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GROUND-WATER RESOURCES OF NORTHWESTERN INDIANA

Preliminary Report: Marshall County

BY

J. S. ROSENSHEIN AND J. D. HUNN

GEOLOGISTS, U. S. GEOLOGICAL SURVEY

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ABSTRACT

Marshall County, in northwestern Indiana, has an area of about 450 square miles. Glaciofluvial sand and gravel of Pleistocene age is the chief source of ground water for domestic, stock, industrial, and public supplies. Wells that tap this source generally are less than 150 feet deep and yield from 5 to more than 1,000 gpm (gallons per minute). The underlying bedrock is not used as a source of ground water. However, the bedrock of Devonian and Devonian and Mississippian (?) age is a potential source of water, although quality and quantity available is uncertain. Field chemical analyses show that the hardness of water from the glaciofluvial sand and gravel generally is greater than 200 and less than 450 ppm (parts per million). In much of the county the concentration of iron exceeds maximum concentration recommended in the U. S. Public Health Service drinking-water standard for iron and manganese together. However, there are several small areas in the central and western part where this standard is not exceeded.

This preliminary report contains tabulated records of about 630 wells and test holes giving information about well construction, water level, condition of occurrence, and characteristics of water-bearing material; selected logs for about 330 wells and test holes giving driller's description of material penetrated and authors' interpretation of their geologic age; result of 232 field chemical analyses giving hardness of water and the bicarbonate, chloride, iron, and sulfate contents; and water levels in 4 observation wells indicating the magnitude of short-term and long-term water level fluctions in the unconsolidated rocks. These basic data include much of the material to be used in an interpretive report on the ground-water resources and geology of the area.

A base map of Marshall County show the location of each well or test hole listed in this report. Additional maps show the availability of ground water in the county and the areal distribution of hardness of water from the unconsolidated rocks of Pleistocene age.

INTRODUCTION

Purpose and Scope

An investigation of the ground-water resources and geology of 10 counties in northwestern Indiana has been in progress since June 1954. This investigation is being made by the U. S. Geological Survey in cooperation with the Division of Water Resources, Indiana Department of Conservation, as a part of a broad program of these agencies to inventory and evaluate the ground-water resources of Indiana.

This report is the fifth of a series of preliminary reports to be published on the ground-water resources and geology of northwestern Indiana. The purpose of the report is to make the basic data collected during the investigation available to the public and to provide a preliminary evaluation of the ground-water conditions and geology as an aid to development of ground-water resources. A more detailed and comprehensive analysis is in progress and will be published in an interpretive report on the ground-water resources and geology of the area.

The investigation was made under the immediate supervision of C. M. Roberts, district geologist for Indiana.

Location and Areal Extent

Marshall County is in the northwestern part of Indiana (fig. 1). The county is rectangular and includes about 450 square miles. It is bounded on the north by St. Joseph County, on the south by Fulton County, on the west by Starke and St. Joseph Counties, and on the east by Elkhart and Kosciusko Counties.

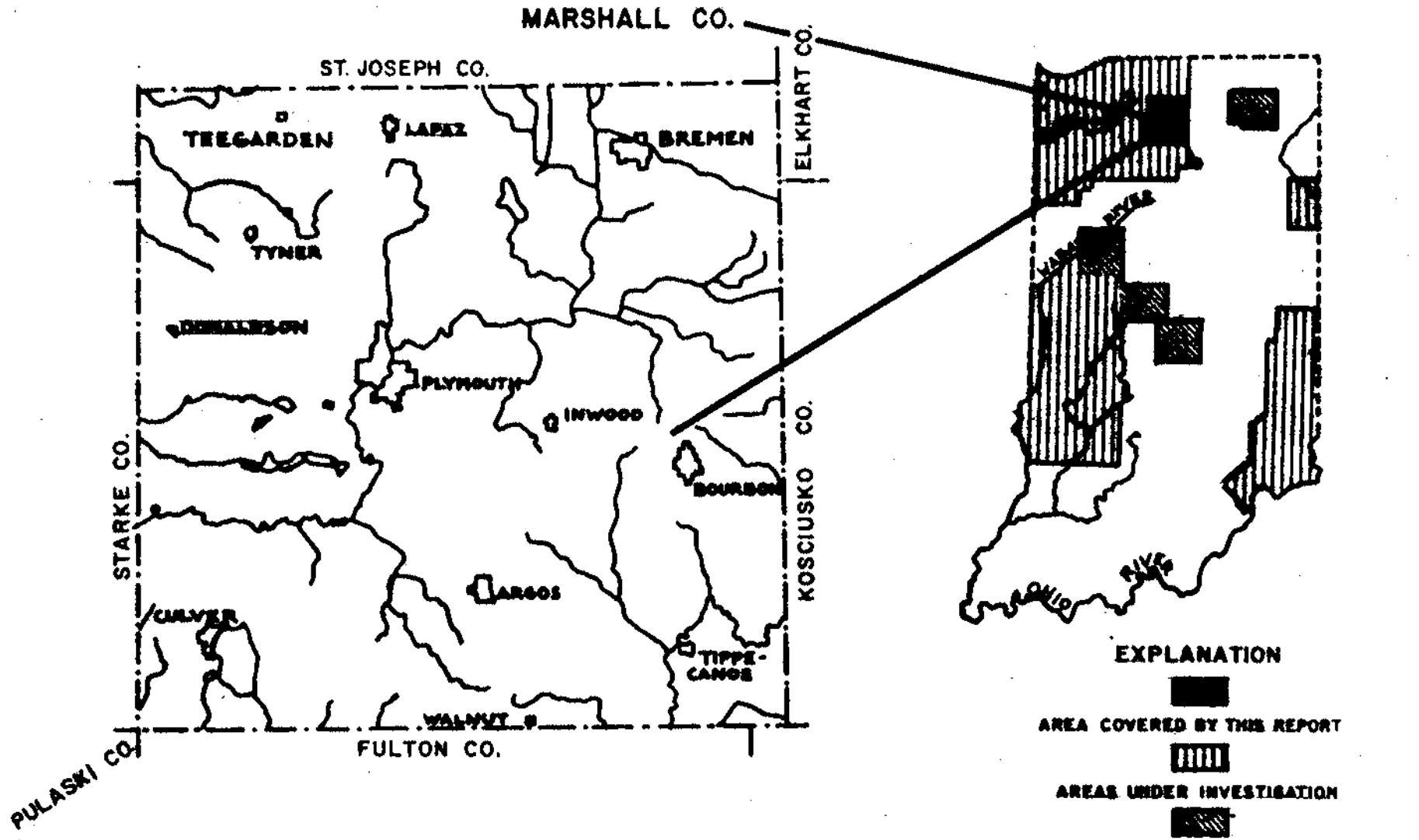

FIGURE 1.-- Map of Indiana, showing area covered by this report, areas under investigation, and areas covered by reports published under the cooperative program.

SEE PAGE 166 FOR LIST OF PUBLISHED REPORTS

Well-Numbering System

A numbering system is used to locate and identify the wells and test holes in this report. The number that is assigned each well or test hole indicates its location according to the official rectangular public-land survey. For example, in the number for well 32/3-35E1, the numbers preceding the hyphen indicate that the well is in T. 32 N., R. 3 E. The first number after the hyphen indicates the section in which the well is located. Each quarter-quarter section (40-acre tract) within a section is assigned a letter symbol as shown on figure 2. Within the quarter-quarter section the wells and test holes are numbered consecutively. Therefore, well 35E1 is the first well listed in SW¼NW¼ sec. 35, T. 32 N., R. 3 E.

A narrow strip in the central part of the county is sub-divided into land grants. In this area the grid of the rectangular public-land survey has been projected through the grants and wells in this area numbered in accordance with the system used in the rectangular survey area.

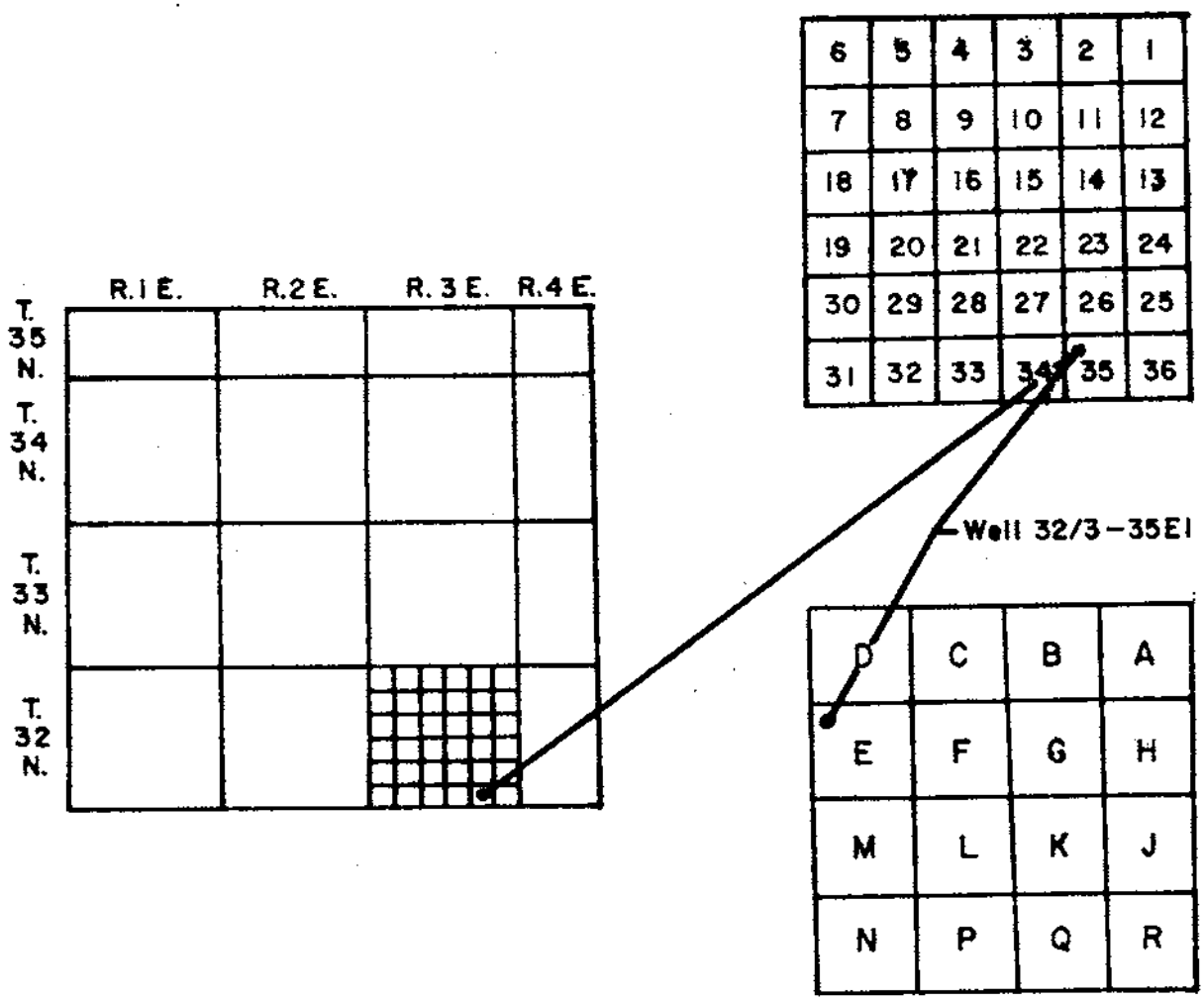

FIGURE 2.--Sketch showing well-numbering system.

Acknowledgments

The authors thank all persons who contributed time, information, and assistance during the collection, tabulation, and processing of data for this report. W. J. Steen and J. M. Heckard of the Indiana Department of Conservation assisted in processing the data in the field. Well drillers whose names are listed in the table of well records, furnished much of the information summarized in tables 3 and 4.

The authors also thank the following government agencies which provided information for the report: Divisions of Oil and Gas and Water Resources, Indiana Department of Conservation; Indiana Flood Control and Water Resources Commission; Indiana State Highway Department; Indiana State Board of Health; and U. S. Corps of Engineers.

DATA COLLECTION AND PROCESSING

The well data were collected principally from drillers, water-works superintendents, and owners. The well records obtained from the drillers were of two types--written records and reports from memory. Tentative driller's location were checked against the property records in the County Courthouse to verify the location, to locate the property, and to obtain the name of the current property owner. The locations of wells were checked further in the field if major discrepancies existed between the reported location and the property record in the plat books, if the location given could not be verified from county records, or if the verified location was not sufficiently accurate to be used.

Plate 1 shows the location of water wells and test holes and test holes drilled for purposes other than water supply. Most of these locations are shown to the nearest 10 acres. The basic data for these wells and test holes are summarized in table 3. In addition, selected driller's logs of wells and test holes are given in table 4.

Samples of water were collected at the time well sites were visited. These water samples were analyzed in the field office for hardness of water and alkalinity (expressed as bicarbonate) and chloride and sulfate contents by standard titration methods. The iron content of the water was determined at the well site immediately after the sample was collected. A visual method was used to determine the iron concentration in parts per million by matching the color of the treated sample to that of a liquid-color standard having a known iron concentration. The results of the field chemical analyses (table 5) were used to select sites for collecting larger water samples for more comprehensive chemical analyses by the laboratory of the U. S. Geological Survey.

Observation wells were established prior to and during the investigation in order to obtain relative changes in storage in the ground-water reservoir. Table 6 contains the water-level data collected from these wells. The observation wells were chosen so as to obtain water-level information from artesian and water-table aquifers consisting of unconsolidated rocks. Wherever possible, the wells were established at sites where the factors affecting the water levels in the aquifer were due chiefly to natural causes.

GENERAL GEOLOGY AND SOURCES OF GROUND WATER

The oldest known consolidated rocks underlying Marshall County are of Ordovician age. These rocks consist of dolomite, dolomitic limestone, and shale and are overlain by dolomitic limestone, shale, and dolomite of Silurian age. The rocks of Ordovician and Silurian age are not used as a source of water in the county because these rocks generally lie more than 900 to 1,000 feet and 400 to 500 feet, respectively, below the surface, and the water they contain generally has a dissolved-solids content of more than 5,000 ppm (parts per million).

The rocks of Silurian age are overlain by dolomite and dolomitic limestone of Middle Devonian age. These rocks underlie blue-black bituminous shale of Devonian age (Logan, 1932) or Devonian and Mississippian age (Patton, 1956). The rocks of Devonian and Mississippian (?) age grade upward into shale of Mississippian age which is overlain locally by thin limestone. Although these limestones and shales of Devonian and Mississippian age are not used as a source of water in Marshall County, they are a potential source of water although the quality and quantity available is uncertain.

The bedrock is overlain by unconsolidated glacial drift of Pleistocene age. The drift forms several prominent topographic features in the county (Leverett and Taylor, 1915, pl. 6; Wayne, 1958) such as the Maxinkuckee moraine in the west-central part; the glaciofluvial plains and the ground moraine in the eastern part; and the sand-covered glaciofluvial plains and ridges in the western part.

The unconsolidated rocks of Pleistocene age range in thickness from about 100 to more than 250 feet. The rocks consist chiefly of glaciofluvial sand and gravel, clayey till, and some glaciolacustrine clay and silt. The glaciofluvial sand and gravel is locally more than 200 feet thick and is the chief source of ground water for domestic and stock, industrial, and public supplies. Wells that tap this aquifer are generally less than 150 feet deep and yield from 5 gpm (gallons per minute) to more than 1,000 gpm.

The unconsolidated rocks of Pleistocene age are overlain locally by thin alluvium, wind-blown sand, and organically rich sand, silt, and clay of Recent age. The deposits of Recent age are too thin to be a source of ground water.

Plate 2 shows the availability of ground water in the unconsolidated rocks underlying the county. Plate 3 shows the areal distribution of hardness of water from the sand and gravel of Pleistocene age. The water is hard to very hard. The hardness is generally greater than 200 and less than 450 ppm. However, the hardness is less than 200 ppm in several small areas along the western edge of the county. In much of the county the iron content exceeds maximum concentration recommended in the U. S. Public Health Service drinking-water standard for iron and manganese together. In the central and western part of the county this standard is not exceeded by the iron concentration in several small areas.

The range in concentration of selected constituents and properties is summarized in the table below. This table shows the minimum, mode, and maximum

Constituent or property	Minimum (ppm)	Mode (ppm)	Maximum (ppm)
Iron (Fe)----------	< 0.1	1.2	7.5
Bicarbonate (HCO_3)-----	122	364	586
Sulfate (SO_4)----------	5	16	155
Hardness as $CaCO_3$------	132	309	592

concentrations of various constituents and properties of water from sand and gravel of Pleistocene age. Table 1 indicates the significance of the various constituents and properties of the water that are listed in table 5.

