clay (Qwg)
		82-506	granite
339	25-13043	0-74	sand (Qpmd)
		74-90	silt and brown clay (Qpml)
		90-135	gravel (Qis)
		135-150	hardpan and gravel (Qb)

340	25-15508	109	
341	25-2685	0-30 30-65 65-120 120-299	coarse brown sand (Qpmd) fine brown sand (Qpmd) clay (Qpml) red and gray shale
342	25-13048	0-60 60-125 125-150	sand and gravel (Qpmd) gray clay (Qpml) red rock
343	25-13593	abbreviated log 0-37 37-57 57-442	abbreviated log brown clay and hardpan with broken stones and rocks (Qpml over Qwc) gray clay hardpan with coarse sand and gravel (Qwc) red and gray rock
344	25-14035	0-2 2-48 48-60 60-80 85-86 86-145 145-167 167-177 177-197 197-221 at 221	cinder and ash fill (af) brown, gray sandy clay (Qpml) yellowish brown hardpan (Qws) yellow clay and sand (Qws) coarse brown sand (Qws) brown rock, sharp gray rock and clay brown rock reddish brown rock gray rock and clay reddish brown rock
345	25-14520	0-1 1-3 3-41 41-265	fill dead sand (Qpml or slopewash) swamp clay (Qpml) gray and brown shale
346	25-5647	0-40 40-140 140-504	brown sand (Qpmd) brown clay (Qpml) gray and red sandstone
347	25-8577	0-18 18-110 110-130 130-146 146-507	sand (Qpmd) fine sand, clay (Qpmd over Qpml) gravel, clay (Qr or Qpmf) hardpan (Qr) red and gray rock
348	25-43775	abbreviated log 0-48 48-52	abbreviated log brown sand (Qpmd) silt, little fine sand (Qpml)
349	25-13439	0-35 35-95 95-118 118-120 120-496	gray clay (Qpml) brown clay (Qpml) yellow clay and stones (Qpml over Qr) red hardpan (Qr) red rock
350	25-22128	abbreviated log 0-60 60-63	abbreviated log fine sand (Qpmd) silty sand (Qpml)
351	25-13003	0-50 50-175	sand, gravel (Qpmd) gray clay (Qpml)
352	25-21873	0-215 215-220 220-298	sand and gravel (Qpmd over Qpmf) red clay, gravel, water (Qb or Qr) red shale
353	25-11968	abbreviated log 0-104 104-125 125-135 135-183	abbreviated log dirty sand and gravel (Qpmd) dirty sand (Qpmd) clay (Qpml) sand and gravel (Qpmf)

