

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 16/10W-9F1--Cont.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, dark-----	8	200	
Coal-----	2	202	
Shale, dark-----	12	214	
Shale, light-----	5	219	
Limestone-----	3	222	
Shale, light-----	15	237	
Shale, dark-----	98	335	
Shale, light-----	21	356	

Well 16/10W-22G1

Type of record: Driller's log.

Altitude: About 630 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, surface-----	15	15	
Sand and hardpan-----	10	25	
Hardpan, sandy-----	25	50	
Gravel-----	10	60	
Sand-----	2	62	
Hardpan-----	31	93	
Sand and gravel-----	2	95	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Fire clay-----	2	97	
Shale, gray-----	48	145	
Slate, black-----	3.8	148.8	
Coal-----	1	149.8	
Fire clay-----	1.2	151	
Shale, gray-----	9	160	
Shale, sandy-----	4	164	
Slate, black-----	1	165	
Shale, light-gray-----	7	172	
Sandstone-----	2.5	174.5	
Shale, sandy, light-----	20.5	195	
Shale, gray-----	11	206	
Shale, dark-----	10.4	216.4	
Slate, black-----	2.6	219	
Coal-----	.8	219.8	
Fire clay-----	1.2	221	
Shale, dark-----	3	224	
Shale, light-----	2	226	
Shale, sandy, light-----	19	245	
Shale, soft, dark-----	1.7	246.7	
Coal-----	.5	247.2	
Shale, light-----	3.3	250.5	
Sandstone-----	12	262.5	
Shale, sandy, gray-----	27.5	290	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 16/10W-22G1--Cont.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, gray-----	2	292	
Shale, sandy, gray-----	6	298	
Sandstone-----	25.7	323.7	
Lower? Pennsylvanian Series:			
Slate, black-----	.3	324	
Limestone, sandy-----	3	327	
Slate, dark-----	.3	327.3	
Coal-----	3.1	330.4	
Shale, sandy-----	14.6	345	
Sandstone-----	59	404	
Shale, sandy-----	40	444	
Sandstone-----	7	451	
Shale, sandy-----	2.5	453.5	
Sandstone-----	16.5	470	
Shale, sandy-----	18	488	
Shale, dark-gray-----	16	504	
Mississippian? System:			
Meramec? Series:			
Limestone and shale-----	16	520	
Sandstone and shale-----	8	528	
Limestone, white, with shale-----	5	533	

Well 16/10W-36F1

Type of record: Driller's log.

Altitude: About 650 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	18	18	
Hardpan-----	102	120	
Sand, coarse-----	2	122	W. B.
Gravel-----	5	127	W. B.

Well 17/9W-4F1

Type of record: Driller's log.

Altitude: About 490 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Soil-----	19	19	
Clay, gravelly-----	1	20	
Sand, silty, brown-----	2	22	
Clay, sandy, brown-----	8	30	
Sand and gravel, dirty, brown----	50	80	
Sand, fine, fairly clean-----	20	100	
Sand and gravel, fine, dirty----	5	105	
Gravel, dirty-----	1	106	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone-----	2	108	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 17/9W-4L1

Type of record: Driller's log. Altitude: About 499 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	6	6	
Clay and gravel-----	28	34	
Gravel and sand, clean-----	41	75	W. B.

Well 17/9W-6F1

Type of record: Driller's log. Altitude: About 575 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	5	5	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, soft, blue-----	45	50	
Limestone, gray-----	25	75	
Shale, limy, gray-----	65	140	
Sandstone, fine-grained, blue----	10	150	W. B.

Well 17/9W-6Q1

Type of record: Driller's log. Altitude: About 590 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	11	11	
Gravel-----	3	14	Dry
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Sandstone-----	18	32	
Shale-----	59	91	
Slate-----	6	97	
Shale, blue-----	6	103	
Coal-----	3	106	
Shale, gray-----	12	118	
Sandstone-----	12	130	
Shale, black-----	9	139	
Shale, blue-----	6	145	
Shale, gray-----	15	160	
Shale, blue-----	5	165	
Shale, gray-----	60	225	

Well 17/9W-15J1

Type of record: Driller's log. Altitude: About 490 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Glacial drift and boulders-----	13	13	



Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 17/9W-21Q1--Cont.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, silty, soft, with trace of blue hard sand-----	4	45	

Well 17/9W-27E1

Type of record: Driller's log. Altitude: About 509 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, and silt; loose, dark-brown-----	2	2	
Sand, fine, with some silt; loose, brown-----	2	4	
Sand, fine, with trace of silt; loose, brown-----	2	6	
Sand, fine to medium, trace of silt; loose, brown-----	3	9	
Sand, fine to coarse, trace of silt and fine gravel; medium-dense, brown-----	5.5	14.5	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, silty, soft, trace of blue sand-----	10.5	25	

Well 17/9W-31N1

Type of record: Driller's log. Altitude: About 610 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Soil-----	1	1	
Clay, yellow-----	14	15	
Hardpan, gray-----	41	56	
Clay, green-----	24	80	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Rock-----	--	80	

Well 17/9W-31P1

Type of record: Driller's log. Altitude: About 620 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Soil-----	1	1	
Clay, yellow-----	11	12	
Hardpan, gray-----	18	30	
Hardpan, dark-----	8	38	
Hardpan, gray-----	27	65	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 17/9W-31P1--Cont.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Hardpan, dark-----	43	108	
Clay, light-blue-----	24	132	
Clay, dark-----	3	135	

Well 17/9W-36P2

Type of record: Driller's log. Altitude: About 530 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Gravel, yellow, and clay-----	24	24	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, blue-----	8	32	
Fire clay, blue-----	18	50	
Slate, gray-----	10	60	
Fire clay, plastic, white-----	6	66	
Shale, limy-----	9	75	
Shale, sandy, with limestone streaks-----	11	86	
Lower? Pennsylvanian Series:			
Sandstone, gray-----	10	96	
Sandstone and gray slate streaks-	64	160	

Well 17/10W-7K1

Type of record: Driller's log. Altitude: About 680 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	2	2	
Clay, yellow-----	48	50	
Clay, shaly, blue-----	10	60	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Slate, blue-----	20	80	W. B.
Shale, sandy, blue-----	20	100	
Shale, blue, and streaks of blue sandstone-----	20	120	W. B.

Well 17/10W-7L1

Type of record: Driller's log. Altitude: About 680 feet.

Basement-----	7	7	
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	28	35	
Clay, gravelly, blue-----	62	97	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 17/10-7L1--Cont.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Limestone-----	1	98	
Shale, caving, brown-----	3	101	
Shale, light-blue-----	14	115	
Slate, light-blue-----	32	147	
Shale, sandy, white-----	20	167	W. B.
Shale, light-blue-----	10	177	
Sandstone, blue-----	15	192	

Well 17/10W-8M1

Type of record: Driller's log. Altitude: About 670 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Soil and fill-----	2	2	
Clay, yellow-----	20	22	
Clay, gravelly, blue-----	58	80	
Hardpan, gravelly, yellow-----	50	130	
Gravel, coarse, yellow-----	3	133	W. B.

Well 17/10W-9A1

Type of record: Driller's log. Altitude: About 560 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	14	14	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, sticky, brown-----	16	30	
Shale, blue-----	30	60	
Shale, limy-----	20	80	
Slate, black-----	15	95	
Sandstone-----	28	123	W. B.

Well 17/10W-17N1

Type of record: Driller's log. Altitude: About 650 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	2	2	
Clay, yellow-----	16	18	
Clay, sandy, blue-----	66	84	
Hardpan and blue shale streaks---	50	134	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, sandy, blue-----	10	144	
Shale, hard, blue-----	34	178	
Fire clay, caving, white-----	2	180	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 17/10W-17N1--Cont.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, gray, with streaks of slate-----	40	220	
Slate, hard, black-----	7	227	
Limestone, gray-----	3	230	
Sandstone, grading to white with depth-----	20.5	250.5	W. B.

Well 17/10W-18R1

Type of record: Driller's log.

Altitude: About 600 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Gravel and clay-----	8	8	
Hardpan-----	13	21	
Gravel-----	1	22	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, gray-----	48	70	
Shale, hard-----	5	75	
Shale, black-----	3	78	
Shale (slate), black-----	3	81	
Shale, gray-----	38	119	
Limestone, soft, gray-----	5	124	Some water
Shale, gray-----	24	148	
Shale (slate), dark-blue-----	2	150	W. B.
Coal-----	5	155	
Fire clay turning to sandy shale last 10 feet-----	19.5	174.5	

Well 17/10W-31J1

Type of record: Driller's log.

Altitude: About 670 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	18	18	
Softpan, gray-----	33	51	
Hardpan, gray-----	18	69	
Hardpan, dark-----	31	100	
Wash-----	6	106	
Hardpan, dark-----	5	111	
Sand and gravel-----	5	116	W. B.



Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 17/10W-31Q1

Type of record: Driller's log. Altitude: About 660 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	15	15	
Wash, gray-----	15	30	
Softpan, gray-----	17	47	
Softpan, dark-----	68	115	
Wash-----	12	127	
Softpan, dark-----	3	130	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, gray-----	37	167	
Slate, blue-----	9	176	
Shale, sandy, gray-----	24	200	

Well 17/10W-32A1

Type of record: Driller's log. Altitude: About 635 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Soil-----	1	1	
Clay, yellow-----	9	10	
Hardpan, gray-----	12	22	
Gravel and quicksand, light-brown	8	30	Some water
Hardpan, gray-----	7	37	
Gravel and sand, gray-----	3	40	Some water
Hardpan, black, and sand-----	7	47	
Sand, black and gray-----	3	50	Some water

Well 18/9W-6M1

Type of record: Driller's log. Altitude: About 605 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Gravel-----	120	120	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Coal-----	5	125	
Shale, blue-----	40	165	
Shale-----	2	167	
Sand-----	18	185	
Slate-----	5	190	T. D. 1,102 ft

Well 18/9W-17C1

Type of record: Driller's log. Altitude: About 565 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, gravelly, dark-----	4	4	
Clay, sandy, brown-----	15	19	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 18/9W-17C1--Cont.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel and sand-----	43	62	W. B. 95 to 181 ft
Gravel and sand, gray-----	58	120	
Gravel and sand-----	27	147	
Sand, brown-----	28	175	
Sand, gray-----	6	181	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone-----	1	182	

Well 18/9W-20K1

Type of record: Driller's log. Altitude: About 500 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel-----	20	20	W. B. W. B.
Clay, blue-----	78	98	
Gravel and some sand-----	17	115	
Sand and some gravel, cemented---	8	123	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Shale-----	--	123	

Well 18/9W-28K1

Type of record: Driller's log. Altitude: About 520 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Boulders and hardpan-----	21	21	W. B.
Gravel, yellow-----	19	40	
Clay, blue-----	23	63	

Well 18/9W-30E1

Type of record: Driller's log. Altitude: About 560 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Gravel, yellow-----	59	59	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, blue-----	10	69	
Slate, blue-----	9	78	
Fire clay, white-----	5	83	
Limestone and fire clay-----	32	115	
Coal-----	5.8	120.8	
Fire clay-----	2	122.8	
Limestone, gray-----	14	136.8	
Shale-----	2	138.8	
Rock, porous, brown-----	8	146.8	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 18/9W-30M1

Type of record: Driller's log. Altitude: About 550 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	1	1	Dry
Clay, brown-----	3	4	
Gravel, brown, and hardpan-----	17	21	
Sand and gravel-----	29	50	
Sand, brown-----	17	67	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, gray-----	27	94	
Shale, black-----	7	101	
Shale, gray-----	6	107	
Limestone, white-----	3	110	
Limestone-----	3	113	
Limestone, white-----	10	123	
Shale, black-----	5	128	
Lower? Pennsylvanian Series:			
Shale, gray-----	112	240	Salt water at 240 ft

Well 18/9W-31J1

Type of record: Driller's log. Altitude: About 510 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel-----	22	22	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, blue-----	23	45	W. B.
Sandstone, gray-----	35	80	

Well 18/9W-31Q1

Type of record: Driller's log. Altitude: About 545 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, dirty, yellow-----	16	16	
Sand and gravel-----	52	68	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Fire clay, white-----	4	72	
Limestone, gray-----	18	90	
Limestone and blue shale-----	37	127	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 18/9W-31Q3

Type of record: Driller's log. Altitude: About 550 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel, yellow-----	60	60	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Shale, light-blue-----	15	75	
Sandstone, gray-----	10	85	W. B.
Shale, limy-----	93	178	

Well 18/9W-32H3

Type of record: Driller's log. Altitude: About 497 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, brown-----	17	17	
Clay, sandy-----	4	21	
Sand-----	11	32	W. B.
Gravel, pea-sized-----	9	41	W. B.
Sand-----	13	54	W. B.

Well 18/10W-16H1

Type of record: Driller's log. Altitude: About 600 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	1	1	
Clay, sandy-----	18	19	
Clay, blue-----	11	30	
Sand, fine-----	2	32	
Clay, sandy, gravelly-----	26	58	
Clay, sandy, brown-----	19	77	
Sand, fine, blue-----	50	127	Dry
Sand, fine, and gravel-----	3	130	Trace of water
Sand, fine-----	30	160	W. B.
Clay, gumbo, brown-----	25	185	
Sand and gravel-----	2	187	W. B.

Well 18/10W-17D1

Type of record: Driller's log. Altitude: About 625 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	20	20	
Gravel-----	1	21	
Clay, brown-----	74	95	



Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

## Well 18/10W-30B1--Cont.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Sandstone, soft, dark-gray with smut-----	13	124	
Shale, sandy, brown-----	2	126	
Shale, brown-----	5	131	
Fire clay-----	5	136	
Sandstone, fine, soft, waxy, white-----	5	141	
Sandstone, fine, a little coarser, soft, waxy, white-----	15	156	Trace of oil
Sandstone, fine, white, with mica specks-----	8	164	
Shale, brown-----	7	171	
Slate, black-----	10	181	
Shale, brown, and soapstone-----	9	190	
Coal-----	2	192	
Fire clay-----	4	196	
Shale, brown-----	4	200	
Coal-----	5	205	
Shell, hard-----	3	208	
Fire clay, white-----	8	216	
Clay, smooth, white, or slate----	19	235	T. D. 1,036 ft

## Well 18/10W-31G1

Type of record: Driller's log.

Altitude: About 630 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay and glacial drift-----	64	64	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Slate, hard, gray-----	56	120	
Slate, black-----	9	129	
Slate, blue, with limestone streaks-----	31	160	
Limestone and sandstone-----	10	170	
Shale, limy-----	10	180	
Sandstone, blue-----	5	185	

## Well 18/10W-31Q1

Type of record: Driller's log.

Altitude: About 640 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, hard, yellow-----	18	18	
Clay, blue-----	10	28	
Hardpan, sandy, blue-----	62	90	
Sand and clay-----	2	92	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 18/10W-31Q1--Cont.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Fire clay, blue-----	33	125	
Coal, hard-----	7	132	
Fire clay, gray-----	8	140	
Shale, limy, blue-----	50	190	
Fire clay, gray-----	7	197	
Sandstone, gray-----	18	215	
Shale, black-----	3	218	

Well 18/10W-32J1

Type of record: Driller's log.

Altitude: About 560 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, gravelly-----	22	22	
Gravel, fine-----	10	32	
Gravel, coarse-----	7	39	
Hardpan, gray-----	11	50	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Rock, coarse-----	2	52	
Sandstone, fine, hard, yellow----	2	54	
Shale, gray-----	27	81	W. B. 55 to 60 ft
Shale, dark-----	9	90	
Shale, black-----	5	95	
Shale, gravelly, black-----	--	95	
Shale, dark-gray-----	35	130	
Lower? Pennsylvanian Series:			
Shale, blue-----	5	135	
Limestone, hard, black-----	2	137	
Limestone, hard, gray-----	3	140	
Shale, gray-----	4	144	
Limestone, hard, gray-----	2	146	
Shale, light-gray-----	2	148	
Sandstone, hard, brown-----	1	149	
Sandstone, hard, lighter-brown---	9	158	
Shale, gray-----	22	180	
Shale, sandy-----	20	200	
Limestone, brown-----	20	220	
Shale, sandy, gray-----	28	248	
Sandstone-----	1	249	
Shale, sandy, gray-----	54	303	
Mississippian? System:			
Osage? Series:			
Shale, brown-----	7	310	
Shale, gray-----	6	316	
Sandstone, gray-----	20	336	
Shale, sandy, gray-----	4	340	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 18/10W-32J1--Cont.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Mississippian? System:			
Osage? Series:			
Sandstone with shale breaks-----	10	350	
Sandstone, gray-----	33	383	
Shale, gray-----	157	540	
Fire clay, white-----	3	543	
Shale-----	7	550	
Shale, hard, blue-----	14	564	
Fire clay, soft, white-----	2	566	
Shale, sandy, hard-----	--	566	

Well 19/9W-2C1

Type of record: Driller's log.