Table 1.--Significance of selected dissolved mineral constituents and properties of ground-water [a/]

Constituent or property	Significance
Iron (Fe)---------	Oxidizes to reddish-brown sediment upon exposure to air. More than about 0.3 ppm stains laundry and utensils reddish-brown. More than 0.5 to 1.0 ppm imparts objectionable taste to water. Larger quantities favor growth of iron bacteria. Objectionable for food processing, textile processing, beverages, ice manufacturing, brewing, and other purposes.
Bicarbonate (HCO_3)	Bicarbonate in conjunction with carbonate (CO_3) produces alkalinity. Bicarbonate of calcium and magnesium decomposes in steam boilers and hot water facilities to form scale and release corrosive carbon-dioxide gas.
Sulfate (SO_4)----	Sulfate in water containing calcium forms hard scale in steam boilers. In large amounts sulfate in combination with other ions gives bitter taste to water. Some calcium sulfate is considered beneficial in the brewing process.
Chloride (Cl)-----	Gives salty taste to drinking water when present in large amounts in combination with sodium. Increases the corrosiveness of water when present in large amounts.
Hardness as $CaCO_3$ (Calcium and magnesium)------	Hard water increases amount of soap needed to make lather. Forms scale in boilers, water heaters, and pipes. Leaves curdy film on bathtubs and other fixtures and on materials washed in the water.

CONFINED AND UNCONFINED CONDITIONS

Ground-water occurs in the consolidated and unconsolidated rocks of Marshall County under confined (artesian) conditions or under unconfined (water-table) conditions. Under confined conditions the aquifer (water-yielding material) is overlain directly by relatively impervious material, and the water will rise above the level at which it is encountered in the aquifer. Under unconfined conditions the aquifer is overlain directly by permeable unsaturated material, and the water will not rise above the level at which it is encountered.

a/ Adapted in part from Palmquist and Hall (1961), p. 34-36

TYPES OF WELLS

Drilled, driven, and jetted wells are the principal types of water used in Marshall County. Most water wells 3-inches or more in diameter are constructed by the cable-tool, or percussion, method, but a few wells have been drilled by the rotary and reverse-rotary methods. Where the water-bearing material is sand and gravel, the well is generally finished with a well screen set in the aquifer below the bottom of the well casing. (See Rosenshein and Cosner, 1956, p. 6, for a detailed description of a well screen.) A modification of this type of well, the gravel-packed well, has a gravel lining inserted between the well screen and the water-bearing material.

Water wells less than 3-inches in diameter are constructed in unconsolidated material by driving or jetting. The driven well consists of a small-diameter pipe having a drive point attached to the end, which is driven into shallow water-bearing material. The jetted well is constructed by forcing water under pressure out of a hollow-rod or small-diameter drill pipe that is fitted with a jetting bit. As the material is washed out of the hole ahead of the casing, the casing is driven down into the hole. After the water-bearing material is penetrated the well is generally finished with a well-point screen set in the water-bearing material below the bottom of the casing. Table 2 relates the grain-size in inches and millimeters to the slot and the gauze size of screens commonly used in water wells.

Oil or gas test holes in Marshall County generally were drilled by the cable-tool method. The flood-control test holes were bored by a rig-mounted power auger. Structure test holes for foundations and bridges generally were drilled by the wash-boring method. Various methods were used in these types of test-hole drilling to recover samples of material penetrated, such as, driving a sampling tube into the material after specific intervals of boring or collecting samples from the bailer after specific intervals of cable-tool drilling.

Table 2.--Grain size and equivalent screen openings

Grain size: After Wentworth (1922).
Equivalent screen openings: From commercial catalogs for water-well supplies.
Slot size: In thousandths (0.001) of an inch.
Gauze size: Number of wire strands per lineal inch

Material	Grain size		Equivalent screen opening	
	Inches	Millimeters	Slot size	Gauze size
Gravel----------	>0.08	> 2	>80	-------
Very coarse sand-	.04 - .08	1 - 2	40 - 80	<20
Coarse sand------	.02 - .04	.50 - 1	20 - 40	40 - 20
Medium sand------	.01 - .02	.25 - .50	10 - 20	60 - 40
Fine sand--------	.005 - .01	.125 - .25	6 - 10	90 - 60
Very fine sand---	.002 - .005	.062 - .125	-------	-------
Silt-------------	.00015 - .002	.004 - .062	-------	-------
Clay-------------	<.00015	<.004	-------	-------

SUMMARY

Preliminary evaluation of the basic data shows that adequate quantities of ground water are available for domestic, stock, public, and industrial supplies from sand and gravel of Pleistocene age. The underlying bedrock is not used as a source of water. However, the rocks of Devonian and Mississippian (?) are a potential source of water, although quality and quantity available is uncertain.

The chemical quality of water from the rocks of Pleistocene age varies. The water is generally hard to very hard. In several small areas along the western edge of the county the hardness of water is less than 200 ppm. Although the iron content exceeds the U. S. Public Health Service drinking-water standards for iron and manganese together in much of the county, there are several areas in the central and western part in which this standard is not exceeded.

RECORDS

The records of about 630 wells and test holes are given in table 3. The table contains information about well construction, water levels, yields and drawdowns, conditions of occurrence, thickness and characteristics of water-bearing materials, type of pump, and other data. The altitude of the land surface at all wells and most test borings, was interpolated from topographic maps. Altitudes of some borings were leveled by the State agency for whom the borings were made.

Table 4 contains the selected logs of about 330 wells and test holes. This table gives the driller's description of the material encountered pertinent remarks with regard to the material, and authors' interpretation of the geologic age of the material.

The results of 232 partial chemical analyses of water are given in table 5. Of this number 231 analyses were determined in the field office of the Geological Survey, and one was determined by a commercial laboratory. This table gives information about geologic source, temperature, concentration in parts per million of iron, bicarbonate, sulfate, chloride, and hardness (calcium, magnesium) of water. The U. S. Public Health Service standards for drinking water are given in the table headnotes for iron and manganese together, sulfate, and chloride. No official standards have been established for hardness of water. However, water with respect to hardness is generally classified (Lamar, 1942, p. 25-26) as follows: 0-60 ppm soft; 61-120 ppm moderately hard; 121-200 ppm hard; more than 200 ppm very hard.

Table 6 contains the records of four observation wells of which three were established during the investigation and one prior to the investigation. The water levels in the observation wells were measured either by recording gages installed on the well or by manual measurements made with an engineer's steel tape graduated to a hundredth of a foot. The water levels are in feet below land-surface datum except where otherwise noted. Daily water levels are given for the observation wells equipped with recording gages for which the records have not been previously published. Previously published records are summarized, and only selected measurements are tabulated in the table. (See water-supply papers listed under U. S. Geological Survey in selected bibliography.) Periodic water levels are given for the observation wells measured manually. Factors affecting the water levels in the observation wells are also indicated. The location of the observation wells is shown on plate 1.

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Table 3.--Records of wells and test holes in Marshall County, Indiana

Well: See text for description of well-numbering system.
Altitude: Altitude of land-surface datum from topographic map except as noted in text p. 9.
Type of well: B, bored; Dn, driven; Dr, drilled; Du, dug; J, jetted.
Finish: Gp, gravel pack; Oe, open end; S, screen; dia, diameter in inches; g, gauze size; p, perforated pipe; sl, slot size.
Character: D, drift; G, gravel; Sd, sand.
Geologic age: Pl, Pleistocene.
Condition of occurrence: C, confined; U, unconfined; see text for definition.

Water level: In feet below land-surface datum on date of completion of well, except where otherwise noted.
Use: Ac, air conditioning; D, domestic; De, destroyed; I, industrial; Ir, irrigation; N, not used; O, observation; P, public supply; R, railroad; S, stock; T, test.
Type of pump and horsepower: C, centrifugal; J, jet; L, lift; P, pitcher; T, turbine; numeral indicates rated horsepower of electric motor.
Remarks: Ca, field chemical analysis in table 5; Dd, drawdown; E, electric log available for inspection; G, gamma-ray log available for inspection; gpm, gallons per minute; L, log of well in table 4; S, samples available for inspection.

Well	Owner	Driller	Date completed	Altitude (feet)	Type of well	Depth of well below land-surface (feet)	Diameter of well (inches)	Finish	Water-bearing zone: Depth to top (feet)	Water-bearing zone: Thickness (feet)	Water-bearing zone: Character	Water-bearing zone: Geologic age	Water-bearing zone: Conditions of occurrence	Water level (feet)	Use	Type of pump and horsepower	Remarks
32/1- 1C1	C. Grover	R. Price	5-24-60	785	J	34	2	S; 3ft, 12sl, dia 1½	12	22	Sd,G	Pl	U	12	D	-------	Yield 20 gpm; sand and gravel overlain by 10 ft sand and gravel mixed with yellow clay; Ca.
1D1	Estate, O. Grossman	----do----------	10-16-59	780	Dn	28	1½	S; 3ft, 60g, dia 1½	----	------	Sd,G	Pl	----	13	D	J	Yield 10 gpm; Ca.
2M1	F. Kovaasc	----do----------	3- 1-52	770	J	116	2	S; 3ft, 60g	100	16	Sd,G	Pl	C	8	N	-------	Yield 17 gpm; L.
3J1	G. Snapp	----do----------	1951	785	J	39	2	----do----------	30	9	G	Pl	C	22	D,S	J	Yield 17 gpm; gravel overlain by 30 ft clay.
4B1	J. Heiser	E. W. Schroeder	7-18-56	775	J	48	2	S; 3ft, 60g, dia 1½	25	23	G	Pl	U	25	P	-------	Yield 8 gpm; L.
4B2	H. Sheppard	Kennedy's Well Service	9-19-60	775	J	57	2	----do----------	----	------	Sd,G	Pl	----	29	D	-------	Yield 15 gpm; Ca, L.
4K1	W. Lake	R. Price	8-10-55	780	J	71	2	S; 3ft, 60g	----	------	Sd,G	Pl	----	36	S	J1/2	Yield 17 gpm.
5F1	D. Overmyer	J. Payne	4-54	774	J	52	2	S; 3ft, 60g, dia 1½	30	22	Sd	Pl	C	28	D,S	J1/3	Coarse sand overlain by 30 ft yellow clay.
5G1	E. Overmyer	R. Price	4- 5-50	787	J	57	2	S; 3ft, 60g	45	12	Sd,G	Pl	U	45	S	L	Yield 17 gpm; sand and gravel from 0-57 ft.
6C1	R. Osborn	Oldfield Irrigation Well Co.	--------	759	Dr	90	---	----------	----	------	Sd,G	Pl	U	---	T	-------	Yield 350 gpm; L.
6C2	----do----------	----do----------	12-55	759	Dr	85	32-18	Gp; S	35	51	Sd,G	Pl	U	35	Ir	T240	Dd 25 ft pumping 1,000 gpm; see log well 6C1.
7N1	G. Osborn	E. W. Schroeder	9-30-57	747	J	85	2	S; 3ft, 60g, dia 1½	----	------	G	Pl	C	22	D,S	-------	Yield 10 gpm; Ca, L.
9C1	T. Tennis	----do----------	6-28-57	788	J	75	2	----do----------	59	16	G	Pl	C	30	D	J1/2	Yield 10 gpm; L.
10N1	Culver Military Academy	----do----------	12-27-55	777	J	96	2	----do----------	90	6	G	Pl	C	15	P	-------	Ca, L.
10Q1	L. J. O'Mara	Kennedy's Well Service	8-11-55	813	J	96	2	S; 3½ft, 60g, dia 1½	91	5	G,Sd	Pl	C	48	D	-------	Yield 15 gpm; L.
12D1	M. C. Lindvall	McGrew Well Drilling Co.	12-16-55	815	J	122	2	S; 2½ft, 10sl	117	5	G	Pl	C	47	D	J1/2	Do.
13N1	H. Dinsmore	J. Payne	Spring 1953	840	J	112	2	S; 3ft, 60g, dia 1½	95	17	Sd,G	Pl	C	50	D,S	J1	Fine sand and gravel overlain by 95 ft yellow clay; clay at 112 ft; Ca.
15E1	Culver Military Academy	McGrew Well Drilling Co.	1948	736	J	90	2	S; 3ft, p	----	------	G	Pl	C	---	P	-------	Flowed 40 gpm.
15E2	----do----------	D. McFarlan	--------	737	J	-----	2	S	----	------	Sd,G	Pl	C	---	P	-------	Flows.
15E3	----do----------	Mr. Wolverton	--------	772	Dr	87	3	S	----	------	Sd,G	Pl	C	---	P	-------	Do.
15E4	----do----------	----------	--------	750	J	-----	2½	S	----	------	Sd,G	Pl	C	---	P	-------	Do.
15K5	----do----------	----------	--------	743	Dr	-----	5	S	----	------	Sd,G	Pl	C	---	Ac	-------	
15K6	----do----------	Layne-Northern Co., Inc.	9- 9-59	770	Dr	100	6	S; 10ft, 30sl	75	25	Sd,G	Pl	C	27	Ac	-------	Dd 2 ft after 3 hr pumping 50 gpm; L.
15K1	J. Cleveland	Kennedy's Well Service	7-30-59	790	J	126	2	S; 3½ft, 60g, dia 1	----	------	Sd	Pl	----	48	D	J	Yield 15 gpm; Ca.
15M1	Culver Military Academy	----------	--------	737	J	-----	2	S	----	------	Sd,G	Pl	C	---	P	-------	Flows.
15M2	----do----------	D. McFarlan	--------	745	Dr	67	6	----------	----	------	Sd,G	Pl	C	---	P	C15	Do.
15M3	----do----------	----------	--------	745	Dr	-----	5	S	----	------	Sd,G	Pl	C	---	Ac	-------	
15Q1	H. Oberlin	R. Price	6-18-57	770	J	70	2	S; 3½ft, 60g, dia 1½	----	------	Sd,G	Pl	C	53	D	J3/4	Yield 17 gpm.
16J1	Culver Military Academy	----------	--------	740	J	-----	2	S	----	------	Sd,G	Pl	C	---	P	-------	Flows.
16J2	----do----------	----------	--------	738	J	-----	2	S	----	------	Sd,G	Pl	C	---	P	-------	Do.
16J3	----do----------	Layne-Northern Co., Inc.	9- 2-59	750	Dr	74	8	S; 15ft, 30sl	54	20	G,Sd	Pl	C	4	P	-------	Dd 8 ft after 3 hr pumping 310 gpm; Ca, L.
16K1	Col. Moore	Kennedy's Well Service	11- 5-57	775	J	39	2	S; 3ft, 14sl, dia 1½	----	------	G,Sd	Pl	C	16	D	P	Yield 15 gpm; Ca, L.