		183-193	clay (Qr?)
		193-600	red and gray shale
354	25-25348	abbreviated log	
		0-32	fill
		32-52	sand, silty sand (Qpmd)
		52-74	sand, gravel, boulders (Qpmf)
355	25-26568	0-158	gravel, sand
		158-330	shale
		adjacent well (45-44955) is screened 141-159, yield 133 gpm	
356	25-14658	0-15	clay and small boulders (Qr)
		15-78	brown silt with fine sand and gravel (Qpc, Qpcl)
		78-88	clean gravel (Qis)
		88-90	red clay (Qb or Qisl)
		screened 78-88, yield 100 gpm	
357	25-34001	abbreviated log	
		0-26	brown clay, silt, and gravel (Qr)
		26-78	coarse sand and gravel (Qpc)
358	25-4660	0-98	brown shelly rock (Qpml over Qr over Qpc, Qpcl)
		98-101	gravel (Qis)
		101-111	brown shale (Qis or Qisl)
		111-160	good water-bearing sand (Qis)
		screened 120-160, yield 1353 gpm	
359	25-42064	0-15	brown clayey to sandy till (Qtmr)
		15-25	brown medium-to-fine sand (Qpc)
		25-65	brown gravel and sand (Qpc)
360	25-6982	0-44	clay (Qr)
		44-72	sand and gravel (Qpc)
		cased to 72, yield 20 gpm	
361	25-4918	0-98	brown shaley formation (Qr over Qpc over Qpcl)
		98-101	gravel (Qis)
		108-111	brown shale (Qis or Qisl)
		111-168	good water-bearing sand
		screened 120-160, yield 1353 gpm	
362	25-14168	abbreviated log	
	Vecchioli	0-30	silty sandy brown till (Qr)
	and others,	30-40	fine sand with interbedded silt (Qpc or Qpmf)
	1967, OEP	40-79	medium-to-coarse sand (Qpc or Qpmf)
	test hole 11	79-88	silty sandy yellowish-brown till (Qr)
		88-102	medium-to-coarse sand, water-bearing (Qpc)
		102-108	fine-to-coarse silty sand (Qpc)
		108-114	laminated brown silty clay (Qpcl)
		114-138	silty sandy clayey yellowish brown to reddish brown till (Qb)
		138-141	silty fine-to-coarse reddish brown sand (Qb)
		141-144	reddish brown shale
363	25-14149	abbreviated log	
	Vecchioli	0-20	yellow-brown clayey till (Qpml over Qr)
	and others,	20-30	silty medium sand (Qpc)
	1967, OEP	30-50	clayey yellow-brown, brown, and rust colored till, crystalline and shale
	test hole 9		pebbles are highly weathered (Qb)
		50-57	clayey sand (Qisl)
		57-71	sandy, pebbly till, some pebbles highly weathered (Qis or Qb)
		71-103	medium-to-coarse sand with gravel, water-bearing (Qis)
		103-110	medium-to-coarse sand, water-bearing (Qis)
		110-120	coarse sand and gravel, water-bearing (Qis)
		120-125	red shale
		screened 100-110, yield 205 gpm	
364	25-14147	abbreviated log	
	Vecchioli	0-19	brown silty clay (Qpml)

	and others, 1967, OEP test hole 10	19-30 30-40 40-88 88-120 120-124 a 124 screened 105-115, yield 100 gpm	silty sandy brown till (Qr) sand (Qpc) silty sandy brown till, pebbles moderately weathered (Qb) sand, some fine gravel (Qis) clayey reddish brown till (Qb or Qws) red shale
365	EO 8 Thompson, 1932	87	
366	EO 36 Thompson, 1932	83	
367	25-32364	0-64 64-76 76-123	sand, gravel, red clay (Qr over Qpc, Qpcl) soft red shale and red clay (Qb, Qws) red and gray rock
368	25-14146 Vecchioli and others, 1967, OEP test hole 13	abbreviated log 0-18 18-30 30-33 33-41 41-49 49-54 54-58 58-75 75-78 78-90 screened 63-73, yield 95 gpm	clayey, pebbly brown till (Qr) silty very fine sand (Qpc) sandy brown till (Qpc or Qr) sand (Qpc) pebbly, clayey, silty brown till (Qb) very-fine-to-fine sand (Qis) brown till (Qb) sand (Qis) reddish brown clay with some sand and gravel (Qis over Qws) red, gray, tan shale
369	25-14165 Vecchioli and others, 1967, OEP test hole 12	abbreviated log 0-10 10-25 25-30 30-50 50-70 70-75 75-80 80-85 85-120 120-125 125-135	sandy brown clay (Qr) silty brownish red very compact till (Qr) coarse-to-medium sand (Qpc) silty, sandy, brown to rust till (Qb) coarse water-bearing sand (Qis) medium brown silty clayey sand (Qis) brown plastic clay, some silt and sand (Qisl) clayey silty reddish brown till (Qb) silty fine sand, rust-brown, water-bearing (Qis) red clayey till (Qb or Qws) red shale
370	25-4207 Madison well B	abbreviated log 0-15 15-30 30-45 45-60 60-70 70-118 118-138	gray clay and sand (Qr) brown clay and sand (Qr) brownish gray clay (Qpcl) brownish gray clay mixed with sand (Qpcl) buff-gray clay (Qpcl) brown clayey sand (Qis) yellow clayey sand (Qis)
371	Hoffman and others, in review, W0367 (Madison 8)	abbreviated log 0-22 22-42 42-73 73-164 164-169 at 169	loam and sand (Qr) sand and gravel (Qpc) sand and clay (Qpc, Qpcl) sand, some gravel and pebbles (Qis) limestone [shale or till] fragments (Qb?) rock
372	25-1962	0-21 21-27 27-28 28-30 30-65 65-82	hardpan (Qr) sand and gravel (Qpc) big gravel (Qpc) sand and gravel (Qpc) sand with some clay (Qpc, Qpcl) coarse sand (Qis)