Altitude: About 498 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, some silt; loose, brown-----	2	2	
Sand, fine to medium, trace of silt; loose, brown-----	7	9	
Silt and clay; medium-dense, brown-----	4.5	13.5	
Sand, fine to medium, some brown silt; medium-dense-----	10	23.5	W. B. 18 to 46 ft
Sand, fine to coarse, trace of silt; medium-dense, brown-----	3	26.5	
Sand, fine to coarse, some gravel; dense, brown-----	7	33.5	
Sand, fine to coarse, and gravel, trace of silt; dense, brown-----	5	38.5	
Sand, fine to coarse, trace of gravel and silt; dense, brown--	5	43.5	
Sand, fine to coarse, and gravel, trace of silt; very dense, brown and gray-----	2.5	46	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone, dense, gray and white-	5	51	

Well 19/9W-3E1

Type of record: Driller's log.

Altitude: About 560 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, sand, and gravel; medium- dense, brown and black-----	2.1	2.1	
Sand, fine to coarse, some gravel; medium-dense, brown-----	2	4.1	



Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 19/9W-3E1--Cont.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, trace of silt and gravel; loose, brown--	5	9.1	
Sand, fine to coarse, trace of silt and gravel; medium-dense, brown-----	4.5	13.6	
Sand and gravel, some silt; very dense, brown and gray-----	13.4	27	

Well 19/9W-4B1

Type of record: Driller's log.		Altitude: About 550 feet.	
Quaternary System:			
Recent and Pleistocene Series:			
Sand, brown-----	4	4	
Gravel, brown-----	28	32	
Hardpan, gray-----	33	65	
Sand and gravel-----	12	77	W. B.

Well 19/9W-4C1

Type of record: Driller's log.		Altitude: About 585 feet.	
Quaternary System:			
Recent and Pleistocene Series:			
Soil and yellow clay-----	21	21	
Clay, dark-gray-----	33	54	
Sand, brown-----	16	70	
Sand, gray-----	18	88	
Hardpan, dark-gray-----	30	118	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Shale, gray-----	22	140	W. B.

Well 19/9W-4H3

Type of record: Driller's log.		Altitude: About 560 feet.	
Quaternary System:			
Recent and Pleistocene Series:			
Sand and silt, some gravel; medium-dense, brown and black--	2	2	
Sand, fine to coarse, some silt, trace of gravel; medium-dense, brown-----	2	4	
Sand, fine to coarse, some gravel, trace of silt; medium-dense, brown-----	5	9	
Sand, fine to coarse, trace of gravel and silt; medium-dense, brown-----	4.5	13.5	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 19/9W-4H3--Cont.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System: Recent and Pleistocene Series: Sand and gravel, some silt; very dense, brown and gray-----	13.5	27	

Well 19/9W-4N1

Type of record: Driller's log. Altitude: About 600 feet.

Quaternary System: Recent and Pleistocene Series: Clay and gravel-----	170	170	
Pennsylvanian System: Lower Pennsylvanian Series: Limestone, gray-----	2	172	
Shale, blue-----	65	237	
Sandstone, white-----	5	242	
Shale, dark-brown-----	23	265	
Sandstone, brown-----	14	279	
Shale, broken, blue-----	21	300	
Sandstone, soft, white-----	65	365	W. B.
Mississippian System: Osage Series: Shale, limy, soft, gray-----	35	400	T. D. 1,050 ft

Well 19/9W-10Q1

Type of record: Core description. Altitude: About 485 feet.

Quaternary System: Recent and Pleistocene Series: Dirt, black-----	1	1	
Clay, yellow-----	2	3	
Alluvium-----	13	16	
Pennsylvanian System: Lower Pennsylvanian Series: Sandstone, fine-grained, dark, with lenses of black shale-----	38	54	
Sandstone, coarse-grained, light, with scattered lenses of black shale-----	51	105	
Shale, black, with lenses of light fine-grained sandstone---	10	115	
Sandstone, coarse-grained, light, interbedded with lenses of black shale-----	20	135	
Quartzite with thin lenses of black shale-----	6	141	
Sandstone, coarse-grained, brown, with lenses of black shale-----	42	183	
Quartzite-----	1	184	



Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 19/9W-19N1

Type of record: Core description.

Altitude: About 595 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Dirt, black-----	2	2	
Clay, blue-----	13	15	
Drift, glacial-----	124	139	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Shale, light-----	12	151	
Sandstone, fine-grained-----	25	176	
Coal-----	1.5	177.5	
Shale, sandy, light, and clay----	12.5	190	
Sandstone, fine-grained, dark----	2.5	192.5	
Shale, dark-----	15.5	208	
Shale, light-----	14	222	
Sandstone, fine-grained, light---	8.5	230.5	
Sandstone, fine-grained, light, interbedded with lignitic streaks and lenses of light and dark shale grading down to dark shale-----	43	273.5	
Shale, light-----	5	278.5	
Sandstone, fine-grained, inter- bedded with streaks of light and dark shale-----	5	283.5	

Well 19/9W-21K1

Type of record: Driller's log.

Altitude: About 635 feet.

Open well-----	27	27	
Quaternary System:			
Recent and Pleistocene Series:			
Clay, gray-----	8	35	
Sand, brown-----	17	52	
Soil, sandy, gray-----	6	58	
Hardpan-----	4	62	
Clay, sandy, yellow-----	4	66	
Hardpan-----	29	95	
Sand, brown-----	48	143	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Shale, gray-----	53	196	
Coal-----	.5	196.5	
Shale, light-gray-----	14.5	211	
Shale, sandy, light-----	4	215	
Shale, sandy, dark-----	18	233	
Sandstone-----	7	240	

Sulfur water

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 19/9W-22M1			
Type of record: Core description.		Altitude: About 547 feet.	
Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Glacial drift-----	12	12	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone, streaky-gray-----	10	22	
Shale, gray-----	1	23	
Sandstone, fine-grained, dark- gray-----	12	35	
Shale, black-----	1	36	
Sandstone-----	1	37	
Shale, black-----	1	38	
Clay-----	4	42	
Shale, dark-----	8	50	
Shale, sandy, gray-----	5	55	
Sandstone, fine-grained-----	32	87	
Shale, sandy, gray-----	1	88	
Sandstone, coarse, with inter- bedded shale-----	4	92	
Shale, carbonaceous, with streak of pebbly conglomerate-----	1	93	
Sandstone, coarse-----	2	95	
Sandstone, conglomeratic, with streak of shale-----	1	96	
Sandstone, fine-grained, with streaks of gray shale grading to black shale-----	6	102	
Shale, black-----	1	103	
Sandstone, with streaks of black shale-----	10	113	
Shale, black streaks in sandstone	1	114	
Sandstone, gray-----	17	131	
Clay, black-----	2	133	
Shale, sandy-----	2	135	
Sandstone, fine-grained, gray---	3	138	
Shale, sandy-----	1.5	139.5	
Clay, dark-----	2	141.5	
Clay, black-----	2.5	144	
Coal-----	1	145	
Shale, sandy-----	15	160	
Sandstone, fine-grained, streaky, white-----	6	166	
Shale, black-----	2	168	
Sandstone, carbonaceous-----	1	169	
Shale, grading into sandy shale--	7	176	
Sandstone, hard, white, almost quartzite-----	1	177	
Sandstone and shale, interbedded-	1	178	





Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 19/9W-28P1--Cont.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel-----	31	44	W. B.
Mud, soft, brown-----	6	50	
Sand, fine, brown-----	21	71	W. B.
Sand and gravel-----	29	100	W. B.

Well 19/9W-28R2

Type of record: Driller's log.		Altitude: About 500 feet.	
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	3	3	
Clay and gravel, brown-----	31	34	
Gravel, dry-----	5	39	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone-----	45	84	W. B.

Well 19/9W-29C1

Type of record: Driller's log.		Altitude: About 625 feet.	
Dug well-----	18	18	
Quaternary System:			
Recent and Pleistocene Series:			
Hardpan, gray-----	62	80	
Clay and hardpan, blue-----	105	185	
Gravel and sand-----	1	186	
Clay and sand-----	15	201	
Gravel, coarse-----	1	202	W. B.
Gravel and coarse sand-----	26	228	W. B.

Well 19/9W-29F1

Type of record: Driller's log.		Altitude: About 610 feet.	
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	14	14	
Hardpan, hard, blue-----	96	110	
Hardpan and sand, gray-----	92	202	
Sand mixed with clay-----	2	204	Gas
Clay, soft, blue-----	34	238	
Sand, fine-----	5	243	
Sand and clay-----	7	250	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone, grading to white-----	22	272	W. B.



Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 19/9W-29N1

Type of record: Driller's log.

Altitude: About 600 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel and clay, dark-brown-----	4	4	
Clay, gray-----	16	20	
Hardpan-----	51	71	
Gravel-----	54	125	Dry
Gravel-----	15	140	W. B.

Well 19/9W-31B1

Type of record: Core description.