Table 3.--Records of wells and test holes in Marshall County, Indiana--Continued

Well	Owner	Driller	Date completed	Altitude (feet)	Type of well	Depth of well below land-surface (feet)	Diameter of well (inches)	Finish	Water-bearing zone					Water level (feet)	Use	Type of pump and horsepower	Remarks
									Depth to top (feet)	Thickness (feet)	Character	Geologic age	Conditions of occurrence				
32/1-16K2	D. Freman	Kennedy's Well Service	11- 4-57	748	J	84	2	S; 3½ft, 60 g, dia 1¼	----	-------	Sd,G	Pl	C	32	D	-------	Yield 15 gpm; L.
16L1	Town of Culver	----------	--------	740	J	------	3	----------	----	-------	Sd,G	Pl	C	---	P	-------	Flows; discharge about 1 gpm.
17A1	R. Easterly	McGrew Well Drilling Co.	1954	785	J	80	2	S; 2½ft, 10sl	55	25	Sd	Pl	C	---	D,S	T1/2	Coarse sand overlain by 55 ft clay; Ca.
17B1	T. Walker	Kennedy's Well Service	8- 1-59	765	J	45	2	S; 3ft, 60g, dia 1	41	4	G,Sd	Pl	C	18	D	-------	Yield 6 gpm; gravel with some sand and clay overlain by 41 ft blue clay with sand and gravel; Ca.
17B2	W. Milbrath	R. Price	9-20-55	760	J	58	2	S; 3ft, 60g	51	7	G	Pl	C	18	S	L	Gray gravel overlain by 51 ft blue clay; Ca.
17D1	P. Shield	R. Price	9-13-55	757	J	97	2	----do----------	90	7	Sd,G	Pl	C	18	D	J1/3	Yield 20 gpm; medium to coarse sand and gravel overlain by 90 ft blue clay.
17F1	D. Overmyer	J. Payne	7-27-59	770	J	49	2	S; 3ft, 60g, dia 1¼	44	5	Sd	Pl	C	---	D	J	Ca, L.
17G1	G. Snyder	R. Price	5- 4-60	767	J	99	2	----do----------	80	19	Sd,G	Pl	C	24	---	-------	Yield 20 gpm; L.
18A1	A. Dillion	J. Payne	10-56	747	J	45	2	----do----------	35	10	Sd,G	Pl	C	18	D,S	J1/3	Sand and gravel overlain by 35 ft muck and blue clay.
18A2	State of Indiana	----------	About 1932	735	J	50	2	----------	----	-------	Sd,G	Pl	C	---	---	-------	Flows from pipe 3 ft below lsd; discharge measured 5 gpm, 7-24-57; for fish hatchery; water level at lsd, 7-24-57; Ca.
18A3	----do----------	----------	About 1932	735	J	34	2	----------	----	-------	Sd,G	Pl	C	---	---	-------	Flows from pipe 3 ft below lsd; discharge measured 4 gpm, 7-24-57; for fish hatchery; water level at lsd, 7-24-57.
18A4	----do----------	----------	About 1932	735	J	33	2	----------	----	-------	Sd,G	Pl	C	---	---	-------	Flows; discharge about 2 gpm, 7-24-57; for fish hatchery.
18A5	----do----------	----------	About 1932	735	J	-----	2	----------	----	-------	Sd,G	Pl	C	---	---	-------	Flows from pipe 3 ft below lsd; discharge about 2 gpm, 7-24-57; for fish hatchery; water level at lsd, 7-24-57.
18B1	----do----------	----------	1932	735	Dn	51	1½	----------	----	------	Sd,G	Pl	C	---	---	-------	Flows; discharge about 5 gpm, 7-24-57; for fish hatchery.
18B2	----do----------	----------	1932	735	J	-----	2	----------	----	------	Sd,G	Pl	C	---	---	-------	Flows from pipe 3 ft below lsd; discharge measured 10 gpm, 7-24-57; for fish hatchery; water level at lsd, 7-24-57.
18B3	----do----------	----------	1932	735	J	55	2	----------	----	------	Sd,G	Pl	C	---	---	-------	Flows; discharge measured 15 gpm, 7-24-57; for fish hatchery; water level measured 2.8 ft above lsd, 7-24-57; Ca.
20A1	Town of Culver	----------	--------	745	Dr	87	10	----------	----	------	Sd,G	Pl	----	11	P	T30	Have another well at this site.
20R1	Estate, C. Hawk	R. Price	11- 9-59	747	J	44	2	S; 3ft, 60g, dia 1¼	28	16	Sd,G	Pl	C	15	D	-------	Yield 20 gpm; Ca, L.
22B1	Mr. Griffith	----------	--------	740	J	-----	2	----------	----	------	Sd,G	Pl	C	+9	N	-------	Flows; discharge measured 8 gpm, 8-15-57.
22H1	J. H. Vajin	----------	About 1886	770	B	32	---	----------	----	------	Sd?	Pl	C	---	---	-------	See Thompson and Lee (1886); L.
22H2	D. W. Marmon	----------	July 1886	760	B	98	---	----------	----	------	Sd?	Pl	C	---	---	-------	Do.
22H3	Mr. Stevens	R. Price	Summer 1956	750	J	68	2	S; 3ft, p	66	2	Sd,G	Pl	C	---	D	L1/3	Flowed 25 gpm when drilled; discharge measured 3 gpm, 7-24-57; water level measured 11.3 ft above lsd, 7-24-57; Ca, L.
22H4	Mr. Robinson	J. Payne	Spring 1955	745	J	45	2	Oe	20	25	Sd,G	Pl	C	---	D	-------	Flows; sand and gravel overlain by 20 ft clay.
22H5	Mr. Stevens	----------	About 1916	747	J	-----	2	S; p	----	------	Sd,D	Pl	C	---	P	J1/3	Flows; discharge measured 8 gpm, 7-24-57.

32/1-22H6	Mrs. Perkins	----------	--------	740	J	92	2	----------	---	------	Sd,G	Pl	C	---	D	-------	Flows; discharge measured 15 gpm, 8-15-57; water level measured 12 ft above lsd, 8-15-57.
22H7	S. J. Rosea	J. Payne	10-23-59	740	J	128	2	----------	105	23	Sd	Pl	C	---	---	-------	Flows 40 gpm; for novelty water wheel; Ca, L.
22J1	C. H. Bradley	----do----------	--------	737	J	126	2	Oe	100	26	Sd,G	Pl	C	---	D	-------	Flows; see log well 22H7.
22J2	Maxinkuckee Country Club	J. Davis	About 1916	742	J	124	2	----------	---	------	Sd,G	Pl	C	---	P	-------	Flows; discharge measured 8 gpm, 7-24-57; water level measured 13.3 ft above lsd, 8-15-57; Ca.
22J3	A. Lathrop	J. Payne	11-16-59	753	J	120	2	S; 4ft, p	---	------	Sd	Pl	C	4	D	-------	L.
22J4	E. Baxter	----do----------	11-20-59	747	J	114	2	S; 4ft, p, dia 2	---	------	Sd	Pl	C	11	D	-------	L.
22R1	Maxinkuckee Country Club	J. Davis	About 1923	740	J	130	4	----------	---	------	Sd,G	Pl	----	---	Ir	C5	
22R2	R. Robinson	J. Payne	8- 7-59	755	J	125	2	S; 4ft, p, dia 2	76	49	Sd,G	Pl	C	11	D	-------	Flowed 42 gpm; L.
23D1	J. Bigley	Oldfield Irrigation Well Co.	7-55	790	Dr	55	32-18	Gp; S	25	30	G,Sd	Pl	C	21	N	-------	L.
23D2	----do----------	----do----------	8-15-55	790	Dr	111	32-18	Gp; S; 40ft	88	23	G,Sd	Pl	C	21	Ir	T50	Dd 18 ft after 2 hr pumping 1,200 gpm; Ca, L, S.
23E1	D. Bigley	J. Payne	8-19-59	775	J	87	2	S; 3ft, 60g, dia 1¼	81	6	Sd	Pl	C	16	D	-------	Yield 16 gpm; Ca, L.
23K1	W. C. Fisher	R. Price	1-57	832	J	147	2	S; 3ft, 60g	125	22	Sd,G	Pl	C	56	D	J1	Yield 20 gpm; sand and grave overlain by 125 ft yellow and blue clay; Ca.
24L1	W. Kline	----do----------	7-56	816	J	121	2	----do----------	---	------	Sd,G	Pl	C	45	D,S	J1/2	Yield 17 gpm; Ca.
25R1	B. Dille	----do----------	9-20-60	795	J	40	2	S; 3ft, 60g, dia 1¼	25	15	Sd,G	Pl	C	24	S	L	Yield 20 gpm; Ca, L.
27Q1	Dr. Norris	----------	1930	735	J	50	2	----------	---	------	Sd,G	Pl	C	---	N	-------	Flows; discharge measured 6 gpm, 7-26-57; water level measured 4.4 ft above lsd, 7-26-57; Ca.
28R1	C. Adams	J. Payne	Spring 1953	740	J	66	2	S; 3½ft, 80g, dia 1¼	55	11	Sd	Pl	C	3	D	J1/2	Fine sand overlain by 55 ft yellow clay.
30E1	J. Newman	----do----------	Spring 1951	738	J	68	3	S; 6ft, 60g	48	20	Sd,G	Pl	C	35	S	J1	Sand and gravel overlain by 48 ft yellow clay; Ca.
31K1	F. Banks	Oldfield Irrigation Well Co.	7-55	737	Dr	43	36-18	Gp, S; 20ft, P	10	33	Sd	Pl	U	10	O	-------	Observation well Marshall 3; water level measured 10.22 ft below lsd, 11-11-57; see log well 31K2.
31K2	----do----------	----do----------	8- 6-55	737	Dr	63	36-18	Gp; S; 20ft	10	53	Sd,G	Pl	U	10	Ir	C	Dd 17 ft pumping 1,400 gpm; water level measured 9.53 ft below lsd, 7-23-57; Ca, L, S.
31N1	Purdue University Sand Experiment Farm	----do----------	1955	731	Dr	57	32-18	Gp; S; p	12	45	Sd,G	Pl	U	12	Ir	T50	Dd 8 ft after 8 hr pumping 1,200 gpm; sand and fine gravel overlain by 10 ft red sand.
34B1	H. Zehner	R. Price	8-24-59	742	J	42	2	S; 3ft, 12sl, dia 1¼	22	20	G,Sd	Pl	C	0	D	-------	Yield 40 gpm; L.
34B2	C. Kline	----do----------	12-15-59	760	J	139	2	----do----------	125	14	G,Sd	Pl	C	9	D	-------	Yield 20 gpm; Ca, L.
34C1	Mr. Carlson	----------	1932	740	J	43	2	----------	---	------	Sd,G	Pl	C	---	D	C1/4	Flows; discharge measured 10 gpm, 7-26-57; water level measured 4.4 ft above lsd, 7-26-57.
34C2	R. Kramer	Mr. Wolverton	1950	740	J	60	2	----------	---	------	Sd,G	Pl	C	---	D	L1/4	Flows; discharge measured 6 gpm, 7-26-57; water level measured 5.5 ft above lsd, 7-26-57.
34C3	G. Wilson	Rochester Well and Pump Co.	10- 4-54	740	J	54	2	S; 3 ft, p	---	------	Sd,G	Pl	C	---	D	-------	Flowed 6 gpm; Ca.
34C4	E. J. Carlson	R. Price	8-26-59	740	J	37	2	S; 3ft, 40g, dia 1¼	18	19	Sd,G	Pl	C	2	D	-------	Yield 40 gpm; L.
34C5	F. Kinkade	E. W. Schroeder	1-15-60	740	J	57	2	S; 3ft, 12sl, dia 1¼	50	7	G	Pl	C	6	D	-------	Yield 15 gpm; L.
34D1	O. D. Campbell	Rochester Well and	4-23-56	740	J	44	2	----------	36	8	Sd,G	Pl	C	---	D	L1/6	Sand and gravel overlain by 36 ft clay.
34D2	W. Kline	R. Price	8-56	740	J	138	2	S; 3ft, 60g	128	10	Sd,G	Pl	C	1	D	P	L.
35G1	----do----------	----do----------	Summer 1952	790	J	110	2	----do----------	---	-------	Sd,G	Pl	----	35	D,S	J1/2	Yield 17 gpm; Ca.
36D1	E. Martain	Kennedy's Well Service	8-20-57	807	J	83	2	S; 3½ft, 60g, dia 1¼	---	-------	Sd,G	Pl	----	36	D	-------	Sand and gravel overlain by yellow and blue clay; Ca.
32/2- 1J1	A. Price	R. Price	1945	832	J	50	2	S; 3ft, 60g	35	15	Sd,G	Pl	U	35	D,S	J1/2	Sand and gravel overlain by 12ft yellow clay.
1N1	H. and B. Dickenson	----do----------	--------	828	J	138	2	----do----------	120	18	Sd,G	Pl	C	---	P	-------	L.
2A1	S. Clemons	----do----------	4-28-60	817	J	125	2	S; 3ft, 60g, dia 1¼	50	75	Sd,G	Pl	C	---	D	-------	Yield 20 gpm; Ca, L.
6B1	R. Fishburn	----do----------	1957	787	J	29	2	S; 3½ft, 60g, dia 1¼	12	28	Sd,G	Pl	U	12	D	J1/4	Coarse gravel overlain by 35 ft sand and gravel; Ca.
6Q1	L. Leland	----do----------	7-21-59	808	J	125	2	S; 3ft, 60g, dia 1¼	---	------	Sd,G	Pl	----	34	---	-------	Yield 20 gpm; L.
7D1	E. Schultz	W. B. Johnson	2-19-54	797	Dr	60	3	S; 5ft, 25sl	---	------	G	Pl	----	30	D	-------	Ca.
7P2	----do----------	----do----------	3- 4-52	792	Dr	120	3	S; 5ft	---	------	G	Pl	----	---	D	-------	
7Q1	H. Blocker	R. Price	11-10-59	798	J	68	2	S; 3ft, 12sl, dia 1¼	60	8	Sd,G	Pl	C	21	S	L	Yield 20 gpm; Ca, L.
9A1	J. Kaminski	----do----------	7-14-59	776	J	83	2	S; 3ft, 40g, dia 1¼	40	43	Sd,G	Pl	C	+4	D,S	-------	Yield 40 gpm; see log well 9B1; Ca.
9B1	F. Ruffing	----do----------	10-12-59	776	J	88	2	S; 3ft, 12sl, dia 1¼	36	52	Sd,G	Pl	C	---	D	-------	Flows; yield 40 gpm; Ca, L.
9E1	Trustees, Green Township	----do----------	9-54	785	J	54	2	S; 4ft, 60g	44	10	G	Pl	C	4	P	C1	Gravel overlain by 44 ft blue clay with streaks of marl.

Table 3.--Records of wells and test holes in Marshall County, Indiana--Continued

Well	Owner	Driller	Date completed	Altitude (feet)	Type of well	Depth of well below land-surface (feet)	Diameter of well (inches)	Finish	Water-bearing zone					Water level (feet)	Use	Type of pump and horsepower	Remarks
									Depth to top (feet)	Thickness (feet)	Character	Geologic age	Conditions of occurrence				
32/2-10G1	E. Wickizer	R. Price	1-56	780	J	-----	2	----------	----	------	G	Pl	C	---	S	-------	Flows; discharge measured 14 gpm, 6-21-57; water level measured 4.5 ft above lsd, 6-21-57; Ca.
10K1	H. Wickizer	----do----------	1955	778	J	70	2	S; 3ft, p	50	20	G,Sd	Pl	C	---	S	-------	Flows; discharge measured 5 gpm, 6-21-57; water level measured 2.8 ft above lsd, 6-21-57; gravel and sand overlain by 50 ft blue clay; Ca.
10K2	----do----------	----do----------	12-18-59	795	J	83	2	S; 3ft, 12sl, dia 1½	54	29	Sd,G	Pl	C	10	D	-------	Yield 20 gpm; Ca, L.
11J1	J. Dorman	----do----------	4-57	815	J	39	2	S; 3½ft, 60g, dia 1½	32	7	Sd,G	Pl	C	---	D	J1/2	Ca, L.
12M1	Town of Argos	Indiana-Michigan Water	10-25-38	815	Dr	133	10	S; 20ft	98	35	G,Sd	Pl	C	20	P	T15	Dd 35 ft pumping 200 gpm; screen, upper part 40sl, lower part 50sl; L.
12N1	D. Berkheiser	R. Price	6- 8-60	812	J	112	2	S; 3ft, 60g, dia 1½	103	9	Sd,G	Pl	C	18	D	-------	Yield 20 gpm; see log well 12M1.
14N1	D. Fishburn	----do----------	2-28-56	827	J	37	2	S; 3ft, 60g	20	17	Sd,G	Pl	C	18	D,S	L	Yield 20 gpm; sand and gravel overlain by 20 ft yellow clay; Ca.
15R1	G. Hess	Kennedy's Well Service	10-14-59	820	J	30	2	S; 3ft, 60g, dia 1½	----	------	G,Sd	Pl	----	15	S	J1/2	Yield 15 gpm; Ca, L.
17K1	C. L. Thompson	R. Price	8-56	790	J	80	2	S; 3ft, 60g	70	10	Sd,G	Pl	----	8	S	L	Yield 17 gpm.
20E1	E. Cowen	----do----------	12- 1-56	810	J	83	2	----do----------	73	10	Sd,G	Pl	C	35	D,S	J1/2	Yield 20 gpm; sand and gravel overlain by 73 ft yellow and blue clay; Ca.
22J1	J. Romig	----------	--------	847	J	50	2	----do----------	----	------	G	Pl	----	35	D	L	
22J2	C. Staner	R. Price	5-52	852	J	120	2	----do----------	100	20	G,Sd	Pl	C	38	D,S	J1/3	Yield 17 gpm; L.
22L1	E. Umbaugh	----do----------	11-53	827	J	150	2	----do----------	140	10	G	Pl	C	55	D,S	J1/2	Yield 20 gpm; Ca, L.
24N1	G. Parkhurst	Rochester Well and Pump Co.	10-29-56	846	J	75	2	S; 3ft, 10sl	67	8	Sd,G	Pl	C	25	D	J	Yield 8 gpm; L.
24R1	C. Bunch	R. Price	3-55	867	J	175	2	S; 3ft, 60g	160	15	Sd,G	Pl	C	70	D,S	J1	Yield 20 gpm; Ca.
25D1	W. B. Hudson	----do----------	4-27-60	850	J	216	2	----------	105	93	Sd	Pl	C	---	N	-------	L.
26H1	C. Denny	----do----------	Fall 1954	847	J	198	2	S; 60g	188	10	G	Pl	C	---	D,S	J1/2	Yield 20 gpm; Ca.
26M1	L. McGriff	----do----------	8-56	852	J	123	2	S; 3ft, 60g	103	20	Sd,G	Pl	C	45	D,S	J3/4	Yield 17 gpm.
27L1	H. Claybaugh	----do----------	11-54	860	J	137	2	----do----------	125	12	Sd,G	Pl	C	62	D,S	J1/2	Yield 20 gpm; L.
30J1	N. Davis	----do----------	6-19-57	792	J	42	2	----------	30	12	G,Sd	Pl	C	20	D	J	See log well 30P1; Ca.
30P1	S. Savage	----do----------	4-29-57	795	J	42	2	S; 3½ft, 60g, dia 1½	30	12	G,Sd	Pl	C	26	D,S	J	Yield 10 gpm; Ca, L.
31Q1	C. Gibbons	----do----------	9- 1-55	810	J	105	2	S; 60g	95	10	G,Sd	Pl	C	35	D	J1/2	Yield 17 gpm; fine gravel and sand overlain by about 95 ft blue clay.
32P1	C. Jacklin	Rochester Well and Pump Co.	7- 3-57	815	J	61	2	S; 3ft, 50g, dia 1½	----	------	G	Pl	----	34	D	-------	Yield 12 gpm.
33M1	E. Russell	R. Price	10-53	815	J	91	2	S; 3ft, 60g	85	6	G	Pl	C	39	D,S	J1/2	Yield 9 gpm; Ca, L.
32/3- 1A1	C. Methency	G. Alexander	7-16-60	832	J	130	2	S; 3ft, dia 1	110	20	Sd,G	Pl	C	38	P,I	J	Yield 10 gpm; Ca, L.
2P1	F. Hutchinson	R. Price	12-29-59	797	J	66	2	S; 3ft, 12sl, dia 1½	50	16	Sd,G	Pl	C	16	D,S	-------	Yield 12 gpm; Ca, L.
5R1	Izaak Walton League	Layne-Northern Co., Inc.	1-20-49	785	Dr	105	10	S	58	47	Sd,G	Pl	C	1	---	-------	Dd 20 ft after 6 hr pumping 70 gpm; for fish hatchery; L.
5R2	----do----------	R. Price	6-55	777	J	97	2	S; 3ft, p	80	17	Sd,G	Pl	C	---	N	-------	Flows; flowed 17 gpm when drilled; discharge measured 3 gpm, 6-20-57; water level measured 5.8 ft above lsd, 6-20-57; sand and gravel overlain by 80 ft blue clay; Ca.
5R3	----do----------	----------	--------	777	J	-----	2	----------	----	------	Sd,G	Pl	C	---	---	-------	Flows; discharge measured 4 gpm, 6-20-57; for fish hatchery.
5R4	----do----------	----------	--------	787	J	-----	2	----------	----	------	Sd,G	Pl	C	---	P	-------	Flows; discharge measured 10 gpm, 6-20-57; water level measured 5.3 ft above lsd, 6-20-57.
7G1	O. Good	R. Price	7 -8-59	807	J	39	2	S; 3ft, 60g, dia 1½	20	19	Sd,G	Pl	C	20	D,S	J	Yield 20 gpm; sand and gravel overlain by 10 ft yellow clay and sand; Ca.
7Q1	H. Umbaugh	----do----------	Spring 1954	819	J	160	2	S; 3ft, 60g	----	------	Sd,G	Pl	C	18	S	J1/4	Yield 20 gpm; Ca.
9P1	E. Newberg	Rochester Well and	9-10-53	813	J	83	2	S; 3ft, dia 1½	80	3	G	Pl	C	31	D,S	J1/2	Gravel overlain by 80 ft blue clay.
11B1	E. Overmyer	R. Price	11-15-50	805	J	60	2	S; 3ft, 60g	----	------	G	Pl	----	23	D,S	J	Yield 17 gpm.
16D1	C. Phillips	----do----------	2- 8-55	804	J	84	2	----do----------	75	9	G,Sd	Pl	C	18	D,S	L	Yield 20 gpm; Ca, L.