		82-90	sand with clay (Qis)
		90-148	coarse sand and gravel (Qis)
		148-153	fine sand (Qis)
		screened 90-130, yield 824 gpm	
373	Hoffman and others, in review, W0365 (Madison 6)	abbreviated log 0-20	loam and sand (Qr)
		20-27	sand with clay (Qr or Qpc)
		27-34	clean fine sand, some pebbles (Qpc)
		34-44	clay with sand (Qpcl)
		44-60	sand with pebbles (Qpc)
		60-92	clay and hardpan (Qpcl)
		92-140	sand (Qis)
		140-163 at 163	sand and shale fragments (Qis, Qb) rock
374	Hoffman and others, in review, W0361 (Madison 1)	abbreviated log 0-25	dirty and boulders (Qr)
		25-40	coarse gravel (Qpc)
		40-100	clay, dirty sand (Qpcl)
		100-176	sand and gravel (Qis)
		176-200	soft red rock
375	25-14041	same log as 374 screened 25-176, yield 310 gpm	
376	25-9821	0-79	hardpan (thin Qpmf over Qtmr)
		79-119	silty sand (Qpc)
		119-127	red clay (Qpcl or Qisl)
		127-149	water-bearing fine sand (Qis)
		149-156	water-bearing coarse sand (Qis)
377	25-8858	0-5	earth, clay (Qtmr)
		5-88	clay and fine sand (Qtmr over Qpc, Qpcl)
		88-102	fine sand (Qpcl or Qis)
		102-112	sand and gravel (Qis)
		112-122	granite rock formation (Qis gravel?)
		122-136	clay (Qisl)
		136-140	clay and fine sand (Qisl)
		140-151	clay (Qisl)
		151-204	sand and gravel (Qis)
		screened 193-203, yield 335 gpm	
378	25-34869	abbreviated log 0-25	red-brown sand (Qpmf or Qtmr)
		25-38	very coarse sand (Qpc)
		38-42	cobbles and coarse sand (Qpc)
		42-90	silty sand with some gravel (Qpc, Qpcl)
		90-205	red-brown sand and gravel (Qis)
		205-207	rough drilling (Qb?)
		at 207	fresh angular red shale with coarse sand
		screened 131-161, yield 23 gpm	
379	25-16225	0-20	fill dirt, overburden, clay and gravel (Qtmr)
		20-68	clay, cobble stones (Qr over Qpc)
		68-101	fine silt and sand (Qpcl)
		101-116	dirty fine brown sand (Qpcl or Qis)
		116-134	solid brown clay (Qpcl or Qisl)
		134-177	clean brown sand and rock (Qis)
		screened 137-177, yield 80-100 gpm	
380	25-39989	abbreviated log 0-39	red-brown clayey silt to silty clay with some gravel (Qtmr)
		39-52	sandy silt (Qpc)
381	25-43395	abbreviated log 0-25	brown silty sand to clayey silt with gravel (Qtmr)
		25-40	sand (Qpmd)
		40-65	sand, some gravel (Qpmd or Qpc)