Altitude: About 596 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Dirt, black-----	2	2	
Clay, yellow-----	8	10	
Glacial drift-----	146.5	156.5	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Shale, light-gray-----	32.5	189	
Shale, black-----	3.5	192.5	
Coal-----	.5	193	
Clay-----	3.5	196.5	
Sandstone, fine-grained, light---	22.5	219	
Sandstone, shaly, dark-----	1.5	220.5	
Clay-----	.5	221	
Sandstone, fine-grained, light---	1.5	222.5	
Coal-----	1.5	224	
Sandstone, fine-grained, dark----	2	226	
Sandstone, fine-grained, with irregular streaks of cal- careous shale, grading down into black shale at the bottom-	26	252	
Sandstone, coarse-grained, white-	1	253	
Shale, black-----	12	265	
Sandstone, coarse-grained, brown, with lenses of gray shale-----	117	382	
Shale, black-----	2	384	
Sandstone, fine-grained, brown---	2	386	
Sandstone, coarse-grained, brown-	11	397	
Mississippian System:			
Osage Series:			
Sandstone, shaly, hard, gray-----	.5	397.5	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 19/9W-31R1

Type of record: Driller's log.

Altitude: About 590 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Soil, dark-gray-----	4	4	
Clay, yellow-----	16	20	
Hardpan, gray-----	48	68	
Sand, brown-----	6	74	
Gravel-----	31	105	Dry
Hardpan, gray-----	9	114	
Gravel, gray-----	35	149	W. B.

Well 19/9W-33A1

Type of record: Driller's log.

Altitude: About 550 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel, coarse, yellow-----	21	21	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Slate, dark-blue-----	35	56	
Shale, light-blue-----	4	60	
Sandstone, white-----	15	75	W. B.
Shale and slate-----	5	80	

Well 19/9W-33A4

Type of record: Driller's log.

Altitude: About 535 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel, yellow, and boulders-----	9	9	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Shale, soft, blue-----	17	26	
Limestone, dense, blue-----	9	35	
Fire clay and shale, blue-----	45	80	
Shale, sandy, grading to white---	35	115	
Sandstone with slate streaks-----	20	135	W. B.

Well 19/9W-33B2

Type of record: Driller's log.

Altitude: About 550 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel, yellow-----	19	19	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Slate, blue-----	30	49	
Sandstone, gray-----	9	58	
Fire clay-----	2	60	
Shale, blue-----	19	79	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 19/9W-33H2

Type of record: Driller's log. Altitude: About 530 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Dug well-----	10	10	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Limestone, blue-----	6	16	
Fire clay, blue-----	44	60	
Limestone, brown-----	4	64	
Fire clay, grading to white-----	42	106	
Coal-----	6	112	
Sandstone-----	10	122	W. B.

Well 19/9W-34D2

Type of record: Driller's log. Altitude: About 530 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Gravel and boulders-----	6	6	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Shale, soft, blue-----	14	20	
Limestone, blue-----	7	27	
Shale, light-blue-----	53	80	
Slate, brown-----	4	84	

Well 19/10W-9A1

Type of record: Driller's log. Altitude: About 635 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	4	4	
Clay and sand-----	12	16	
Soil, sandy, brown-----	84	100	
Hardpan-----	47	147	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Sandstone-----	7.5	154.5	W. B.

Well 19/10W-17D1

Type of record: Driller's log. Altitude: About 647 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, with some silt and gravel; dense, brown--	2	2	
Silt and clay, trace of sand; medium-dense, black-----	2	4	
Clay, some silt, trace of sand; tough, yellow and gray-----	1.9	5.9	
Silt and clay, trace of sand and clay; loose, yellow-----	3	8.9	

Table 5.--Selected well logs, Vermillion County, Indiana--Cont.

Well 19/10W-17D1--Cont.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Silt, some clay, trace of sand; medium-dense, brown-----	4.5	13.4	
Silt and sand, trace of clay and gravel; very dense, brown and gray-----	5	18.4	
Hardpan, gray-----	8.2	26.6	

Well 19/10W-17K1

Type of record: Driller's log. Altitude: About 640 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	15	15	
Hardpan-----	67	82	
Clay, brown-----	94	176	
Pennsylvanian System:			
Middle Pennsylvanian Series:			
Coal, trace-----	--	176	
Shale-----	76	252	W. B. 190 to 250 ft
Lower? Pennsylvanian Series:			
Limestone, sharp-----	6	258	
Shale, gray-----	12	270	
Coal, trace-----	--	270	
Shale?-----	35	305	

Well 19/10W-18A1

Type of record: Driller's log. Altitude: About 647 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt and sand, some gravel; medium-dense, brown-----	2	2	
Clay, some silt and trace of sand; tough, brown and black---	2	4	
Silt, some clay and trace of sand; loose, yellow and gray-----	3.9	7.9	
Silt, some sand and clay, trace of gravel; medium-dense, brown-	3.5	11.4	
Silt and sand, trace of clay; dense, brown-----	2	13.4	
Silt and sand, some clay and trace of gravel; very dense, brown and gray-----	5	18.4	
Hardpan-----	8.2	26.6	

Table 6.--Field chemical analyses of water from wells,  
 Vermillion County, Indiana  
 (Results in parts per million)

Well number: See text for description of well-numbering system.

Geologic age: Pl, Pleistocene; P, Pennsylvanian.

Material: G, gravel; Ls, limestone; S, sand; Sd-sh, sandy-shale; Sd-T, sandy till; Ss, sandstone; Sh, shale.

Well	Material	Geologic age	Date of collection	Temperature (°F)	Iron (Fe)	Bicarbonate (HCO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Hardness as CaCO <sub>3</sub> (Calcium, magnesium)	Remarks
14/ 9W-10N1	G	Pl	2-14-62	53	0.1	342	160	18	368	
22Q1	S,G	Pl	9-21-61	57	.1	195	260	16	280	
27F1	G	Pl	2-14-62	55	.5	361	210	18	424	
31G1	S	Pl	2-14-62	55	.1	468	175	24	524	
33N1	Ls	P	2-14-62	55	.1	532	140	26	480	
14/10W-33K1	Sd-T	Pl	9-14-61	54	2.0	361	270	54	552	
15/ 9W- 2D2	----	P	9-14-61	--	<.1	307	180	30	312	
27A3	S,G	Pl	9-14-61	--	.1	224	36	26	208	
32C1	G,S	Pl	2-14-62	52	3.5	595	19	10	360	
15/10W-21R1	Sh	P	2-14-62	56	1.0	561	60	32	424	
34D1	----	P	9-14-61	52	1.0	342	18	8	208	
16/ 9W- 3N1	Ss	P	9-13-61	--	.1	586	16	150	124	
11N1	----	P	8-13-61	--	5.0	317	900	88	916	
15N1	Ss	P	9-14-61	--	1.0	649	18	36	132	
30Q1	Sh	P	9-14-61	57	.1	678	16	124	72	
31A1	S,G	Pl	2-15-62	56	.5	561	19	6	304	
32P1	G	Pl	9-14-61	55	1.0	332	270	26	496	
34H1	Ss	P	9-13-61	--	.1	615	365	3,120	188	
16/10W-26Q2	S,G	Pl	9-13-61	59	3.0	478	10	<1	276	
27C1	G	Pl	2-15-62	56	.5	503	15	12	228	
34Q1	G	Pl	9-13-61	59	4.0	454	14	28	284	
36F1	S,G	Pl	9-13-61	56	.2	473	210	118	492	
17/ 9W- 5H1	S,G	Pl	8-31-61	--	.3	356	100	14	368	
6F1	Ss	P	8-31-61	--	.2	615	12	56	36	
8D1	S,G	Pl	8-31-61	--	.2	512	955	16	1,360	
9E1	G	Pl	8-12-61	56	<.1	488	54	28	240	
15J1	----	P	9-11-61	58	5.0	576	12	24	108	
18D1	Ls	P	8-31-61	56	.5	547	14	14	248	
36P1	----	P	9-13-61	--	.1	151	150	42	448	

Table 6.--Field chemical analyses of water from wells,  
Vermillion County, Indiana--Cont.