32/3-21H1	A. Zentz	R. Price	3-54	812	J	150	2	S; 60g	140	10	G	Pl	C	20	D,S	J1/2	Yield 20 gpm; Ca, L.
22D1	C. Harley	----do----------	6-57	792	J	178	2	----------	----	------	------	---	----	---	D	--------	No water reported; L.
22D2	----do----------	McGrew Well Drilling Co.	10-10-57	792	Dr	101	---	S; 2½ft, 10sl	97	4	Sd	Pl	C	12	D	--------	Ca, L.
23E1	H. Drechner	R. Price	5-55	822	J	118	2	S; 3ft, 60g	----	------	G	Pl	----	45	D,S	J1/2	Yield 20 gpm; Ca.
23L1	W. Heck	----do----------	1-28-60	810	J	225	2	----------	----	------	Sd	Pl	----	---	De	--------	L.
23L2	----do----------	----do----------	2- 3-60	810	J	131	2	S; 3ft, 60g, dia 1½	118	13	G,Sd	Pl	C	36	---	--------	Yield 20 gpm; L.
24K1	Nickel Plate Road	Layne-Northern Co., Inc.	12-24-42	775	Dr	102	---	----------	12	90	Sd,G	Pl	C	8	R	--------	Temperature 52°F; L.
28N1	C. Richardson	R. Price	1955	822	J	90	2	S; 3ft, 60g	70	20	Sd,G	Pl	C	17	D	-------	Fine sand and gravel overlain by 70 ft blue and yellow clay; Ca.
31D1	P. Fry	----do----------	12-28-56	842	Dn	18	1¼	----do----------	----	------	Sd,G	Pl	----	12	D	J1/3	
31R1	W. Flynn	McGrey Well Drilling Co.	--------	852	J	126	2	S; 2½ft, 10sl	120	6	G	Pl	C	50	N	--------	Yield 13 gpm; L.
33R1	C. Wentzel	Rochester Well and Pump Co.	11-20-52	793	J	88	2	S, 3ft, 16sl	----	------	Sd,G	Pl	----	14	---	-------	
34N1	F. Swihart	R. Price	2-16-60	793	J	88	2	S; 3ft, 60g, dia 1¼	33	55	Sd,G	Pl	C	11	D	--------	Yield 20 gpm; Ca, L.
34Q1	J. Hudson	----do----------	3-13-57	790	J	75	2	S; 3½ft, 60g, dia 1¼	68	7	Sd,G	Pl	C	4	S	--------	Flowed 7 gpm; L.
34R1	----do----------	----do----------	7-56	807	J	48	2	S; 3ft, 10sl	40	8	Sd,G	Pl	C	12	S	J1/2	Yield 17 gpm; sand and gravel overlain by 40 ft yellow and blue clay
35E1	E. Heck	----do----------	3- 8-57	817	J	105	2	S; 3½ft, 60g, dia 1¼	----	------	G	Pl	C	40	D,S	P	Yield 20 gpm; Ca, L.
35P1	J. Rudolph	Rochester Well and Pump Co.	12-27-54	822	J	184	2	S; 4ft, 12sl	----	------	G	Pl	----	50	D	J1/2	
36H1	L. Mullins	R. Price	7-20-60	777	J	52	2	S; 3ft, 12sl, dia 1¼	40	12	Sd,G	Pl	C	8	D	-------	Yield 20 gpm; L.
36P1	F. Sanders	----------	--------	765	Dn	-----	1¼	----------	----	------	Sd	Pl	C	+4	D	P	Flows about 1 gpm; Ca.
32/4- 5R1	H. Apple	R. Price	8- 7-59	817	Dn	30	1¼	S; 3 ft, 60g, dia 1¼	----	------	Sd	Pl	----	24	S	-------	Yield 6 gpm; Ca.
7N1	J. Jennings	----do----------	9-23-60	797	J	63	2	----do----------	36	27	Sd,G	Pl	C	27	D,S	-------	Yield 20 gpm; L.
8F1	R. Fites	----do----------	11-54	831	J	140	2	S; 3ft, 60g	----	------	G	Pl	----	45	D,S	J1/2	Yield 20 gpm; Ca.
19F1	A. Tossel	----do----------	9- 1-59	781	J	49	2	S; 3ft, 60g, dia 1¼	----	------	Sd,G	Pl	----	10	---	--------	Yield 20 gpm; sand and gravel overlain by 16 ft sand; record missing from 0-28 ft; Ca.
19K1	A. Swihart	----do----------	6-12-57	782	J	42	2	S; 3½ft, 60g, dia 1½	35	7	Sd,G	Pl	C	10	D	J1/4	Yield 20 gpm; L.
19M1	C. Lewallen	Kennedy's Well Service	8- 6-59	778	J	33	2	S; 3ft, 60g, dia 1	29	4	G,Sd	Pl	C	12	D	-------	Yield 15 gpm; L.
21L1	F. Kehoe	R. Price	11-24-59	787	J	60	2	S; 3ft, 60g, dia 1½	32	28	Sd,G	Pl	C	12	---	-------	Yield 20 gpm; Ca, L.
29J1	R. Ross	McGrew Well Drilling Co.	1956	795	J	41	2	S; 2½ft, 10sl	38	3	Sd	Pl	C	33	S	L	Yield 12 gpm; L.
29R1	----do----------	----do----------	7-24-59	797	J	35	2	S; 2½ft, 10sl, dia 1½	31	4	G	Pl	C	8	S	-------	Yield 10 gpm; Ca, L.
32P1	C. Coty	R. Price	12-54	832	J	-----	2	S; 10sl	----	------	G	Pl	----	42	D,S	J1/2	
32R1	F. Nellans	----do----------	12-54	817	J	90	2	S; 3ft, 60g	75	15	Sd,G	Pl	C	30	D,S	J1/2	Yield 20 gpm; sand and fine to medium gravel overlain by about 75 ft blue clay mixed with gravel; Ca.
33/1- 2N1	O. Conner	Kennedy's Well Service	5-19-55	818	J	47	2	S; 3½ft, 60g, dia 1½	42	5	Sd,G	Pl	C	38	D	-------	Yield 15 gpm; brown sand and gravel overlain by 42 ft yellow clay mixed with gravel and sand; blue clay at 47 ft.
2N2	O. S. Gross	E. Brooker	6- 6-56	818	J	45	2	----do----------	35	10	Sd,G	Pl	C	24	D	-------	Yield 12 gpm; Ca, L.
3D1	P. Morelock	R. Price	9-17-59	820	J	113	2	S; 3ft, 60g, dia 1½	70	45	Sd,G	Pl	C	40	D	-------	Do.
3N1	Trustees, West Township	Indiana-Michigan Water Development Co.	9-28-38	777	Dr	63	4	S; 8ft, 20sl, dia 3½	50	13	Sd	Pl	C	+6	P	J2	Flowed 30 gpm; sand overlain by 50 ft clay; Ca.
3N2	----do----------	----------	--------	776	J	-----	2	----------	----	------	Sd	Pl	C	---	P	-------	Flows; discharge measured 0.5 gpm, 6-18-57; water level measured 2.5 ft above lsd 6-18-57; Ca.
3N3	----do----------	----------	--------	772	J	-----	2	----------	----	------	Sd	Pl	C	---	P	-------	Flows; discharge measured 1 gpm, 6-18-57; water level measured 1.5 ft above lsd, 6-18-57.
6C1	L. G. Holt	Kennedy's Well Service	8-31-57	765	J	32	2	S; 3ft, 10sl, dia 1½	27	5	G	Pl	C	11	D	-------	Yield 15 gpm; gravel overlain by 27 ft sand and clay; Ca.
6J1	Convent Ancilla Domini	J. P. Miller Artesian Well Co.	--------	760	Dr	90	10	S	----	------	Sd,G	Pl	----	---	P	T30	L.
6J2	----do----------	----do----------	Fall 1958	760	Dr	64	10	S	48	16	Sd,G	Pl	C	---	P	T30	Dd 25 ft after 11 hr pumping 400 gpm; see log well 6J1.
10A1	H. Ames	Kennedy's Well Service	10-31-57	812	J	50	2	S; 3ft, 10sl, dia 1½	----	------	Sd,G	Pl	----	25	D	-------	Yield 15 gpm; Ca, L.
10B1	G. Metze	R. Price	4-55	787	J	108	2	S; 3ft, 60g	80	28	Sd,G	Pl	C	5	D	J1/2	Yield 20 gpm; L.
10D1	R. Morrical	Kennedy's Well Service	10-15-57	785	J	43	2	S; 4ft, 60g, dia 1½	38	5	Sd,G	Pl	C	2	D	-------	Yield 15 gpm; Ca, L.
10L1	C. Klapp	E. W. Schroeder	9-28-57	784	J	66	2	S; 3ft, 60g, dia 1½	55	11	G	Pl	C	10	D	P	Yield 10 gpm; Ca, L.
10L2	J. Manuel	Kennedy's Well Service	10-15-59	790	J	31	2	----do----------	----	------	G,Sd	Pl	----	---	D	-------	Yield 15 gpm; Ca, L.
11H1	C. B. Lindenuth	----do----------	12- 8-56	811	J	90	2	S; 3½ft, 60g, dia 1½	38	52	Sd,G	Pl	U	38	D	J1/2	Do.
11K1	D. Hassler	R. Price	6-58	802	J	51	2	S; 3 ft, 60g	12	39	Sd,G	Pl	U	12	D	-------	Sand and gravel from 0-51 ft.
11R1	Mr. Pawak	Kennedy's Well Service	11-27-59	812	J	68	2	S; 3 ft, 60g, dia 1½	62	6	Sd,G	Pl	C	28	D	-------	Yield 15 gpm; Ca, L.
13Q1	H. Groves	J. Payne	7-16-59	806	J	45	2	----do----------	----	------	G	Pl	----	---	D	-------	L.