		65-70 at 70	very fine sand and silt (Qpcl) refusal (Qis?)
382	25-37610	0-67	sand and gravel (Qpmd)
383	25-4209 Hoffman and others, in review W1500	abbreviated log 0-15 15-30 30-60 60-151 151-188 188-205 205-217 217-238 238-249 249-266 266-289	gray clayey silt (Qpmd?) yellow-brown clayey silt and pebbles (Qr) gray-brown silt and clay (Qpml) brown, reddish brown, yellow-brown clayey sand to sandy clay (Qpml-Qpcl over Qisl) brown sand (Qis) brown clay (Qisl) yellowish brown clay and sand (Qis, Qisl) red and gray clay mixed with fine-to-coarse sand (Qb) brown clay and fine-to-coarse sand, mixed (Qb or Qis) gray shale red shale
384	25-11997	0-139 139-148 148-167 screened 157-167, yield 10 gpm	sand and gravel (Qpmd) clay (Qpml) water-bearing heaving sand and gravel (Qis)
385	N 25-14-814	0-75 75-98 98-160	no samples reddish sand and gravel (Qpmd) reddish clay and sand (Qpml)
386	25-40537	abbreviated log 0-79 79-82	brown sand and gravel (Qpmd) brown silty clay, some sand (Qpml)
387	25-22329	abbreviated log 0-62	brown sand and gravel, little silt (Qpmd)
388	25-29470	0-60 60-100 100-180 180-250 250-300	dry fine sand and gravel (Qpmd) dry fine sand (Qpmd) clay and sand (Qpml) fine sand (Qis) red rock
389	25-22182	abbreviated log 0-60 60-63	dry brown fine sand (Qpmd) brown moist silty sand (Qpmd, Qpml)
390	25-22341	0-20 20-130 130-154 154-156 cased to 154, yield 20 gpm	overburden (Qpml) clay and gravel (Qpml, Qpcl over Qis) fine sand (Qis) sand and gravel (Qis)
391	25-34323	0-50 50-100 100-125 125-160 160-300 screened 130-150, yield 100 gpm	sand, clay (Qpmd) fine sand (Qpmd, Qpml) coarse sand (Qpmf) coarse sand mixed with gravel (Qpmf) silt, clay (Qpml over Qpcl)
392	25-23876	0-15 15-45 45-60 60-80 80-98 98-124 124-132 132-147 147-149 149-165 screened 150-165, yield 125 gpm	clay, sand, boulders, and gravel (Qtmr) sand, gravel and clay (Qtmr over Qpmd) sand, gravel, and some clay (Qpmd) clay, silt, and a little gravel (Qpml) clay (Qpml) gravel and sand (Qpmf) coarse sand and gravel (Qpmf) fine sand (Qpmf) clay and sand (Qpmf) sand, gravel, and a little clay (Qpmf over Qpml-Qpcl)

393	25-33503	0-77 77-115 115-155 155-182 182-205 205-208 208-215 215-222 screened 184-217, yield 660 gpm	brown sands and cobbles (Qpmd) fine sand and light color clays (Qpml) brown, beige clays and some fine sands (Qpml) red-brown hard clay (Qr) gray fine-to-coarse sands (Qpmf) multi-colored hard quartz and large stone (Qpmf) brown-yellow sandy clays (Qpcl, Qisl) red clays (Qisl, Qb)
394	25-31331	0-32 32-87 87-132 132-147 147-152 152-172 172-185 185-202 202-218	sand and silt (Qpmd) red-brown medium sand (Qpmd) red-brown silt (Qpml) olive-green clay (Qpml) red-brown clay (Qpml) red-brown silt traced with clay (Qpml) hard red clay (Qr) medium sand (Qpmf) rock
395	25-25876	190	
396	25-13104	0-6 6-84 84-118 118-149	soil, sand, stones (Qe over Qwb) trap rock red rock trap rock
397	25-40737	0-7 7-16	brown clay, silt, trace sand, gravel (Qwb) basalt
398	25-26419	0-7 7-130	sandy soil and stones (Qwb) basalt
399	25-27766	10	
400	25-27323	0-6 6-20 20-170	wet sand (Qwb) clay and stones (Qwb) trap rock
401	25-19966	0-8 8-100 100-198	overburden (Qwb) trap rock red rock
402	25-44231	0-22 22-90	yellow brown clay (Qwb) trap rock
403	25-31148	0-12 12-200	sandy rocky overburden (Qwb) shale with layers of rocks and sandstone
404	25-20520	0-30 30-120	clay and stones (Qws) shale
405	25-20563	23	
406	25-10294	0-406 406-426	red shale trap
407	25-41960	0-12 12-305	clay (Qws) shale
408	25-20168	0-50 50-270	red shale gray shale
409	25-19137	0-5 5-450	overburden (Qws) sandstone
410	25-34700	0-14 14-71	clay (Qpml or Qws) gray shale