Well	Material	Geologic age	Date of collection	Temperature (°F)	Iron (Fe)	Bicarbonate (HCO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Hardness as CaCO <sub>3</sub> (Calcium, magnesium)	Remarks
17/10W- 7K1	Sh,Ss	P	8-31-61	--	1.5	551	13	6	332	
7L1	Sd-sh	P	8-31-61	--	.2	600	13	32	40	
8M1	G	P1	8-31-61	--	.5	512	11	6	136	
17N1	Ss	P	8-31-61	57	.1	576	11	182	56	
18R1	Sh	P	8-31-61	56	.5	449	14	10	84	
31J1	S,G	P1	8-31-61	--	2.0	693	13	12	464	
32A1	S	P1	10-24-61	53	.5	425	220	14	452	
18/ 9W-20K4	S,G	P1	3-10-57	56	.4	-----	---	16	316	
28K1	G	P1	8-30-61	59	3.0	366	37	16	316	
31J5	Ss	P	8-31-61	--	.1	376	53	12	340	
31Q1	Ls,Sh	P	8-31-61	56	.1	410	53	12	360	
31Q2	G	P1	8-31-61	57	.1	371	48	10	340	
31Q3	Ss	P	8-31-61	--	.1	800	13	72	4	P alka- linity present
32H1	G,S	P1	8-30-61	56	1.0	410	43	6	352	
18/10W-16H1	S,G	P1	8-31-61	--	.3	527	14	8	276	
17D1	Sh	P	8-31-61	--	.2	464	15	12	176	
31G1	----	P	8-31-61	57	.1	556	46	20	144	
31Q1	----	P	8-31-61	58	.3	1,760	13	3,140	68	
19/ 9W- 4B1	S,G	P1	8-29-61	57	1.0	312	39	6	264	
5E1	Sh	P	8-29-61	--	1.0	527	15	4	340	
5Q1	S	P1	3- 2-62	54	.1	307	44	2	288	
6M1	Ss	P	8-29-61	--	.1	395	145	46	428	
7A1	S	P1	3- 2-62	--	<.1	395	210	16	428	
15A1	Ss	P	8-29-61	56	.3	478	90	268	276	
15E2	S	P1	8-29-61	--	2.0	444	22	4	340	
16A2	Ss	P	8-29-61	--	.1	307	62	12	300	
18E1	G	P1	3- 1-62	--	.1	244	97	26	300	
20G1	S,G	P1	3- 1-62	56	<.1	288	95	34	424	
21K1	----	P	8-30-61	--	.1	517	55	100	48	
27D1	Ss	P	8-30-61	55	.8	444	20	40	224	
28R1	Ss	P	8-29-61	--	.8	371	100	14	368	
29C1	G,S	P1	8-30-61	58	1.0	561	15	32	180	
29N1	G	P1	8-30-61	--	1.0	517	11	36	300	
31R1	G	P1	8-29-61	--	2.0	522	16	8	272	
33A2	----	P	8-30-61	--	1.0	386	100	14	368	

Table 6.--Field chemical analyses of water from wells,  
Vermillion County, Indiana--Cont.

Well	Material	Geologic age	Date of collection	Temperature (°F)	Iron (Fe)	Bicarbonate (HCO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Hardness as CaCO <sub>3</sub> (Calcium, magnesium)	Remarks
19/ 9W-33A3	Ss	P	8-30-61	--	0.3	566	155	28	10	
33H1	----	P	8-30-61	--	.3	351	115	14	356	
33H2	Ss	P	8-30-61	--	.3	439	270	16	336	
19/10W- 9A1	Ss	P	8-29-61	56	1.5	508	23	4	328	
17K1	Sh	P	8-29-61	57	.3	752	18	1,690	132	
20E2	S	P1	3- 1-62	--	.1	161	62	17	164	
29J1	S,G	P1	8-29-61	56	.1	420	335	28	640	
32Q1	----	P	8-29-61	--	.1	512	20	22	272	

Table 7.--Records of springs, Vermillion County, Indiana

Spring number: See text for well-numbering system.  
 Altitude: Altitude of land-surface datum from topographic map.  
 Water-bearing material: G, gravel; S, sand; Sd-sh, sandy-shale.  
 Geologic age: P1, Pleistocene; P, Pennsylvanian.

Flow: e, estimated; m, measured.  
 Use: D, domestic; N, none; P, public supply; S, stock.  
 Field chemical analyses: In parts per million: water sample collected on date of measurement.

Spring	Owner	Popular name	Altitude (feet)	Water-bearing material	Geologic age	Flow (gpm)	Date of measurement	Use	Temperature (°F)	Iron (Fe)	Bicarbonate (HCO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Hardness as CaCO <sub>3</sub> (Calcium & Magnesium)	Remarks
14/9W-29F1	L. Huffman	-----	500	Sd-sh	P	---	2-14-62	D	53	<0.1	356	46	8	300	
16/9W-29L1	R. D. Nickle	-----	675	S,G	P1	5e	5-24-61	S	56	<.1	390	75	12	392	
19/9W-16A1	C. Kay	Tree Spring	600	S,G	P1	15m	5-25-61	S, P	52	<.1	312	45	16	312	
21J1	Vermillion County Highway Dept.	-----	600	S,G	P1	1e	6-27-61	N	55	.3	171	22	2	332	Calcareous tuffa being deposited
34D3	Town of Perrysville	-----	520	S,G	P1	2m	5-25-61	N	56	<.1	386	125	18	424	At contact with bed-rock



Table 8.--Field chemical analyses of water from streams,  
Vermillion County, Indiana  
(Results in parts per million)

Name	Location	Date of collection	Temperature (°F)	Iron (Fe)	Bicarbonate (HCO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Hardness as CaCO <sub>3</sub> (Calcium & magnesium)	Remarks
T. 14 N., R. 9 W.									
Wabash River	NW $\frac{1}{2}$ SE $\frac{1}{2}$ sec. 15	10-3-60	64	0.2	259	50	20	260	Sample taken at bridge on state highway
T. 14 N., R. 10 W.									
Brouilletts Creek	SW $\frac{1}{2}$ SW $\frac{1}{2}$ sec. 11	10-3-60	59	.2	342	190	14	436	Do
T. 15 N., R. 9 W.									
Little Raccoon Creek	NE $\frac{1}{2}$ NE $\frac{1}{2}$ sec. 3	10-3-60	59	.2	415	63	60	244	Do
T. 17 N., R. 9 W.									
Little Vermillion River	SE $\frac{1}{2}$ NE $\frac{1}{2}$ sec. 28	10-3-60	60	.2	312	95	14	340	Sample taken at bridge on county road
T. 17 N., R. 10 W.									
Do	NE $\frac{1}{2}$ NW $\frac{1}{2}$ sec. 29	10-3-60	60	.2	342	115	14	368	Do
T. 18 N., R. 9 W.									
Vermilion River	SE $\frac{1}{2}$ NE $\frac{1}{2}$ sec. 32	10-3-60	59	.2	307	140	42	356	Sample taken at bridge on state highway
T. 18 N., R. 10 W.									
Coal Creek	SW $\frac{1}{2}$ SW $\frac{1}{2}$ sec. 21	10-3-60	64	.2	356	290	12	444	Sample taken at bridge on county road
Vermilion River	SW $\frac{1}{2}$ NE $\frac{1}{2}$ sec. 28	10-3-60	63	.2	298	200	42	356	Do

Table 8.--Field chemical analyses of water from streams,  
Vermillion County, Indiana--Cont.

Name	Location	Date of collection	Temperature (°F)	Iron (Fe)	Bicarbonate (HCO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Hardness as CaCO <sub>3</sub> (Calcium & magnesium)	Remarks
T. 19 N., R. 9 W.									
Spring Creek	NW $\frac{1}{2}$ NE $\frac{1}{2}$ sec. 15	10-3-60	63	0.2	312	33	12	304	Sample taken at bridge on county road
Wabash River	SW $\frac{1}{2}$ NW $\frac{1}{2}$ sec. 34	10-3-60	64	.2	234	61	20	248	Sample taken at bridge on state highway

Table 9.--Water levels in observation well in Vermillion County, Indiana  
(In feet below land-surface datum.

Water level: e, estimated; h, tape measurement)

Vermillion 1. (17/9W-4L1). New York, Chicago, and St. Louis Railroad, Cayuga. NW SW sec. 4, T. 17 N., R. 9 W. Drilled unused water-table well in sand and gravel, diameter 12 inches, depth 75 feet. Land-surface datum is about 499.4 feet above msl. Recording gage installed July 23, 1958. Highest water level is 7.45 below lsd, Feb. 11, 1959; lowest 28.25 below lsd, Sept. 25, 26, 1959. Records available 1958 to 1961.

Table 9.--Water levels in observation well in Vermillion County, Ind.--Cont.