Table 3.--Records of wells and test holes in Marshall County, Indiana--Continued

Well	Owner	Driller	Date completed	Altitude (feet)	Type of well	Depth of well below land-surface (feet)	Diameter of well (inches)	Finish	Water-bearing zone: Depth to top (feet)	Water-bearing zone: Thickness (feet)	Water-bearing zone: Character	Water-bearing zone: Geologic age	Water-bearing zone: Conditions of occurrence	Water level (feet)	Use	Type of pump and horsepower	Remarks
33/1-14N1	F. Massett	Kennedy's Well Service	9- 7-59	775	J	47	2	----------	32	15	G	Pl	C	---	D	-------	Flowed; yield 20 gpm; L.
15H1	G. Smith	Buffington and Payne	6-30-60	807	J	51	2	S; 3ft, 60g, dia 1¼	40	11	Sd	Pl	C	18	D	-------	Yield 15 gpm; fine sand overlain by 40 ft yellow and blue clay.
16R1	D. Kucera	Kennedy's Well Service	8-12-59	812	J	64	2	----do----------	60	4	G,Sd	Pl	C	45	D	-------	Yield 14 gpm; Ca, L.
22K1	T. Vermillion	----do----------	6-11-55	797	J	41	2	S; 3½ft, 60g, dia 1¼	36	5	G	Pl	C	30	D	-------	Yield 15 gpm; coarse gray gravel overlain by 36 ft blue clay with some sand and gravel; Ca.
23A1	W. Ruse	S. J. Garl Well Drilling Co.	7-15-59	780	Dn	24	1½	S; 3ft, 60g, dia 1½	----	------	Sd	Pl	----	13	D	-------	Yield 5 gpm.
23A2	H. Bolinger	J. O. Redman	7- 2-59	775	J	57	2	S; 3½ft, 80g, dia 1¼	----	------	Sd	Pl	----	25	D	-------	Yield 6 gpm.
23B1	G. Smith	S. J. Garl Well Drilling Co.	5- 1-60	770	Dn	45	1½	S; 3ft, 60g, dia 1½	----	------	Sd	Pl	C	---	D	-------	Flows.
23B2	B. Spencer	----do----------	4-11-60	780	Dn	23	1½	----do----------	----	------	Sd	Pl	----	12	D	-------	
23H1	B. Ruff	E. W. Schroeder	12- 9-55	780	J	39	2	S; 3ft, 60g	20	19	Sd,G	Pl	C	6	D	-------	L.
24E1	D. L. Spencer	R. Price	7-56	796	J	42	2	----do----------	----	------	Sd,G	Pl	----	28	D	J1/2	
24E2	M. Miller	Kennedy's Well Service	11- 1-56	797	J	50	2	S; 3ft, 7sl, dia 1¼	44	6	G,Sd	Pl	C	32	D	-------	Yield 15 gpm; L.
24E3	O. Yates	----do----------	4-55	795	J	32	2	S; 3½ft, 60g, dia 1½	----	------	Sd,G	Pl	C	28	D	J1/3	Yield 15 gpm.
25C1	W. Piper	R. Price	9-55	811	J	63	2	S; 3ft, 60g	55	8	G	Pl	C	35	D,S	J1/2	
25P1	Indiana Flood Control and Water Resources Comm.	Corps of Engineers	7-11-56	752	B	30	4½	----------	13	17	Sd,G	Pl	U	13	T	-------	L.
26Q1	----do----------	----do----------	7-10-56	750	B	30	4½	----------	8	19	Sd	Pl	U	8	T	-------	See log well 26R1.
26R1	----do----------	----do----------	7-10-56	750	B	30	4½	----------	4	26	Sd, G	Pl	U	4	T	-------	L.
29L1	----do----------	----do----------	7- 6-56	737	B	30	4½	----------	22	8	Sd,G	Pl	U	22	T	-------	L.
29N1	----do----------	----do----------	7- 7-56	736	B	30	4½	----------	7	23	Sd,G	Pl	U	7	T	-------	L.
29P1	----do----------	----do----------	7- 6-56	745	B	30	4½	----------	----	------	Sd,G	Pl	----	---	T	-------	See log well 29L1.
29Q1	----do----------	----do----------	7- 7-56	740	B	30	4½	----------	12	14	Sd,G	Pl	U	12	T	-------	L.
29R1	----do----------	----do----------	7- 7-56	742	B	30	4½	----------	8	22	Sd,G	Pl	U	8	T	-------	See log well 29L1.
30L1	F. Thomas and A. Wexelberg	V. and S. Oil Co.	2-15-49	750	Dr	1,417	8-5½	----------	----	------	------	---	----	---	---	-------	Oil test; bedrock at 116 ft.
30P1	Indiana Flood Control and Water Resources Comm.	Corps of Engineers	6-21-56	735	B	25	4½	----------	6	19	Sd	Pl	U	6	T	-------	See log well 30Q2.
30Q1	----do----------	----do----------	6-21-56	730	B	25	4½	----------	4	21	Sd	Pl	U	4	T	-------	L.
30Q2	----do----------	----do----------	7- 6-56	742	B	30	4½	----------	15	15	Sd	Pl	U	15	T	-------	L.
30R1	----do----------	----do----------	7- 6-56	733	B	30	4½	----------	6	4	Sd,G	Pl	U	6	T	-------	L.
31D1	----do----------	----do----------	6-21-56	747	B	25	4½	----------	----	------	Sd	Pl	----	---	T	-------	L.
31D2	----do----------	----do----------	6-21-56	732	B	25	4½	----------	----	------	Sd,G	Pl	----	---	T	-------	L.
32A1	----do----------	----do----------	7- 7-56	742	B	30	4½	----------	3	20	G,Sd	Pl	U	3	T	-------	L.
32H1	Mr. Prosser	R. Price	7-51	767	J	40	2	S; 3ft, 60g	23	17	Sd,G	Pl	U	23	D	J1/3	Yield 17 gpm; sand and gravel from 0-40 ft; Ca.
33A1	Indiana Flood Control and Water Resources Comm.	Corps of Engineers	7- 9-56	742	B	30	4½	----------	8	15	Sd,G	Pl	U	8	T	-------	See log well 33F1.
33F1	----do----------	----do----------	7- 7-56	742	B	30	4½	----------	6	22	Sd,G	Pl	U	6	T	-------	L.
33G1	C. Crum	Kennedy's Well Service	4-17-56	757	J	44	2	S; 3½ft, 60g, dia 1¼	----	------	G,Sd	Pl	----	18	D,S	-------	
34A1	Indiana Flood Control and Water Resources Comm.	Corps. of Engineers	7- 9-56	747	B	30	4½	----------	5	25	Sd	Pl	U	5	T	-------	L.
34B1	----do----------	----do----------	7- 9-56	743	B	30	4½	----------	3	27	G,Sd	Pl	U	3	T	-------	See log well 34G1.
34D1	----do----------	----do----------	7- 7-56	743	B	30	4½	----------	----	------	Sd	Pl	----	---	T	-------	Do.
34G1	----do----------	----do----------	7- 9-56	747	B	30	4½	----------	12	16	Sd,G	Pl	U	12	T	-------	L.
35A1	----do----------	----do----------	7-10-56	752	B	30	4½	----------	6	15	Sd	Pl	U	6	T	-------	L.
35C1	----do----------	----do----------	7-10-56	757	B	30	4½	----------	----	------	Sd,G	Pl	----	12	T	-------	L.
35D1	----do----------	----do----------	7- 9-56	750	B	30	4½	----------	21	6	Sd	Pl	U	21	T	-------	L.
35F1	----do----------	----do----------	7- 9-56	748	B	30	4½	----------	8	22	Sd,G	Pl	U	8	T	-------	L.
35K1	R. Behmer	Kennedy's Well Service	10-18-57	777	J	35	2	S; 3½ft, 60g, dia 1¼	24	16	G	Pl	C	18	D	L	Yield 13 gpm; gravel overlain by 24 ft clay & sand; blue clay at 41 ft; Ca.

33/1-36A1	Indiana Flood Control and Water Resources Comm.	Corps of Engineers	7-11-56	757	B	30	4½	----------	25	5	Sd	Pl	C	19	T	-------	L.
36C1	----do----------	----do----------	7-10-56	750	B	30	4½	----------	5	25	Sd,G	Pl	U	5	T	-------	L.
36D1	----do----------	----do----------	7-10-56	757	B	30	4½	----------	12	15	Sd	Pl	U	15	T	-------	L.
33/2- 2N1	Marshall County Infirmary	Layne-Northern Co., Inc.	12-22-47	837	Dr	74	6	S; 10ft; dia 4	32	43	Sd,G	Pl	U	32	P,S	T5	Dd 30.2 ft pumping 150 gpm; Ca, L.
3B1	R. C. White	Kennedy's Well Service	4-21-60	820	J	61	2	S; 3ft, 60g, dia 1¼	57	4	G,Sd	Pl	C	32	D	-------	Yield 15 gpm; coarse gray gravel with some coarse sand overlain by 57 ft clay with gravel.
3D1	R. Ullery	----do----------	1-12-57	811	J	53	2	S; 3½ft, 60g, dia 1¼	40	13	Sd,G	Pl	C	25	D	-------	Yield 15 gpm; L.
4D1	J. Hattery	----do----------	7- 2-56	779	J	22	2	----do----------	17	5	Sd,G	Pl	C	6	D	L	Yield 13 gpm; coarse sand and some gravel overlain by blue clay.
4D2	Indiana Flood Control and Water Resources Comm.	Corps of Engineers	6-25-56	782	B	25	4½	----------	18	7	Sd,G	Pl	----	18	T	-------	L.
4E1	E. Bradley	Kennedy's Well Service	9-29-56	777	J	24	2	S; 3½ft, 60g, dia 1¼	19	5	G,Sd	Pl	C	12	D	P	Yield 15 gpm; clean gravel and sand overlain by 19 ft clay and sand.
4E2	City of Plymouth	Moore Bros.	6-29	792	Dr	186	10	S; 19ft, dia 8	------	------	Sd,G	Pl	----	2	P	T	Dd 70.5 ft after 1 hr pumping 670 gpm.
4E3	----do----------	----do----------	8-33	792	Dr	189	12	----do----------	------	------	Sd,G	Pl	----	----	P	T	Yield 740 gpm.
4E4	Indiana Flood Control and Water Resources Comm.	Corps of Engineers	6-25-56	776	B	25	4½	----------	7	18	Sd	Pl	U	7	T	-------	L.
4E5	----do----------	----do----------	6-25-56	776	B	25	4½	----------	9	16	Sd	Pl	U	9	T	-------	See log well 4E4.
4F1	----do----------	----do----------	6-25-56	782	B	25	4½	----------	21	4	Sd	Pl	----	21	T	-------	L.
4Q1	City of Plymouth	J. Payne	2-54	796	J	190	2	----------	45	145	Sd	P	C	17	T	-------	L.
4Q2	----do----------	Layne-Northern Co., Inc.	3-30-54	798	Dr	201	10-6	----------	------	------	Sd,G	Pl	----	14	T	-------	L.
4Q3	----do----------	----do----------	4-26-54	796	Dr	217	6	----------	15	202	Sd,G	Pl	U	15	T	-------	L.
4Q4	----do----------	----do----------	11-14-55	796	Dr	192	30	Gp; S; 35ft, dia 13½	------	------	G,Sd	Pl	C	12	P	-------	Dd 87.5 ft pumping 1,000 gpm; screen has blank section from 171-182 ft; L.
4R1	----do----------	----do----------	12-22-55	801	Dr	187	26	Gp; S; 30ft, dia 13½	------	------	Sd,G	Pl	C	20	P	-------	Yield 1,000 gpm; bedrock at 190 ft; screen has 5 ft blank section between upper 15 ft and lower 15 ft of screen; L.
5C1	E. Galbreath	Kennedy's Well Service	2- 2-57	798	J	40	2	S; 3½ft, 60g, dia	34	6	G,Sd	Pl	C	23	D	-------	Yield 15 gpm; Ca, L.
5G1	Pennsylvania Railroad	Layne-Northern Co. Inc.	3-28-39	790	Dr	121	8	S; 20ft, dia 6	56	65	Sd,G	Pl	C	11	T	-------	Dd 3 ft pumping 45 gpm; L.
5H1	Schlosser Bros., Inc.	Indiana-Michigan Water Development Co.	1938	790	Dr	48	10	S	------	------	Sd,G	Pl	----	----	I	T10	
5H2	Plymouth Pilot News	Layne-Northern Co., Inc.	1-14-60	796	Dr	113	8	S; 10ft, 25sl	60	55	Sd,G	Pl	C	17	---	-------	Dd 36.4 ft after 5 hr pumping 370 gpm; for heat pump; Ca, L.
5H3	----do----------	----do----------	3-29-60	796	Dr	112	8	----do----------	55	57	Sd,G	Pl	C	16	---	-------	Dd 39 ft after 5 hr pumping 360 gpm; return well for heat pump; L.
5J1	Indiana Flood Control and Water Resources Comm.	Corps of Engineers	6-25-56	775	B	25	4½	----------	11	14	Sd,G	Pl	U	11	T	-------	L.
5P1	----do----------	----do----------	10-18-56	772	B	30	4½	----------	15	15	Sd	Pl	U	15	T	-------	L.
5Q1	----do----------	----do----------	10-18-56	774	B	30	4½	----------	11	5	Sd	Pl	U	11	T	-------	L.
5R1	----do----------	----do----------	6-25-56	773	B	25	4½	----------	6	16	Sd,G	Pl	U	6	T	-------	L.
6H1	Allied Plating Co.	Buffington and Payne	4-20-60	802	Dr	123	4	S; 10ft, 10sl, dia 4	110	13	Sd	Pl	C	51	I	-------	Dd 11 ft after 8 hr pumping 70 gpm; Ca, L.
6H2	J. Breeding	E. Brooker	9- 7-55	810	J	74	2	S; 3½ft, 60g, dia 1½	60	14	Sd,G	Pl	C	33	I,P	J1/2	Fine sand and medium gravel overlain by 60 ft clay.
7A1	Indiana Flood Control and Water Resources Comm.	Corps of Engineers	7-14-56	770	B	30	4½	----------	4	26	Sd,G	Pl	U	4	T	-------	L.
7J1	----do----------	----do----------	7-13-56	770	B	30	4½	----------	8	22	Sd,G	Pl	U	8	T	-------	L.
7R1	----do----------	----do----------	7-13-56	768	B	30	4½	----------	11	19	Sd	Pl	U	11	T	-------	L.
8C1	P. Merriman	J. Payne	12- 2-59	807	J	70	2	S; 3ft, 60g, dia 1¼	63	7	Sd	Pl	C	33	S	-------	Yield 14 gpm; L.
9E1	W. E. Price	Sriver Drilling Co.	7-19-54	802	Dr	67	4	S; 10ft, 10sl	35	32	Sd,G	Pl	U	35	I	T1-1/2	Ca, L.
9F1	City of Plymouth	Layne-Northern Co., Inc.	1- 5-54	806	Dr	203	10-6	----------	150	53	G,Sd	Pl	C	27	T	-------	L.
11L1	L. Sherwood	Kennedy's Well Service	6-12-56	842	J	80	2	S; 3ft, 10sl, dia 1¼	------	------	Sd,G	Pl	----	35	D	J1/4	Yield 13 gpm; L.
12E1	F. Neidlinger	R. Price	3-57	831	J	90	2	S; 3½ft, 60g, dia 1¼	83	7	G	Pl	C	26	S	J1/2	Ca, L.
16A1	E. Keiser	Kennedy's Well Service	7-25-56	845	J	101	2	----do----------	93	8	Sd,G	Pl	C	56	D	-------	Yield 15 gpm; L.
16A2	H. Thomas	----do----------	5-14-55	847	J	160	2	----do----------	154	6	G,Sd	Pl	C	65	D	-------	Yield 15 gpm; yellow gravel and sand overlain by 154 ft clay mixed with fine sand and gravel.
16B1	Mr. Heilfle	R. Price	7-18-60	840	J	49	2	S; 3ft, 60g, dia 1¼	40	10	G	Pl	C	35	D	-------	Yield 12 gpm; L.

Table 3.--Records of wells and test holes in Marshall County, Indiana--Continued

Well	Owner	Driller	Date completed	Altitude (feet)	Type of well	Depth of well below land-surface (feet)	Diameter of well (inches)	Finish	Water-bearing zone					Water level (feet)	Use	Type of pump and horsepower	Remarks
									Depth to top (feet)	Thickness (feet)	Character	Geologic age	Conditions of occurrence				
33/2-16P1	R. Skinner	S. J. Garl Well Drilling Co.	6- 4-60	815	J	40	2	S; 3ft, 60g, dia 1¼	-----	-------	Sd,G	Pl	-----	22	S	---------	Ca.
17M1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7-13-56	770	B	30	4½	----------	-----	-------	------	---	-----	---	T	---------	L
17M2	C. Beyler	Kennedy's Well Service	9-24-60	812	J	69	2	S; 3ft, 60g, dia 1¼	44	25	G,Sd	Pl	U	44	D	---------	Yield 20 gpm; L.
17N1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7-13-56	763	B	30	4½	----------	6	24	Sd,G	Pl	U	6	T	---------	L.
18A1	----do----------	----do----------	7-13-56	766	B	30	4½	----------	12	15	Sd,G	Pl	U	12	T	---------	L.
18H1	----do----------	----do----------	7-13-56	766	B	30	4½	----------	8	22	Sd	Pl	U	8	T	---------	L.
18P1	L. Greenlee	Buffington and Payne	9-29-60	812	J	66	2	S; 3ft, 60g, dia 1¼	59	7	Sd	Pl	C	38	D	---------	Ca, L.
18Q1	R. Greenlee	J. Payne	9-22-59	808	J	66	2	----do----------	61	5	Sd	Pl	C	42	D	---------	Yield 15 gpm; coarse sand overlain by 61 ft yellow clay; Ca.
19B1	D. Roahrig	R. Price	3- 5-57	784	J	105	2	S; 3½ft, 60g, dia 1¼	92	13	G	Pl	C	10	D	J1/2	Yield 20 gpm; L.
19C1	M. Miloserny	Kennedy's Well Service	9- 2-57	787	J	40	2	S; 3ft, 10sl, dia 1¼	28	12	G,Sd	Pl	U	28	D	---------	Yield 15 gpm; gravel with some sand overlain by 6 ft clay.
19D1	W. Ellinger	----do----------	4-21-60	810	J	46	2	----do----------	-----	-------	G,Sd	Pl	-----	35	D	---------	Yield 15 gpm; Ca, L.
19E1	H. Sock	----do----------	6- 8-56	802	J	44	2	S; 3½ft, 60g, dia 1¼	38	6	G,Sd	Pl	C	32	D	L	Yield 13 gpm; Ca, L.
19F1	L. Kring	J. Payne	8-21-59	775	J	42	2	S; 3ft, 60g, dia 1¼	35	7	Sd	Pl	C	8	D	---------	Yield 15 gpm; fine sand overlain by 35 ft yellow clay and stone; Ca.
19G1	G. Robertson	Kennedy's Well Service	--------	792	J	39	2	S; 3½ft, 60g, dia 1¼	22	17	G	Pl	U	22	D	---------	Yield 13 gpm; gravel overlain by 22 ft clay and gravel.
19G2	C. Croy	----do----------	5- 4-55	782	J	93	2	----do----------	75	18	Sd,G	Pl	C	7	D	J1/3	Yield 15 gpm; sand and gravel overlain by 75 ft blue clay mixed with sand and gravel.
19H1	C. Schaffer	----do----------	5-11-55	787	J	90	2	----do----------	-----	-------	Sd	Pl	-----	12	D	---------	Yield 15 gpm.
20D1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7-12-56	770	B	30	4½	----------	-----	-------	Sd,G	Pl	U	9	T	---------	L.
20F1	----do----------	----do----------	7-12-56	765	B	30	4½	----------	-----	-------	Sd,G	Pl	U	---	T	---------	L.
20Q1	----do----------	----do----------	7-12-56	765	B	30	4½	----------	-----	-------	Sd,G	Pl	U	---	T	---------	See log well 20F1.
21R1	C. Beringer	R. Price	1-51	805	J	46	2	S; 3ft, 60g	-----	-------	G	Pl	-----	25	S	L	Yield 15 gpm; clean gravel overlain by 40 ft sand and clay; Ca.
22R1	G. Stevens	----do----------	Summer 1952	827	J	50	2	S; 60g	38	12	Sd,G	Pl	U	38	S	J1/2	Yield about 15 gpm; sand and gravel from 0-50 ft; clay at 50 ft.
22R2	----do----------	----do----------	5-54	827	J	90	2	S; 3ft, 60g	80	10	G	Pl	C	5	S	J1/3	Yield about 15 gpm; gravel overlain by clay.
23H1	Plymouth Canning	E. W. Schroeder	6- 7-57	843	J	87	2	S; 3ft, 80g, dia 1¼	42	45	Sd	Pl	U	42	P	---------	Yield 8 gpm; Ca, L.
25J1	E. Haines	R. Price	10-28-60	850	J	146	2	S; 3ft, 60g, dia 1¼	-----	-------	Sd,G	Pl	-----	47	D	---------	Yield 20 gpm; Ca, L.
26E1	H. Stoffer	----do----------	9-53	854	J	120	2	S; 3½ft, 60g, dia 1¼	58	62	Sd,G	Pl	U	58	D	J1	Yield 20 gpm; Ca, L.
26M1	Mr. Bottorff	----do----------	5-50	872	J	150	2	S; 3ft, 60g	80	70	Sd,G	Pl	U	80	D	J1	Yield 20 gpm; L.
27C1	E. Hovin	Buffington and Payne	10-21-60	827	J	66	2	S; 3ft, 60g, dia 1¼	45	21	Sd,G	Pl	C	36	D	---------	Ca, L.
29B1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7-12-56	763	B	30	4½	----------	12	18	Sd,G	Pl	U	12	T	---------	L.
29F1	----do----------	----do----------	7-12-56	760	B	30	4½	----------	-----	-------	------	---	-----	---	T	---------	L
29M1	----do----------	----do----------	7-12-56	758	B	30	4½	----------	7	21	Sd,G	Pl	U	7	T	---------	L.
30N1	C. White	Kennedy's Well Service	5-16-55	774	J	72	2	S; 3½ft, 60g, dia 1¼	-----	-------	Sd	Pl	-----	7	D,S	---------	Yield 15 gpm; Ca.
31A1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7-11-56	760	B	30	4½	----------	-----	-------	Sd,G	Pl	U	8	T	---------	L.
31B1	----do----------	----do----------	7-11-56	759	B	30	4½	----------	6	24	Sd,G	Pl	U	6	T	---------	See log well 31C1.
31C1	----do----------	----do----------	7-11-56	760	B	30	4½	----------	6	24	Sd,G	Pl	U	6	T	---------	L.
31D1	----do----------	----do----------	7-11-56	758	B	25	4½	----------	-----	-------	Sd	Pl	U	5	T	---------	L.
33/3- 5J1	R. Aldefer	Kennedy's Well Service	10-22-59	806	J	32	2	3S 3ft, 60g, dia 1¼	28	4	G,Sd	Pl	C	4	D	---------	Yield 15 gpm; gray coarse gravel and sand overlain by 28 ft blue clay; Ca.