		71-198	red shale
411	25-17858	0-30 30-175	gravel (Qpml over Qws or Qal?) gray and red rock
412	24-7102	0-59 59-95 95-120	clay (Qpml) clay and gravel (Qpml over Qws or Qwc) gray shale and sandstone
413	25-12156	0-2 2-198 198-212	dirt (Qwb) trap rock red shale
414	25-34109	0-5 5-21 21-46 46-400	sand and gravel (fill) sand and silt, cobbles (fill) gray and red clay (Qws) red shale
415	25-32124	30	
416	25-13785	21	
417	25-13008	0-22 22-95 95-300	red clay (Qwc) gray rock trap rock
418	25-13084	0-40 40-225	clay and gravel (Qcg over Qws) red rock
419	25-26099	0-20 20-400	overburden (Qr) sand, gravel, red rock (Qpc over bedrock, cased to 110, possible depth to rock)
420	25-13414 Vecchioli and Nichols, 1966, area 2, OEP test well 2	abbreviated log 0-5 5-18 18-27 27-39 39-43 43-60 60-62 62-95 95-99 99-104 screened 71-81, yield 505 gpm	black clay brown clayey silt, laminated, little fine sand and gravel (Qr, Qpml) yellowish brown till (Qr) sand and gravel (Qpc) yellowish brown till (Qr) medium-to-coarse sand and gravel (Qpc) yellowish brown till (Qr) sand and gravel (Qpc or Qis) brown till (Qb) reddish brown shale screened 71-81, yield 505 gpm
421	25-42738	0-15 15-40 40-52 52-75 75-85 85-105 105-115	clayey silt (Qpml, Qr) glacial till (Qr) medium-to-coarse silty sand with little clay (Qpc) coarse gravel (Qpc) fine-to-medium sand (Qpc) clay, weathered shale (Qpcl over Qb) shale
422	45-231	0-58 58-60 60-90 90-120 120-135 135-150 screened 120-150, yield 790 gpm	clay and small stones (Qpmf over Qr) fine sand (Qpc) water-bearing sand mixed with clay (Qpc, Qpcl) clay mixed with stones (Qisl) sand, gravel, water-bearing (Qis) coarse sand, water-bearing (Qis) screened 120-150, yield 790 gpm

¹Identifiers of the form 25-xxxx, 45-xxxx, or 24-xxxx are well permit numbers issued by the N. J. Department of Environmental Protection, Bureau of Water Allocation. Identifiers of the form "N xx-xx-xxx", are entries in the N. J. Geological Survey permanent note collection. Identifiers accompanied by a reference, for example, "P47,

Canace and others, 1993” are from the cited publication.

²A number without a log is the depth, in feet below land surface, to bedrock reported for wells where the surficial material is either not identified or identified only as “overburden” or other non-informative nomenclature. For wells and borings with logs of the surficial materials, the depth (in feet below land surface) and driller’s or logger’s description, or the description contained in the cited publication, is provided. Inferred map units and comments are indicated in parentheses. Map units are omitted in a few cases where logs have insufficient detail. All descriptions are reproduced as they appear in the original source, except for minor format, punctuation, and spelling changes. Bracketed words and queried depths indicate inferences where information is not clearly stated on the log. Logs identified as “abbreviated” have been condensed for brevity, or have minor details omitted. Many bedrock descriptions have been condensed; these are not identified as abbreviated. For wells completed in surficial materials, the screened interval, or depth to which the well is cased, and yield (in gallons per minute, gpm) are reported beneath the log. Map units are inferred from the known extent of materials at the surface and from known depositional settings, in addition to the drillers’ descriptions.