(Daily highest water level from recorder graph, 1958)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	----	----	----	----	----	----	----	16.67	18.39	22.90	25.45	23.10
2	----	----	----	----	----	----	----	15.72	18.61	23.00	25.50	23.10
3	----	----	----	----	----	----	----	14.94	18.85	23.10	25.55	23.15
4	----	----	----	----	----	----	----	14.94	19.10	23.20	25.60	23.20
5	----	----	----	----	----	----	----	15.12	19.29	23.30	25.60	23.30
6	----	----	----	----	----	----	----	15.51	19.37	23.30	25.65	23.40
7	----	----	----	----	----	----	----	15.86	19.60	23.55	25.70	23.45
8	----	----	----	----	----	----	----	15.92	19.80	23.65	25.75	23.50
9	----	----	----	----	----	----	----	15.97	20.02	23.75	25.80	23.55
10	----	----	----	----	----	----	----	16.14	20.22	23.85	25.85	23.65
11	----	----	----	----	----	----	----	16.27	20.44	23.95	25.90	23.70
12	----	----	----	----	----	----	----	16.19	20.55	24.05	25.95	23.75
13	----	----	----	----	----	----	----	16.45	20.70	24.10	26.00	23.80
14	----	----	----	----	----	----	----	16.65	20.85	24.20	26.05	23.80
15	----	----	----	----	----	----	----	16.51	21.05	24.25	26.05	23.85
16	----	----	----	----	----	----	----	16.34	21.25	24.35	26.00	23.90
17	----	----	----	----	----	----	----	15.96	21.35	24.40	25.70	23.90
18	----	----	----	----	----	----	----	14.99	21.50	24.50	25.55	24.00
19	----	----	----	----	----	----	----	14.62	21.60	24.60	25.30	24.00
20	----	----	----	----	----	----	----	14.61	21.70	24.65	25.05	24.10
21	----	----	----	----	----	----	----	15.22	21.80	24.75	24.85	24.15
22	----	----	----	----	----	----	----	15.75	21.90	24.80	24.75	24.20
23	----	----	----	----	----	----	----	14.97	16.17	22.00	24.90	24.25
24	----	----	----	----	----	----	----	15.15	16.44	22.10	24.95	24.30
25	----	----	----	----	----	----	----	15.58	16.72	22.20	25.00	24.35
26	----	----	----	----	----	----	----	15.90	16.95	22.30	25.10	24.40
27	----	----	----	----	----	----	----	16.13	17.16	22.40	25.15	23.65
28	----	----	----	----	----	----	----	16.30	17.37	22.55	25.25	23.30
29	----	----	----	----	----	----	----	16.34	17.61	22.65	25.30	23.15
30	----	----	----	----	----	----	----	16.50	17.86	22.75	25.35	23.10
31	----	----	----	----	----	----	----	16.59	18.11	----	25.40	24.80

(Daily highest water level from recorder graph, 1959)

1	24.80	----	15.80	16.80	10.20	18.85	22.70	25.45	27.50	27.90	27.80	26.40
2	24.80	----	15.85	16.70	10.25	19.10	22.80	25.55	27.50	27.90	27.85	26.45
3	24.80	----	16.00	16.60	10.85	19.25	22.95	25.60	27.55	27.90	27.85	26.50
4	24.85	----	16.15	16.70	11.75	19.40	23.05	25.65	27.55	27.95	27.85	26.55
5	24.90	----	16.15	14.85	12.85	19.60	23.15	25.75	27.60	27.95	27.85	26.60
6	24.90	15.85	16.25	14.75	14.15	19.80	23.30	25.80	27.60	28.00	27.80	26.65
7	24.90	16.15	16.30	15.00	15.00	20.00	23.45	25.85	27.65	28.00	27.75	26.70
8	24.95	16.45	16.30	15.55	15.30	20.20	23.60	25.95	27.70	28.05	27.65	26.70
9	24.95	13.90	16.20	15.95	15.65	20.35	23.70	26.00	27.70	28.05	27.60	26.75
10	24.95	10.45	16.10	16.00	15.85	20.50	23.80	26.05	27.75	28.00	27.55	26.80

Table 9.--Water levels in observation well in Vermillion County, Ind.--Cont.

(Daily highest water level from recorder graph, 1959, Cont.)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec.
11	24.95	7.45	16.05	16.15	16.05	20.65	23.95	26.15	27.75	27.80	27.55	26.80
12	25.00	----	15.95	16.30	16.25	20.80	24.05	26.20	27.80	27.70	27.60	26.80
13	25.00	----	15.90	16.45	16.35	20.95	24.20	26.25	27.80	27.60	27.55	26.75
14	25.00	7.85	15.90	16.65	16.55	21.10	24.30	26.35	27.85	27.60	27.20	26.50
15	24.95	----	15.85	16.85	16.65	21.30	24.45	26.40	27.90	27.50	26.95	26.20
16	24.90	----	15.80	17.00	16.80	21.45	24.55	26.45	27.95	27.50	26.70	25.90
17	24.85	----	15.55	17.20	16.95	21.65	24.65e	26.50	28.00	27.50	26.45	25.75
18	24.80	11.05	15.55	17.40	17.10	21.80e	24.70e	26.60	28.00	27.50	26.30	25.70
19	24.80	11.80	15.65	17.45	17.30	21.95	24.75e	26.70	28.05	27.50	26.20	25.70
20	24.75	12.55	15.85	17.30	17.55	22.10	24.85e	26.75	28.10	27.55	26.15	25.70
21	24.20	13.70	16.05	17.05	17.70	22.25	24.90e	26.85	28.10	27.60	26.10	25.70
22	23.55	14.60	16.30	17.00	17.85	22.40	25.00e	25.95	28.15	27.65	26.15	25.75
23	23.10	14.95	16.45	17.05	17.85	22.60	25.05e	27.00	28.15	27.65	26.15	25.75
24	22.60	15.25	16.65	17.15	17.95	22.70	25.10e	27.10	28.20	27.70	26.15	25.80
25	21.40	15.30	15.85	17.30	18.05	22.85	25.20e	27.15	28.20	27.70	26.20	25.85
26	16.40	15.40	16.95	17.55	18.10	22.95	25.20e	27.25	28.15	27.70	26.20	25.90
27	e15.20	15.50	17.10	17.15	18.20	23.10	25.20	27.30	----	27.75	26.25	25.95
28	----	15.65	17.25	15.30	18.30	23.00	25.20	27.35	----	27.75	26.25	25.80
29	----	----	17.25	11.85	18.40	22.75	25.25	27.40e	27.90	27.75	26.30	25.55
30	----	----	17.20	10.50	18.55	22.70	25.30	27.45	27.90	27.75	26.35	25.35
31	----	----	17.20	----	18.75	----	25.40	27.45	----	27.80	----	e25.15

(Daily highest water level from recorder graph, 1960)

1	e25.05	23.95	----	13.25	19.65	21.55	17.50	----	24.90	26.75	27.65	27.90
2	e25.00	23.95	----	13.00	19.80	21.55	17.80	----	25.00	26.75	27.65	27.90
3	e24.95	23.95	----	13.00	19.95	21.60	18.20	22.60	25.10	26.80	27.65	27.95
4	e24.90	23.95	----	13.55	20.10	21.70	18.40	22.50	25.20	26.85	27.70	27.95
5	e24.85	24.00	----	14.55	20.30	21.85	18.55	22.35	25.25	26.85	27.70	27.95
6	e24.75	23.70	----	15.65	20.45	21.95	18.70	22.35	25.35	26.90	27.75	27.95
7	e24.75	23.30	----	16.20	20.35	22.05	18.95	22.40	25.45	26.90	27.75	27.95
8	e24.75	22.90	----	16.65	20.35	22.15	19.20	22.55	25.50	26.95	27.75	28.00
9	e24.75	22.45	----	16.95	20.40	22.30	19.45	22.70	25.60e	27.00	27.80	28.00
10	e24.80	21.95	----	17.25	20.50	22.15	----	22.85	25.65e	27.00	27.80	28.00
11	e24.90	17.20	----	17.50	20.60	21.90	----	23.00	25.70e	27.05	27.80	28.00
12	e25.00	15.65	----	17.75	20.60	----	----	23.15	25.75e	27.10	27.80	28.00
13	e24.95	14.80	----	17.65	20.65	----	19.40	23.30	25.85e	27.10	27.80	28.05
14	e24.90	14.30	----	17.95	20.75	----	19.35	23.45	25.95e	27.15	27.85	28.05
15	e24.75	14.25	----	18.15	20.90	22.30	19.40	23.55	26.00e	27.20	27.85	28.05
16	e24.50	14.65	22.25	18.45	21.05	22.25	19.60	23.70	26.05e	27.25	27.85	28.05
17	e24.20	15.60	22.65	18.40	21.15	22.00	19.60	23.85	26.15e	27.25	27.80	28.05
18	e23.85	16.25	22.80	18.30	21.30	21.90	19.70	23.95	26.20e	27.30	27.80	28.05
19	23.75	16.75	22.95	18.00	21.25	21.90	19.90	24.05	26.20e	27.30	27.80	28.05
20	23.70	17.15	23.05	17.90	21.25	21.80	20.05	24.20	26.25e	27.35	27.80	28.05

Table 9.--Water levels in observation well in Vermillion County, Ind.--Cont.