33/3- 7N1	E. Fecce	J. Payne	8-25-59	832	J	66	2	S; 3ft, 60g, dia 1½	60	6	Sd	Pl	C	17	D	--------	Yield 14 gpm; Ca, L.
7R1	R. Gottschalk	Kennedy's Well Service	9- 1-60	852	J	82	2	S; 3ft, 80g, dia 1½	74	10	Sd	Pl	C	38	D	--------	Yield 17 gpm; Ca, L.
8P1	A. Carothers	E. W. Schroeder	5-20-57	840	J	64	2	----do----------	60	4	Sd	Pl	C	25	D	J1/3	Yield 8 gpm; Ca, L.
8Q1	J. Howard	Kennedy's Well Service	7- 4-56	840	J	42	2	S; 3½ft, 60g, dia 1¼	-----	-------	G	Pl	-----	18	D	--------	Yield 15 gpm.
8Q2	R. Blue	----do----------	10-24-56	840	J	123	2	----do----------	117	6	G,Sd	Pl	C	30	D	J1/3	Yield 15 gpm; L.
10C1	Mt. Pleasant Church	R. Price	5- 1-57	842	J	170	2	----do----------	-----	-------	Sd,G	Pl	-----	45	P	J3/4	Yield 17 gpm.
10D1	V. Roahrig	----do----------	10-20-60	841	J	140	2	S; 3ft, 12sl, dia 1¼	128	12	Sd,G	Pl	C	40	D,S	--------	Yield 20 gpm; Ca, L.
12M1	J. Herman and C. Rettinger	D. Fredenhagen	5-27-50	838	Dr	435	8-7	----------	-----	-------	Sd,G	Pl	-----	----	---	--------	Oil test; bedrock at 213 ft; L.
13P1	J. Hajicek	Kennedy's Well Service	10-16-59	845	J	26	2	S; 3ft, 10sl, dia 1¼	18	9	G,Sd	Pl	C	9	D	--------	Yield 17 gpm; Ca, L.
14C1	R. Bailes	R. Price	6-24-60	850	J	146	2	S; 3ft, 60g, dia 1½	130	25	Sd,G	Pl	C	47	S	--------	Yield 20 gpm; L.
16A1	H. Lemler	----------	--------	832	Du	17	36	----------	-----	-------	D	Pl	U	----	O	--------	Observation well Marshall 1; water level measured 3.82 ft below lsd, 5-20-48.
17C1	Trustees, Center Township	----------	--------	842	Dr	185	4	S	-----	-------	Sd	Pl	-----	----	P	--------	At Inwood School.
18E1	G. Hissong	R. Price	6-54	929	J	126	2	S; 3ft, 60g	-----	-------	Sd,G	Pl	C	23	D	J1/2	Ca, L.
24A1	N. Hodges	J. Payne	7-29-59	848	J	29	2	S; 3ft, 80g, dia 1½	25	4	Sd	Pl	-----	----	D	--------	Ca, L.
24K1	Orthopedic Equipment Co.	Indiana-Michigan Water Development Co.	9- 8-47	844	Dr	190	7	S; 15ft, 15sl, dia 6	-----	-------	Sd,G	Pl	C	38	I	T5	Yield 85 gpm; Ca, L.
24K2	----do----------	D. G. Bojrab	10- 6-59	843	Dr	202	6	S; 20ft, 15sl, dia 5½	-----	-------	Sd,G	Pl	C	38	I	--------	Little dd after 2 hr pumping 250 gpm; Ca, L.
26D1	R. Price	R. Price	7-54	817	J	112	2	S; 3ft, 60g	100	12	Sd,G	Pl	C	12	D,S	L	Yield 20 gpm; Ca, L.
27A1	B. Phillips	----do----------	9-52	822	J	90	2	----do----------	80	10	Sd,G	Pl	C	20	D,S	J1/3	Yield 17 gpm; L.
31N1	R. Schlosser	----do----------	6- 1-57	834	J	57	2	S; 3½ft, 60g, dia 1½	35	22	Sd,G	Pl	U	35	S	J1/2	Yield 20 gpm; Ca, L.
34R1	J. Graber	----do----------	7-56	813	J	32	2	S; 3ft, 60g	-----	-------	Sd,G	Pl	-----	26	S	J1/2	Yield 17 gpm; Ca.
33/4- 5F1	C. Gottschalk	J. Payne	8-54	828	J	45	2	S; 3ft, 60g, dia 1½	41	4	Sd,G	Pl	C	10	D,S	J1/3	Sand and gravel overlain by 41 ft yellow & blue clay; Ca.
16M1	E. Gottschalk	----do----------	1955	822	J	45	2	----do----------	20	25	Sd,G	Pl	C	15	D,S	--------	Sand and gravel overlain by 20 ft blue clay; Ca.
19A1	N. Hodges	----do----------	7-29-59	832	J	45	2	----------	40	5	G	Pl	-----	----	I	--------	Ca, L.
19E1	E. Myers	Indiana-Michigan Water Development Co.	2-24-37	843	Dr	148	6	S; 10ft, 15sl, dia 5½	130	18	Sd,G	Pl	C	37	N	--------	Dd 15 ft pumping 80 gpm; L.
19E2	Town of Bourbon	----------	--------	846	Dr	132	8	S	-----	-------	Sd,G	Pl	-----	36	P	--------	
19E3	----do----------	----------	--------	846	Dr	130	8	S	-----	-------	Sd,G	Pl	-----	36	P	T10	
19H1	L. Gouchenour	J. Payne	10-15-59	838	J	48	2	S; 3ft, 60g, dia 1½	41	7	Sd	Pl	C	----	---	--------	Yield 20 gpm; Ca, L.
19M1	W. Cumberland	Indiana-Michigan Water Development Co.	2-28-39	842	Dr	144	4	S; 6ft, 20sl, dia 3½	131	13	G	Pl	C	32	Ac,P	J1	Dd 6 ft pumping 50 gpm; Ca, L.
19M2	Town of Bourbon	Layne-Northern Co., Inc.	5-31-51	838	Dr	117	8	Gp; S	107	10	Sd,G	Pl	C	32	P	T10	L.
32M1	W. Creakbaum	P. A. Shunk	4-27-60	847	J	39	2	S; 3ft, 60g, dia 1	30	9	Sd,G	Pl	C	30	D	--------	Ca, L.
32M2	----do----------	----------	1900	847	--	60	2	----------	-----	-------	Sd	Pl	C	----	D	--------	Ca.
34/1- 1C1	J. Ringle	E. W. Schroeder	9-28-59	813	J	87	2	S; 3½ft, 12sl, dia 1½	75	12	Sd,G	Pl	C	20	S	--------	Yield 10 gpm; Ca, L.
5J1	F. Stull	E. Brooker	7-14-59	737	J	66	2	S; 4ft, 60g, dia 1½	-----	-------	Sd,G	Pl	-----	4	D	--------	
5C1	A. Snyder	----do----------	3- 9-56	727	J	77	2	S; 3½ft, 60g, dia 1½	60	17	Sd,G	Pl	C	----	D	L	Ca, L.
6C2	J. Schroder	----do----------	10- 6-55	723	J	93	2	----do----------	88	25	Sd,G	Pl	C	10	D,S	J1/3	Yield 12 gpm; gravel overlain by 20 ft fine sand and 68 ft blue clay and sand.
6C3	----do----------	A. A. Gieson	7-26-50	723	Dr	268	53/4	----------	-----	-------	-------	--	-----	----	---	--------	Oil test; bedrock at 190 ft; L.
6F1	C. W. Kendall	S. Snyder	9-24-49	714	Dr	454	8½-5¼	----------	-----	-------	-------	--	-----	----	---	--------	Oil test; bedrock at 160 ft.
9P1	D. Strang	E. Brooker	6- 6-56	755	J	35	2	S; p	25	10	Sd,G	Pl	C	+8	S	--------	Ca, L.
10F1	Evangelical United Brethren Church	D. Henderson	8-18-56	807	Dr	70	4	S; 5ft, 10sl	65	5	G	Pl	C	35	P	--------	Yield 25 gpm; L.
10L1	M. Warren	E. Brooker	9-10-59	812	J	50	2	S; 4ft, 60g, dia 1¼	42	8	Sd	Pl	C	40	D	--------	Ca, L.
10L2	F. Whiteleather	----do----------	4-20-60	805	J	47	2	----do----------	33	14	Sd,G	Pl	U	33	D	--------	
10M1	W. R. Waller	----do----------	7-27-56	798	J	45	2	S; 3½ft, 60g, dia 1½	30	15	Sd,G	Pl	C	26	D	--------	Yield 10 gpm; L.
10M2	J. Payne	J. Payne	7-52	797	Dn	32	1¼	S; 3ft, 60g, dia 1¼	-----	-------	Sd,G	Pl	-----	14	---	J1/3	
10N1	W. Ripper	----do----------	7- 2-59	797	J	48	2	----do----------	18	30	Sd	Pl	U	18	D	--------	Sand from 0-48 ft.
11E1	F. Lowry	E. Brooker	10-14-55	798	J	45	2	S; 3½ft, 60g, dia 1¼	37	°8	Sd,G	Pl	C	26	D	T1/3	Yield 5 gpm; sand and fine gravel overlain by 37 ft chiefly blue clay; Ca.
15C1	C. Williams	----do----------	9- 2-55	811	J	60	2	----do----------	-----	-------	G	Pl	-----	34	D	J1/3	Medium gravel overlain by yellow and blue clay and sand.
18P1	J. Peterson	----do----------	5-17-55	733	J	46	2	S; 3½ft, 60g, dia 1¼	38	8	Sd,G	Pl	C	7	D	L1/4	Yield 10 gpm; fine to coarse sand and fine gravel overlain by 38 ft blue clay with some sand lenses.
20G1	S. Yazel	S. J. Garl Well Drilling Co.	5- 6-60	773	Dn	37	1½	S; 3ft, 60g, dia 1¼	-----	-------	Sd	Pl	C	----	D	--------	Flowed; Ca.
21C1	C. Pontius	R. Price	7- 8-60	778	J	114	2	S; 3ft, 12sl, dia 1½	84	30	Sd,G	Pl	C	6	D	--------	Yield 20 gpm; Ca, L.
22R1	O. Sims	E.W. Schroeder	7-18-57	852	J	90	2	S; 3ft, 10sl, dia 1½	60	30	G	Pl	C	45	D	J3/4	Yield 10 gpm; Ca, L.

Table 3.--Records of wells and test holes in Marshall County, Indiana--Continued

Well	Owner	Driller	Date completed	Altitude (feet)	Type of well	Depth of well below land-surface (feet)	Diameter of well (inches)	Finish	Water-bearing zone					Water level (feet)	Use	Type of pump and horsepower	Remarks
									Depth to top (feet)	Thickness (feet)	Character	Geologic age	Conditions of occurrence				
34/1-23C1	P. Bormet	E. Brooker	7-30-59	836	J	60	2	S; 4ft, 60g, dia 1¼	48	12	Sd,G	Pl	C	---	D,S	J3/4	Ca, L.
23D1	M. Johnson	----do----------	3-28-60	826	J	93	2	----do----------	70	24	Sd,G	Pl	C	40	D	---------	Do.
23N1	L. Biggins	E. W. Schroeder	6-25-60	855	J	93	2	S; 3½ft, 60g, dia 1¼	----	------	G	Pl	C	54	D,S	---------	Yield 10 gpm; Ca, L.
23Q1	A. Ruff	R. Price	11-50	832	J	41	2	S; 6ft	32	9	Sd,G	Pl	C	28	D,S	L	Yield 8 gpm; sand and gravel overlain by 32 ft clay; Ca.
26B1	E. Unger	Kennedy's Well Service	5- 6-60	827	J	134	2	S; 3ft, 60g, dia 1	96	38	G,Sd	Pl	C	40	D	---------	Yield 13 gpm; L.
26P1	R. Goodrich	----do----------	9- 9-55	837	J	60	2	S; 3½ft, 60g, dia 1¼	45	15	G,Sd	Pl	U	45	D	---------	Yield 15 gpm; yellow and gray gravel and sand overlain by 25 ft blue clay with some pebbles and sand; Ca.
27N1	R. Day	----do----------	8-21-56	822	J	56	2	----do----------	50	6	G	Pl	C	38	D	J1/3	Yield 13 gpm; L.
27R1	R. Weiger	----do----------	4-55	852	J	85	2	----do----------	80	5	Sd,G	Pl	C	45	D	---------	Yield 15 gpm; gray coarse gravel overlain by 80 ft yellow clay, sand, and gravel; Ca.
29N1	M. Otto	----do----------	7-27-55	782	J	49	2	----do----------	34	15	Sd,G	Pl	C	26	D	---------	Yield 15 gpm; L.
29R1	J. Carr	Casad Drilling Co.	1-27-60	812	J	66	2	S; 3ft, 60g, dia 1¼	38	30	Sd,G	Pl	U	38	D	---------	Yield 4 gpm; yellow sand and gravel from 0-68 ft; Ca.
30R1	R. Livinghouse	E. Brooker	7-10-56	774	J	70	2	S; 3½ft, 60g, dia 1¼	55	15	Sd,G	Pl	---	---	D	---------	Yield 13 gpm; L.
31D1	G. Andrews	Kennedy's Well Service	9- 4-57	747	J	36	2	S; 3ft, 10sl, dia 1¼	30	6	Sd,G	Pl	C	12	D	---------	Yield 13 gpm; gravel with some sand overlain by 30 ft sand and clay; clay at 36 ft.
31D2	----do----------	----do----------	9-19-59	747	J	49	2	S; 3ft, 60g, dia 1¼	45	4	G	Pl	C	12	D	---------	Yield 15 gpm; Ca, L.
32C1	C. Whitesell	----do----------	7-15-59	778	J	32	2	S; 3ft, 10sl, dia 1¼	28	4	G,Sd	Pl	C	6	D	---------	Do.
33B1	Circle M Roller Rink	Sriver Drilling Co.	5-17-54	808	J	58	2	S; 3ft, 60g, dia 1¼	50	8	Sd,G	Pl	C	28	P	---------	L.
33C1	W. Griewank	Kennedy's Well Service	10-20-59	802	J	42	2	----do----------	38	4	G,Sd	Pl	C	20	D	---------	Yield 15 gpm; Ca, L.
34D1	P. L. Everetts	----do----------	4-11-57	827	J	64	2	S; 3½ft, 60g, dia 1¼	50	14	G	Pl	U	50	D	---------	Yield 15 gpm; L.
34/2- 1B1	L. Balsley	C. Rouch	4-11-60	826	J	65	2	S; 4ft, 60g, dia 1¼	57	8	Sd	Pl	C	10	D	---------	Yield 20 gpm; Ca, L.
1J1	Mr. Smith	E. W. Schroeder	6- 8-57	807	J	57	2	S; 3ft, 10sl, dia 1¼	54	3	G	Pl	C	8	D	---------	Yield 10 gpm; L.
1J2	Mr. Reece	C. Rouch	2- 6-60	822	J	117	2	S; 4ft, 60g, dia 1¼	100	17	Sd	Pl	C	17	D	---------	Yield 20 gpm; Ca, L.
5H1	W. Richamond	Kennedy's Well Service	3-12-56	852	J	30	2	S; 3½ft, 60g, dia 1¼	26	4	G,Sd	Pl	C	18	D	J	Yield 15 gpm; L.
5J1	A. Harcar	E. W. Schroeder	1- 2-56	862	J	50	2	S; 3ft, dia 1¼	40	10	G	Pl	C	33	D,S	J1/2	Ca, L.
5N1	F. Dunn	----do----------	4- 1-56	847	J	47	2	S; 3ft, 60g, dia 1¼	40	7	G	Pl	C	18	D	L	L.
5R1	P. Balough	----do----------	5- 6-57	852	J	44	2	----do----------	30	14	Sd,G	Pl	C	26	D	J1/2	Yield 10 gpm; Ca, L.
5R2	P. Johnson	----do----------	7-15-57	852	J	40	2	S; 3ft, 60g, dia 1¼	35	5	G	Pl	C	28	---	J	Yield 10 gpm; see log well 5R1.
6L1	E. W. Schroeder	----do----------	8- 8-57	833	J	63	2	S; 4ft, 60g, dia 1	57	6	Sd,G	Pl	C	28	D	---------	Yield 12 gpm; Ca, L.
8B1	H. Withey	----do----------	3- 1-57	848	J	39	2	S; 3ft, 60g, dia 1¼	32	7	G	Pl	U	32	D	---------	Yield 8 gpm; pea-sized gravel overlain by 30 ft yellow clay.
8B2	H. Williams	Kennedy's Well Service	7- 4-56	843	J	65	2	S; 3½ft, 10sl, dia 1 1¼	56	10	G,Sd	Pl	C	26	D	J1/2	Yield 15 gpm; Ca, L.
8C1	Mr. Daniels	E. Brooker	8-18-55	847	J	45	2	S; 3½ft, 60g, dia 1¼	----	------	G	Pl	---	30	D	J1/3	
8C2	O. Blue	Kennedy's Well Service	3-28-56	842	J	66	2	----do----------	60	6	G	Pl	C	24	D	J1/2	Yield 15 gpm; see log well 8B2.
8H1	R. Emmons	E. W. Schroeder	7-28-59	836	J	57	2	S; 3ft, 60g, dia 1¼	48	9	G	Pl	C	12	D	---------	Yield 10 gpm; L.
8J1	J. Hatfield	Kennedy's Well Service	9- 8-59	823	J	40	2	----do----------	31	9	Sd	Pl	C	4	D	---------	Yield 20 gpm; Ca, L.
10F1	M. Houghton	----do----------	5-11-60	832	J	130	2	S; 3ft, 10sl, dia 1¼	126	4	Sd,G	Pl	C	27	D	---------	Do.
11K1	V. Miller	C. W. Kendall	11-20-50	832	Dr	405	8¼-5½	----------	----	------	------	---	---	---	---	---------	Oil test; bedrock at 216 ft.
11R1	N. Saltenright	----do----------	10-24-50	828	Dr	374	8¼-5¼	----------	----	------	------	---	---	---	---	---------	Gas well; bedrock at 259 ft; L.
12A1	J. Hemminger	Sriver Drilling Co.	8-16-44	814	J	74	2	S; 4ft, 100g, dia 1¼	----	------	Sd	Pl	---	---	D	---------	
12A2	D. Bueche	E. W. Schroeder	4-12-56	809	J	93	2	S; 3ft, dia 1¼	80	13	G,Sd	Pl	C	6	D	T1/2	L.
12N1	D. and V. Marks	C. W. Kendall	7-25-49	825	Dr	360	8¼-5¼	----------	----	------	Sd,G	Pl	---	---	---	---------	Gas well; bedrock at 230 ft; L.
12N2	D. Marks	----do----------	8- 6-49	828	Dr	350	8¼-5¼	----------	----	------	Sd,G	Pl	---	---	---	---------	Gas well; bedrock at 208 ft.
12P1	Mr. Kelver	----do----------	8-10-49	825	Dr	400	8¼	----------	----	------	Sd,G	Pl	---	---	---	---------	Gas test; bedrock at 230 ft; L.
13C1	N. Anderson	----do----------	10-26-49	826	Dr	373	8¼-6½	----------	----	------	------	----	---	---	---	---------	Oil and gas test; bedrock at 173 ft; L.

34/2-13D1	N. Anderson	N. Anderson	8-23-49	823	Dr	359	---	----------	----	------	Sd,G	Pl	----	---	---	--------	Gas well; bedrock at 176 ft; water-bearing rock from 315-340 ft; see log well 13C1.
13E1	P. Berger	R. Price	8-53	822	J	50	2	S; 3ft, 60g	40	10	Sd,G	Pl	C	12	S	L	Yield 17 gpm; sand and gravel overlain by 40 ft blue clay.
13J1	----do----------	----do----------	8-53	818	J	99	2	----do----------	92	7	G,Sd	Pl	C	16	D,S	J1/3	Yield 15 gpm; gravel with little sand overlain by 92 ft blue clay; Ca.
14D1	L. J. Hasse	F. Lee, L. Linn, and L. Hoffman	--------	824	Dr	1,490	8-5	----------	----	------	Sd	Pl	----	---	---	--------	Oil test; bedrock at 230 ft; L.
15D1	G. Cummings	E. W. Schroeder	10- 8-57	842	J	135	2	S; 3ft, 10sl, dia 1¼	125	10	G	Pl	C	50	D	--------	Yield 10 gpm; L.
17A1	U. Drake	Kennedy's Well Service	4- 6-56	819	J	22	2	S; 3½ft, 60g, dia 1¼	12	10	Sd,G	Pl	U	12	D	--------	Yield 15 gpm; sand and gravel from 0-22 ft.
17A2	C. Martin	----do----------	6-22-56	818	J	44	2	----do----------	38	6	Sd,G	Pl	C	10	D	J3/4	Yield 13 gpm; L.
17Q1	W. Hotzapple	----do----------	5-23-55	846	J	113	2	----do----------	108	5	G	Pl	C	40	D	--------	Yield 15 gpm; L.
18A1	M. Carothers	J. Payne	12-12-59	822	J	83	2	S; 3ft, 60g, dia 1½	75	8	Sd	Pl	C	16	D	--------	Yield 16 gpm; Ca, L.
19B1	S. Like	E. W. Schroeder	7-20-59	820	Dn	24	1½	----do----------	----	------	G	Pl	----	10	---	--------	
20G1	D. Browser	E. Brooker	7-11-55	822	J	58	2	S; 3½ft, 60g, dia 1¼	48	10	Sd,G	Pl	C	---	D	J1/2	Sand and fine gravel overlain by 48 ft yellow gravelly clay; Ca.
20Q1	J. Rabb	Kennedy's Well Service	9-22-56	812	J	55	2	S; 4ft, 80g, dia 1¼	44	11	G,Sd	Pl	C	12	D	--------	Yield 13 gpm; see log well 20Q2.
20Q2	C. Haag	E. W. Schroeder	5-28-57	814	J	66	2	S; 3ft, 60g, dia 1½	42	24	Sd,G	Pl	C	22	D	L	Yield 10 gpm; L.
20Q3	W. Fisher	----do----------	8-12-57	822	J	46	2	----do----------	42	4	G	Pl	C	23	D	J1/2	Do.
20Q4	L. Sherwood	Kennedy's Well Service	2-20-56	813	J	57	2	S; 3½ft, 60g, dia 1¼	43	14	G,Sd	Pl	C	20	D	--------	Yield 13 gpm; see log well 20Q5.
20Q5	R. L. Barts	E. W. Schroeder	10- 1-57	817	J	47	2	S; 3ft, 60g, dia 1¼	40	7	G	Pl	C	22	D	--------	Yield 10 gpm; Ca, L.
20Q6	E. Reed	Kennedy's Well Service	9-22-59	812	J	55	2	----do----------	46	9	G,Sd	Pl	C	18	D	--------	Yield 15 gpm; see log well 20Q5; Ca.
20Q7	J. McFarland	----do----------	9-21-59	813	J	57	2	----do----------	46	11	G,Sd	Pl	C	21	D	--------	Yield 15 gpm; see log well 20Q5.
20R1	G. Ames	----do----------	4-12-55	812	J	45	2	S; 3½ft, 60g, dia 1¼	22	23	Sd,G	Pl	C	15	D	--------	Yield 15 gpm; yellow fine sand and coarse gray gravel overlain by 22 ft yellow clay mixed with gravel.
20R2	L. Keyser	----do----------	12- 5-59	808	J	46	2	S; 3½ft, 10sl, dia 1¼	41	5	G,Sd	Pl	C	18	D	--------	Yield 15 gpm; see log well 20Q5.
20R3	----do----------	----do----------	4-22-60	809	J	51	2	S; 3½ft, 60g, dia 1¼	43	8	G,Sd	Pl	C	16	D	--------	Yield 20 gpm; see log well 20Q5.
21C1	A. Carothers	E. W. Schroeder	1-20-56	824	J	54	2	S; 3ft, 60g, dia 1¼	30	24	G	Pl	C	20	D,S	C1/4	Gravel overlain by 30 ft yellow clay mixed with gravel; Ca.
24M1	J. Milner	R. Price	10- 7-59	797	J	36	2	----do----------	----	------	Sd	Pl	----	7	D	--------	Yield 20 gpm; Ca.
25E1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	6-27-56	783	B	25	4½	----------	8	17	Sd	Pl	U	8	T	--------	L.
25L1	----do----------	----do----------	6-27-56	792	B	25	4½	----------	16	9	Sd,G	Pl	U	16	T	--------	See log well 25E1.
25L2	----do----------	----do----------	6-28-56	783	B	25	4½	----------	16	9	Sd	Pl	U	16	T	--------	See log well 25P1
25N1	F. Jacoby	W. E. Adams	11-10-49	808	Dr	320	8	----------	----	------	------	---	----	---	---	--------	Oil test; bedrock at 190 ft; L.
25P1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	6-27-56	786	B	25	4½	----------	12	13	Sd	Pl	U	12	T	--------	L.
25Q1	----do----------	----do----------	6-28-56	792	B	25	4½	----------	4	21	Sd,G	Pl	U	4	T	--------	L.
25R1	----do----------	----do----------	6-28-59	795	B	25	4½	----------	----	------	Sd,G	Pl	----	---	T	--------	See log well 25P1.
26G1	----do----------	----do----------	6-27-56	782	B	25	4½	----------	4	17	Sd	Pl	U	4	T	--------	See log well 26N2.
26L1	----do----------	----do----------	6-27-56	786	B	25	4½	----------	8	17	Sd,G	Pl	U	8	T	--------	L.
26N1	----do----------	----do----------	6-27-56	780	B	25	4½	----------	11	14	Sd,G	Pl	U	11	T	--------	See log well 26L1.
26N2	----do----------	----do----------	6-27-56	782	B	25	4½	----------	17	8	Sd	Pl	U	17	T	--------	L.
26P1	R. Downey	E. W. Schroeder	1-60	814	J	135	2	S; 3½ft, 60g, dia 1¼	120	15	G	Pl	C	18	D	--------	Yield 25 gpm; Ca, L.
28H1	A. Richards	----do----------	8- 5-59	820	J	46	2	S; 3ft, 60g, dia 1¼	35	11	G,Sd	Pl	C	16	D	--------	Yield 10 gpm; Ca, L.
29Q1	Indiana State Highway Department	Westville Engineering	11-29-58	800	B	30	2½	----------	----	------	------	---	----	---	T	--------	See log well 29Q4; S.
29Q2	----do----------	----do----------	11-29-58	799	B	30	2½	----------	----	------	------	---	----	---	T	--------	Do.
29Q3	----do----------	----do----------	11-28-58	800	B	30	2½	----------	5	11	Sd,G	Pl	U	5	T	--------	L.
29Q4	----do----------	----do----------	11-28-58	799	B	52	2½	----------	38	14	G,Sd	Pl	C	10	T	--------	L.
29Q5	----do----------	----do----------	11-26-58	803	B	40	2½	----------	37	3	G,Sd	Pl	C	16	T	--------	See log well 29Q4.
29Q6	----do----------	----do----------	11-25-58	801	B	35	2½	----------	33	2	G,Sd	Pl	C	15	T	--------	L.
29R1	----do----------	----do----------	11-24-58	803	B	35	2½	----------	24	11	G,Sd	Pl	C	11	T	--------	See log well 29R2.
29R2	----do----------	----do----------	11-24-58	802	B	50	2½	----------	34	16	Sd,G	Pl	C	18	T	--------	L, S.
29R3	----do----------	----do----------	11-20-58	802	B	50	2½	----------	36	14	G,Sd	Pl	C	18	T	--------	L.
29R4	----do----------	----do----------	11-21-58	802	B	31	2½	----------	18	7	G,Sd	Pl	U	18	T	--------	L.
29R5	----do----------	----do----------	11-21-58	800	B	35	2½	----------	24	11	G,Sd	Pl	U	17	T	--------	See log well 29R2.
29R6	----do----------	----do----------	11-21-58	801	B	35	2½	----------	17	11	G,Sd	Pl	U	17	T	--------	See log well 29R4.
30R1	L. Hammes	Kennedy's Well Service	8- 8-59	817	J	44	2	S; 3ft, 60g, dia 1	39	5	G,Sd	Pl	C	30	D	--------	Yield 15 gpm; coarse gray gravel and sand overlain by 39 ft blue clay with sand and gravel; Ca.
31D1	G. Apple	W. E. Adams	11- 9-48	809	Dr	850	8-4½	----------	----	------	------	---	----	---	---	--------	Oil test; bedrock at 195 ft; water-bearing shale from 205-235 ft; water-bearing limestone with hydrogen sulfide gas from 425-437 ft; L.