(Daily highest water level from recorder graph, 1960, Cont.)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21	23.70	17.35	23.20	17.90	21.30	21.50	20.15	24.30	26.30e	27.40	27.80	28.10
22	23.75	----	23.25	18.00	21.35	20.35	20.30	24.30	26.30e	27.40	27.80	28.10
23	23.80	----	23.40	18.10	21.35	14.10	20.40	24.30	26.35e	27.45	27.80	28.05
24	23.85	----	23.50	18.25	21.40	14.05	20.50	24.30	26.40e	27.50	27.80	28.05
25	23.95	----	23.60	18.45	21.45	14.50	----	24.35	26.45e	27.50	27.80	----
26	24.10	----	23.65	18.65	21.50	15.35	----	24.40	26.50	27.55	27.85	----
27	24.15	----	23.45	18.90	21.60	16.00	----	24.55	26.55	27.55	27.85	----
28	24.10	----	23.00	19.10	21.65	16.35	----	24.65	26.60	27.55	27.90	28.10
29	24.05	----	22.35	19.30	21.65	16.85	----	24.75	26.60	27.55	27.90	28.05
30	24.05	----	17.30	19.45	21.45	17.15	----	24.85	26.65	27.60	27.90	28.05
31	24.00	----	15.00	----	21.45	----	----	24.80	----	27.60	----	28.05

(Daily highest water level from recorder graph, 1961)

1	28.05	28.15	27.15	----	----	18.90	21.65	23.90	----	26.10	26.70	25.45
2	28.05	28.15	26.90	----	----	19.10	21.80	23.60	----	26.10	26.70	25.50
3	28.05	28.15	26.70	----	----	19.35	21.95	23.35	----	26.15	26.70	25.50
4	28.05	28.20	26.50	----	----	19.55	22.10	23.15	----	26.15	26.65	25.55
5	28.05	28.20	26.30	----	----	19.80	22.20	23.00	----	26.20	26.65	25.60
6	28.05	28.15	26.20	----	----	20.00	22.35	22.90	----	26.25	26.60	25.65
7	28.05	28.15	25.95	----	----	19.95	22.50	22.75	----	26.30	26.60	25.65
8	28.05	28.15	25.65	----	----	19.55	22.65	22.60	----	26.30	26.60	25.65
9	28.05	28.15	25.20	----	----	19.40	22.75	22.60	----	26.35	26.60	25.65
10	28.05	28.15	24.95	----	13.05	19.40	22.90	22.60	----	26.40	26.65	25.70
11	28.05	28.15	24.75	----	12.60	19.45	23.00	22.65	----	26.45	26.65	25.70
12	28.05	28.15	24.50	----	12.55	19.55	23.15	22.75	----	26.50	26.70	25.75
13	28.05	28.15	23.85	20.00	12.55	19.55	23.25	22.85	----	26.55	26.75	25.80
14	28.10	28.10	23.35	----	12.75	19.50	23.40	22.95	----	26.60	26.75	25.80
15	28.10	28.05	22.95	19.95	13.45	19.65	23.50	23.10	----	26.65	26.75	25.80
16	----	28.00	17.65	19.90	14.60	19.75	23.60	23.15	----	26.65	26.75	25.85
17	28.10	27.95	15.80	19.85	15.30	19.80	23.70	23.25	----	26.65	26.70	25.85
18	28.10	27.90	15.35	19.55	15.70	19.90	23.80	23.40	----	26.70	26.55	25.85
19	28.10	27.80	15.35	19.25	16.05	20.00	23.85	23.50	----	26.70	26.35	25.85
20	28.10	27.70	15.50e	18.30	16.25	20.15	23.95	23.60	----	26.75	26.20	25.85
21	28.15	27.55	15.40	----	16.45	20.25	24.00	23.75	----	26.80	26.15	25.85
22	28.15	27.50	14.95	----	16.70	20.35	24.05	23.90	26.25	26.80	26.10	25.90
23	28.15	27.45	14.80	----	16.90	20.40	24.00	24.00	26.30	26.85	26.00	25.85
24	28.20	27.40	14.70	----	17.10	20.55	24.00	24.15	26.35	26.90	25.85	25.85
25	28.20	27.40	14.60	----	17.30	20.70	24.00	24.55	26.30	26.90	25.65	25.80
26	28.20	27.35	14.60	----	17.55	20.80	24.00	25.10	26.30	26.90	25.55	25.80
27	28.20	27.35	14.65	----	17.75	20.95	24.05	----	26.25	26.95	25.45	25.80
28	28.15	27.30	15.35	----	18.00	21.10	24.10	----	26.20	26.85	25.40	25.85
29	28.15	----	----	----	18.20	21.30	24.20	----	26.15	26.75	25.40	25.90
30	28.15	----	----	----	18.50	21.45	24.25	----	26.15	26.70	25.40	25.85
31	28.15	----	----	----	18.65	----	24.10	----	----	26.70	----	26.00

PUBLICATIONS OF COOPERATIVE GROUND-WATER PROGRAM

Report

Ground-water resources of the Indianapolis area, Marion County, Indiana. C. L. McGuinness. Indiana Department of Conservation, Division of Geology. 1943.

Bulletins

- No. 1 Memorandum concerning a pumping test at Gas City, Indiana. J. G. Ferris, Indiana Department of Conservation, Division of Water Resources. 1945.
- 2 A preliminary report of the ground-water levels of the State based on records of twenty-six observations wells for which long time records are available. Indiana Department of Conservation, Division of Water Resources. 1946 (Out of print).
- 3 Ground-water resources of St. Joseph County, Indiana. Part 1, South Bend area. F. H. Klaer, Jr., and R. W. Stallman. Indiana Department of Conservation, Division of Water Resources. 1948.
- 4 Ground-water resources of Boone County, Indiana. E. A. Brown. Indiana Department of Conservation, Division of Water Resources. 1949.
- 5 Ground-water resources of Noble County, Indiana. R. W. Stallman and F. H. Klaer, Jr. Indiana Department of Conservation, Division of Water Resources. 1950.
- 7 Water-level records of Indiana. Indiana Department of Conservation, Division of Water Resources. 1956.
- 8 Ground-water resources of Tippecanoe County, Indiana. Appendix, Basic Data. J. S. Rosenshein and O. J. Cosner. Indiana Department of Conservation, Division of Water Resources. 1956.
- 8 Ground-water resources of Tippecanoe County, Indiana. J. S. Rosenshein. Indiana Department of Conservation, Division of Water Resources. 1958 (1959).
- 9 Ground-water resources of Adams County, Indiana. F. A. Watkins, Jr., and P. E. Ward. Indiana Department of Conservation, Division of Water Resources. 1962.
- 10 Ground-water resources of northwestern Indiana. Preliminary Report: Lake County. J. S. Rosenshein. Indiana Department of Conservation, Division of Water Resources. 1961.
- 11 Ground-water resources of west-central Indiana. Preliminary Report: Greene County. F. A. Watkins, Jr., and D. G. Jordan. Indiana Department of Conservation, Division of Water Resources. 1961.

Publications of cooperative ground-water programs--Continued

Bulletins--Continued

- No. 12 Ground-water resources of northwestern Indiana. Preliminary Report: Porter County. J. S. Rosenshein. Indiana Department of Conservation, Division of Water Resources. 1962.
- 13 Ground-water resources of northwestern Indiana. Preliminary Report: La Porte County. J. S. Rosenshein and J. D. Hunn. Indiana Department of Conservation, Division of Water Resources. 1962.
- 14 Ground-water resources of west-central Indiana. Preliminary Report: Sullivan County. F. A. Watkins, Jr., and D. G. Jordan. Indiana Department of Conservation, Division of Water Resources. 1962.
- 15 Ground-water resources of northwestern Indiana. Preliminary Report: St. Joseph County. J. S. Rosenshein and J. D. Hunn. Indiana Department of Conservation, Division of Water Resources. 1962.
- 16 Ground-water resources of west-central Indiana. Preliminary Report: Clay County. F. A. Watkins, Jr., and D. G. Jordan. Indiana Department of Conservation, Division of Water Resources. 1962.
- 17 Ground-water resources of west-central Indiana. Preliminary Report: Vigo County. F. A. Watkins, Jr., and D. G. Jordan. Indiana Department of Conservation, Division of Water Resources. 1963.
- 18 Ground-water resources of west-central Indiana. Preliminary Report: Owen County. F. A. Watkins, Jr., and D. G. Jordan. Indiana Department of Conservation, Division of Water Resources. 1963.
- 19 Ground-water resources of northwestern Indiana. Preliminary Report: Marshall County. J. S. Rosenshein and J. D. Hunn. Indiana Department of Conservation, Division of Water Resources. 1964.
- 20 Ground-water resources of northwestern Indiana. Preliminary Report: Fulton County. J. S. Rosenshein and J. D. Hunn. Indiana Department of Conservation, Division of Water Resources. 1964.
- 21 Ground-water resources of west-central Indiana. Preliminary Report: Putnam County. F. A. Watkins, Jr., and D. G. Jordan. Indiana Department of Conservation, Division of Water Resources. 1964.
- 22 Ground-water resources of northwestern Indiana. Preliminary Report: Starke County. J. S. Rosenshein and J. D. Hunn. Indiana Department of Conservation, Division of Water Resources. 1964.
- 23 Ground-water resources of west-central Indiana. Preliminary Report: Parke County. F. A. Watkins, Jr., and D. G. Jordan. Indiana Department of Conservation, Division of Water Resources. 1964.
- 24 Ground-water resources of northwestern Indiana. Preliminary Report: Pulaski County. J. S. Rosenshein and J. D. Hunn. Indiana Department of Conservation, Division of Water Resources. 1964.

Publications of cooperative ground-water programs--Continued

Bulletins--Continued

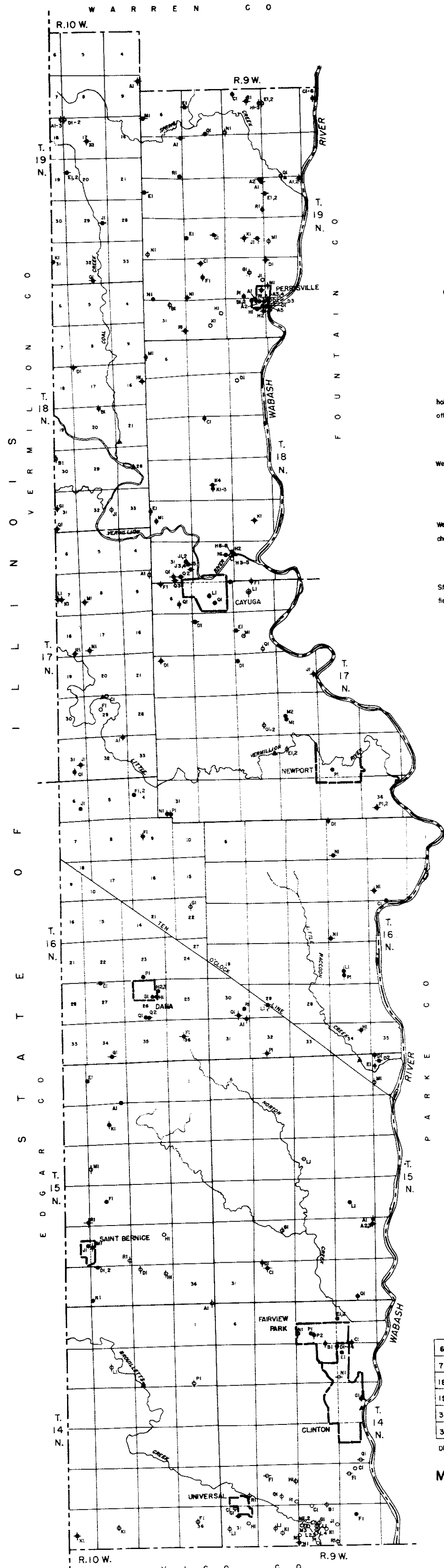
- No. 25 Ground-water resources of northwestern Indiana. Preliminary Report:  
Jasper County. J. S. Rosenshein and J. D. Hunn. Indiana  
Department of Conservation, Division of Water Resources. 1964.
- 26 Ground-water resources of northwestern Indiana. Preliminary Report:  
Newton County. J. S. Rosenshein and J. D. Hunn. Indiana  
Department of Conservation, Division of Water Resources. 1964.
- 27 Ground-water resources of west-central Indiana. Preliminary Report:  
Montgomery County. F. A. Watkins, Jr., and D. G. Jordan. Indiana  
Department of Conservation, Division of Water Resources. 1965.
- 28 Ground-water resources of west-central Indiana. Preliminary Report:  
Fountain County. F. A. Watkins, Jr., and D. G. Jordan. Indiana  
Department of Conservation, Division of Water Resources. 1965.
- 29 Ground-water resources of west-central Indiana. Preliminary Report:  
Vermillion County. F. A. Watkins, Jr., and D. G. Jordan. Indiana  
Department of Conservation, Division of Water Resources. 1965.



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- EXPLANATION
- BI  
Water well
  - LI  
Observation well
  - ♣ AI  
Spring
  - RI  
Oil well, test hole, or hole drilled for purposes other than water supply.
  - ♣ PI  
Well for which log is listed in table 5.
  - ♣ C2  
Well or spring for which field chemical analysis is listed in table 6 or 7.
  - ▲  
Stream-water sampling site—field chemical analysis of water in table 8

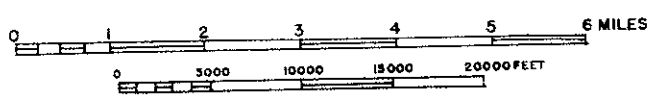
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

DIAGRAM OF TOWNSHIP

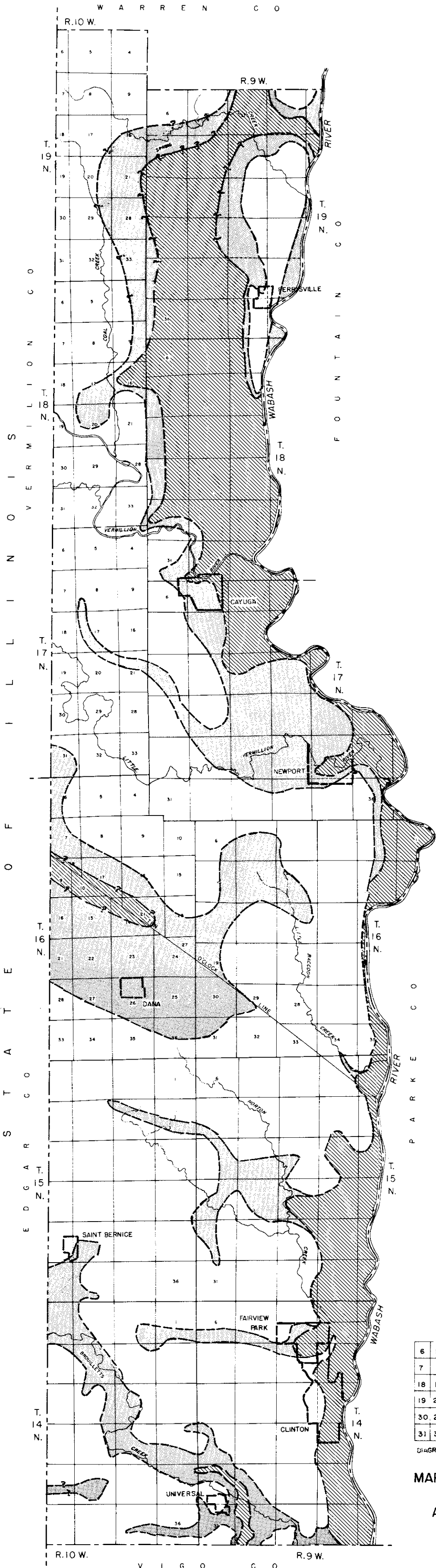
D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

SECTION LETTER SYMBOLS IN WELL NUMBERING SYSTEM

MAP OF VERMILLION COUNTY, INDIANA, SHOWING  
LOCATION OF WELLS AND SPRINGS



BASE MODIFIED FROM INDIANA  
DEPARTMENT OF CONSERVATION  
GEOLOGICAL SURVEY, BASE MAP  
OF VERMILLION COUNTY, NO. 43  
APRIL 3, 1958



EXPLANATION

Production from sand and gravel



Water from sand and gravel of Pleistocene age overlain by till or recent alluvium or interbedded with till. Well depths range from 40 to 230 feet. Yields more than adequate for domestic and stock use. Areas of municipal production and relatively large yields or in which large yields may be possible.



Water from sand and gravel lenses and stringers of Pleistocene age interbedded with till or overlain by Recent alluvium. Well depths range from 15 to 150 feet. Yields usually adequate for domestic and stock use. Some wells cased through the sand and gravel to the underlying bedrock.

Production from bedrock

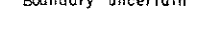


Water predominately from sandstone of Pennsylvanian age. Well depths range from 50 to 550 feet. Yields generally adequate for domestic and stock use.

Boundary approximate



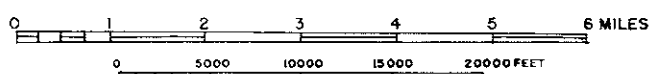
Boundary uncertain



6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

DIAGRAM OF TOWNSHIP

MAP OF VERMILION COUNTY, INDIANA, SHOWING  
AVAILABILITY OF GROUND WATER



BY F. A. WATKINS, JR. AND D. G. JORDAN

1962