Table 3.--Records of wells and test holes in Marshall County, Indiana--Continued

Well	Owner	Driller	Date completed	Altitude (feet)	Type of well	Depth of well below land-surface (feet)	Diameter of well (inches)	Finish	Water-bearing zone					Water level (feet)	Use	Type of pump and horsepower	Remarks
									Depth to top (feet)	Thickness (feet)	Character	Geologic age	Conditions of occurrence				
34/2-31J1	S. Masterson	S. J. Garl	8- 5-60	800	Du	41	1¼	S; 4ft, 60g, dia 1¼	----	-------	Sd	Pl	---	13	D	--------	
32A1	Trustees, Center Township	R. Price	1953	802	J	56	2	S; 3ft, 60g	40	16	Sd,G	Pl	C	21	P	J1/2	Yield 20 gpm; sand and gravel overlain by 40 ft clay; Ca.
32D1	R. Markley	Buffington and Payne	4-21-60	812	J	57	2	S; 3ft, 60g, dia 1¼	----	-------	Sd	Pl	---	23	D	--------	Yield 18 gpm; Ca, L.
32J1	Plymouth Co., Inc.	J. Payne	--------	802	J	51	4	S; 5ft, 60g	----	-------	Sd,G	Pl	---	---	I	T3	
32J2	----do----------	W. J. Ingraham	5-18-51	802	Dr	130	4	S	----	-------	Sd	Pl	---	---	N	--------	Yield 30 gpm.
32J3	City of Plymouth	H. Crowle	11-41	803	Dr	127	16	S	----	-------	G	Pl	C	23	O	--------	Observation well Marshall 2; water level measured 22.09 ft below lsd, 12-27-56; see log well 32J4; E, G.
32J4	----do----------	Layne-Northern Co., Inc.	3-19-53	803	Dr	201	6	----------	----	-------	G,Sd	Pl	C	26	T	--------	L.
32Q1	Plymouth Canning Co., Inc.	Indiana-Michigan Water Development Co.	5- 7-43	802	Dr	133	8	S; 21ft, 50sl, dia 7½	78	55	Sd,G	Pl	C	18	I	T	Dd 8 ft pumping 150 gpm; L.
33B1	F. Post	Kennedy's Well Service	4-12-60	801	J	43	2	S; 3ft, 16sl, dia 1¼	39	4	G	Pl	C	18	D	P	Yield 20 gpm; Ca, L.
33B2	D. Wainscot	Buffington and Payne	4-27-60	801	J	45	2	S; 3ft, 60g, dia 1¼	36	9	Sd	Pl	C	22	D	--------	Yield 12 gpm; coarse sand overlain by 36 ft yellow sandy clay; Ca.
33H1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	6-26-56	778	B	25	4½	----------	18	7	Sd	Pl	U	18	T	--------	L.
33K1	----do----------	----do----------	6-26-56	777	B	25	4½	----------	16	9	Sd	Pl	C	11	T	--------	L.
33L1	----do----------	----do----------	6-25-56	780	B	25	4½	----------	12	13	Sd	Pl	C	10	T	--------	L
33L2	----do----------	----do----------	6-26-56	783	B	25	4½	----------	8	8	Sd	Pl	U	8	T	--------	L.
33N1	----do----------	----do----------	6-25-56	778	B	25	4½	----------	12	13	Sd,G	Pl	U	12	T	--------	See log well 33H1.
34A1	----do----------	----do----------	6-26-56	782	B	25	4½	----------	----	-------	Sd	Pl	U	7	T	--------	L.
34A2	----do----------	----do----------	6-27-56	787	B	25	4½	----------	----	-------	Sd	Pl	---	---	T	--------	L.
34F1	----do----------	----do----------	6-26-56	778	B	25	4½	----------	11	14	Sd	Pl	U	11	T	--------	L.
34G1	----do----------	----do----------	6-26-56	780	B	25	4½	----------	6	9	Sd	Pl	U	6	T	--------	L.
34M1	----do----------	----do----------	6-26-56	792	B	25	4½	----------	17	8	Sd	Pl	U	17	T	--------	L
34M2	----do----------	----do----------	6-26-56	792	B	25	4½	----------	11	14	Sd	Pl	U	11	T	--------	See log well 34M1.
35C1	R. Snyder	E. W. Schroeder	4- 5-56	817	J	51	2	S; 3ft, 60g, dia 1¼	41	10	G	Pl	C	18	D	--------	Pea-sized gravel overlain by 41 ft clay.
35G1	J. Davenport	----do----------	8-10-57	817	J	54	2	S; 3ft, 60g, dia 1¼	49	5	G	Pl	C	18	D	J1/2	Yield 10 gpm; Ca, L.
35G2	R. Davenport	----do----------	7-30-59	810	J	64	2	----do----------	60	4	G	Pl	C	18	D	--------	Do.
36A1	H. Dawalt	W. E. Adams	8-21-51	797	Dr	802	8-6½	----------	----	-------	-------	---	---	---	---	--------	Oil test; bedrock at 180 ft; L.
36D1	F. Jacoby	----do----------	4-25-50	805	Dr	1,420	8-5	----------	----	-------	-------	---	---	---	---	--------	Oil test; bedrock at 200 ft; L.
34/3- 2A1	J. Hershberger	E. J. Burkholder	9-15	837	J	38	2	S; 4ft, 60g, dia 1	34	4	Sd	Pl	---	---	S	--------	Yield 15 gpm; sand overlain by 34 ft yellow clay; Ca.
3E1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7- 2-56	802	B	30	4½	----------	19	11	Sd	Pl	C	11	T	--------	L.
3N1	----do----------	----do----------	7- 2-56	797	B	30	4½	----------	----	-------	-------	---	---	---	T	--------	L.
6F1	J. Youny	C. Rouch	10-57	807	J	37	2	S; 3ft, 60g	34	3	Sd	Pl	C	5	D	J1/2	Yield 20 gpm; sand overlain by 34 ft blue clay.
6K1	D. Manis	Sriver Drilling Co.	10- 1-45	809	J	74	2	S; 3ft, 80g, dia 1¼	50	24	Sd	Pl	C	0	D	--------	Fine sand overlain by 50 ft clay.
6K2	C. Manis	----do----------	10- 6-45	812	J	75	2	----do----------	63	12	Sd	Pl	C	1	D	--------	Sand overlain by 63 ft clay.
6L1	A. C. Fults	----do----------	7-11-52	807	J	70	2	S; 4ft, 80g, dia 1	62	8	Sd	Pl	C	---	D	L	Red sand overlain by blue clay.
6L2	L. Keck	C. Rouch	8-28-57	807	J	45	2	S; 4ft, 60g	38	7	Sd	Pl	C	6	D	--------	Yield 20 gpm; sand overlain by 38 ft blue clay.
6Q1	L. Widener	Kennedy's Well Service	7-14-56	808	J	46	2	S; 4ft, 60g, dia 1¼	42	4	Sd	Pl	C	7	D	--------	Yield 15 gpm; L.
6Q2	J. Marshall	----do----------	--------	809	J	70	2	----do----------	58	12	Sd	Pl	C	8	D	L	Yield 13 gpm; L.
6Q3	L. Koontz	Sriver Drilling Co.	1- 6-51	807	J	45	2	S; 3ft, 60g, dia 1¼	41	4	Sd	Pl	C	6	D	--------	Sand overlain by 41 ft clay.
6Q4	Bob's Print Shop	Mr. Smith	1940	810	J	45	2	S	----	-------	Sd	Pl	---	---	D	L	Ca.
6Q5	E. Kish	Sriver Drilling Co.	8- 8-57	807	J	45	2	S; 3½ft, 60g, dia 1¼	40	5	Sd	Pl	C	8	D	--------	Sand overlain by 40 ft blue clay; silt at 45 ft; Ca.
7B1	R. Bauer	Kennedy's Well Service	7-12-56	812	J	44	2	S; 4ft, 80g, dia 1¼	36	8	Sd	Pl	C	14	D	--------	Yield 13 gpm; fine to coarse sand overlain by 36 ft yellow clay and gravel.

34/3- 7B2	W. Buchtel	Sriver Drilling Co.	8-13-51	807	J	56	2	S; 3½ft, 60g, dia 1½	50	6	Sd,G	Pl	C	---	D	--------	Sand and gravel overlain by 50 ft blue clay.
7B3	Mr. Ukele	----do----------	6-50	807	J	40	2	S; 3ft, 60g, dia 1½	35	5	Sd	Pl	C	---	D	--------	L.
7B4	H. Bronsing	----do----------	8-50	812	J	46	2	----do----------	40	6	Sd	Pl	C	---	D	--------	Sand overlain by 40 ft clay.
7B5	H. Felton	C. Rouch	8-27-57	807	J	44	2	S; 3ft, 10sl, dia 1½	38	6	Sd	Pl	C	5	D	--------	Yield 20 gpm; sand overlain by 38 ft clay.
7G1	K. Tucker	Kennedy's Well Service	9-10-56	807	J	49	2	S; 4ft, 80g, dia 1¼	40	9	G,Sd	Pl	C	12	D	--------	Yield 15 gpm; L.
9A1	C. Smith	Buffington and Payne	4-28-60	801	J	64	2	S; 3ft, 60g, dia 1¼	61	3	Sd	Pl	C	6	D	--------	Yield 15 gpm; medium sand overlain by 61 ft blue clay.
9J1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7- 2-56	792	B	30	4½	----------	25	5	Sd,G	Pl	C	17	T	--------	L.
9Q1	----do----------	----do----------	7- 2-56	792	B	30	4½	----------	8	8	Sd	Pl	U	8	T	--------	L.
10C1	Bremen Clay Products Co.	Indiana-Michigan Water Development Co.	4-29-30	800	Dr	75	6	S; 5ft, 40sl, dia 5½	60	15	Sd,G	Pl	U	---	I	--------	Flowed 40 gpm, 4-29-30; discharge measured 5 gpm, 6-13-57; Ca, L.
10C2	----do----------	----------	--------	---	Dr	-----	6	----------	----	------	Sd,G	Pl	C	---	---	--------	Flows; measured 16 gpm, 6-13-57; water level measured 2.4 ft above lsd, 6-13-57.
10D1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7- 2-56	797	B	30	4½	----------	----	------	Sd	Pl	----	6	T	--------	L.
10E1	----do----------	----do----------	7- 2-56	796	B	30	4½	----------	----	------	------	---	----	---	T	--------	L.
10P1	B. Young	E. J. Burkholder	8-13-59	810	J	25	2	S; 4ft, 60g, dia 1	20	5	Sd	Pl	C	15	D	--------	Yield 12 gpm; Ca.
11A1	E. Vernon	Kennedy's Well Service	8- 6-57	807	J	38	2	S; 3½ft, 60g, dia 1½	32	6	G,Sd	Pl	C	3	D	--------	Yield 13 gpm; Ca, L.
14P1	H. Hostetler	----do----------	9-29-56	807	J	58	2	----do----------	----	------	G	Pl	C	16	D	--------	Yield 15 gpm; gravel overlain by hard blue clay mixed with gravel; Ca.
15D1	J. C. Lauderman	E. J. Burkholder	7- 5-57	802	J	86	2	S; 60g	----	------	Sd,G	Pl	C	---	D,S	J	Sand and gravel overlain by yellow and blue clay.
16B1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7- 2-56	793	B	30	4½	----------	18	8	Sd	Pl	C	8	T	--------	L.
16G1	----do----------	----do----------	6-30-56	792	B	30	4½	----------	14	13	Sd	Pl	C	5	T	--------	L.
16J1	----do----------	----do----------	6-30-56	797	B	30	4½	----------	----	------	------	---	----	---	T	--------	L.
16R1	----do----------	----do----------	6-30-56	792	B	30	4½	----------	8	22	Sd	Pl	U	8	T	--------	L.
18N1	P. Berger	R. Price	12-55	827	J	84	2	S; 3ft, 60g	75	9	Sd,G	Pl	C	25	D	J1/3	Coarse sand and gravel overlain by 75 ft blue clay.
21A1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	6-30-56	798	B	30	4½	----------	22	8	Sd	Pl	C	18	T	--------	L.
21H1	----do----------	----do----------	6-30-56	792	B	31	4½	----------	7	6	Sd	Pl	U	7	T	--------	L.
21P1	----do----------	----do----------	6-29-56	787	B	25	4½	----------	7	15	Sd	Pl	U	7	T	--------	L.
28C1	----do----------	----do----------	6-29-56	790	B	30	4½	----------	12	16	Sd	Pl	U	12	T	--------	L.
28E1	----do----------	----do----------	6-29-56	792	B	25	4½	----------	4	19	Sd	Pl	U	4	T	--------	See log well 28C1.
29M1	----do----------	----do----------	6-29-56	790	B	25	4½	----------	10	15	Sd	Pl	U	10	T	--------	L.
29P1	----do----------	----do----------	6-29-56	782	B	25	4½	----------	4	21	Sd	Pl	U	4	T	--------	See log well 29M1.
29Q1	----do----------	----do----------	6-29-56	785	B	25	4½	----------	5	20	Sd	Pl	U	5	T	--------	Do.
30E1	D. McAfee	J. Payne	7-13-59	802	J	45	2	S	33	12	G	Pl	C	---	D	--------	Medium gravel overlain by 33 ft yellow clay.
30L1	L. Kreigbaum	----do----------	9- 3-59	807	J	45	2	S	35	10	Sd	Pl	C	22	D	--------	Yield 17 gpm; fine sand overlain by 35 ft yellow clay and stone.
30P1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	6-28-56	793	B	25	4½	----------	15	10	Sd	Pl	U	15	T	--------	L.
30R2	----do----------	----do----------	6-28-56	793	B	25	4½	----------	14	11	Sd,G	Pl	U	14	T	--------	Brown loose fine to medium sand with some silt and fine gravel from 0-25 ft.
30Q1	----do----------	----do----------	6-28-56	787	B	14	4½	----------	----	------	------	---	----	---	T	--------	L.
31D1	----do----------	----do----------	6-28-56	797	B	25	4½	----------	21	4	Sd,G	Pl	U	21	T	--------	L.
34J1	G. Stine	Layne-Northern Co., Inc.	4-29-49	793	Dr	80	8	S	60	20	Sd	Pl	C	+6	Ir	T50	Flows; discharge measured 8 gpm, 6-13-57; Ca, L.
34/4- 5C1	D. Hochstetler	E. J. Burkholder	11- 3-56	822	Dm	24	1½	S	----	------	Sd	Pl	----	---	S	P	Ca.
5C2	----do----------	Sriver Drilling Co.	--------	822	J	75	2	S; 3½ft, 10sl, dia 1½	66	9	Sd	Pl	C	28	---	--------	Dark sand overlain by 66 ft blue clay.
16J1	E. Burgener	E. J. Burkholder	5-13-57	822	J	66	2	S; 60g	----	------	Sd,G	Pl	----	18	D,S	L	
17R1	L. Young	M. C. Hahn	9-16-60	812	J	81	2	S; 3ft, 60g, dia 1	----	------	G	Pl	----	8	D	J1/3	Yield 15 gpm; gravel overlain by clay; Ca.
21D1	W. Stutzman	E. J. Burkholder	4-12-60	813	J	29	2	S; 4ft, 60g, dia 1	24	5	Sd	Pl	C	18	D	--------	Yield 12 gpm; Ca.
30N1	Fairview Church	----do----------	8-11-59	807	J	54	2	----do----------	50	4	Sd	Pl	C	13	P	--------	Yield 15 gpm; sand overlain by 50 ft yellow and gray clay with stones.
32C1	H. Hepler	Kennedy's Well Service	8-30-57	820	J	79	2	S; 3ft, 10sl, dia 1½	----	------	Sd,G	Pl	----	20	N	--------	Yield 13 gpm.

Table 3.--Records of wells and test holes in Marshall County, Indiana--Continued

Well	Owner	Driller	Date completed	Altitude (feet)	Type of well	Depth of well below land-surface (feet)	Diameter of well (inches)	Finish	Water-bearing zone: Depth to top (feet)	Water-bearing zone: Thickness (feet)	Water-bearing zone: Character	Water-bearing zone: Geologic age	Water-bearing zone: Conditions of occurrence	Water level (feet)	Use	Type of pump and horsepower	Remarks
35/1-22B1	C. Roose	J. Payne	Fall 1949	755	J	57	2	S; 3ft, 60g, dia 1¼	52	5	Sd,G	Pl	C	---	S	--------	Flowed; sand and gravel overlain by 52 ft blue clay; Ca.
23C1	J. Foster	Mr. Smith	1942	772	J	105	2	Oe	98	7	Sd,G	Pl	C	---	S	--------	Flows; discharge measured 2 gpm, 6-11-57; water level measured 3.3 ft above lsd, 6-11-57; coarse sand and gravel overlain by 98 ft blue clay; Ca.
23G1	H. Mullins	E. Brooker	8-24-55	767	J	50	2	Oe	----	--------	G	Pl	C	---	D	--------	Flows; discharge measured 5 gpm, 6-11-57; pumps 20 gpm; medium gravel overlain by 50 ft blue clay; Ca.
22L1	J. A. Gernert	----------	--------	772	Dm	------	1½	----------	----	--------	Sd,G	Pl	C	---	S	--------	Flows; discharge measured 2 gpm, 6-11-57; water level measured 5 ft above lsd, 6-11-57; Ca.
23P1	Certified Milk Co.	Moore Bros.	1931	780	Dr	127	6	S; 13ft	117	10	G	Pl	C	---	N	T10	Flows.
23P2	J. Keck	E. Brooker	12-21-56	787	J	58	2	S; 3½ft, 60g, dia 1¼	45	13	Sd,G	Pl	C	14	D	--------	Yield 13 gpm; Ca, L.
25N1	F. Patterson	J. Payne	1945	812	J	52	2	S; 3ft, 60g, dia 1¼	48	4	Sd,G	Pl	C	23	D	J1/2	Yield 17 gpm; sand and gravel overlain by 48 ft yellow clay; Ca.
25P1	C. Bewley	E. Brooker	5-11-57	833	J	89	2	S; 3½ft, 60g, dia 1¼	86	3	G	Pl	C	45	D	J1	Gravel overlain by 86 ft yellow clay; Ca.
27N1	V. Rust	----do----------	9- 9-60	763	J	112	2	S; 4ft, 60g, dia 1¼	97	15	Sd,G	Pl	C	17	D	--------	Ca, L.
31H1	W. C. Lowry	----do----------	4-57	725	J	77	2	S; 3½ft, 60g, dia 1¼	55	22	Sd,G	Pl	C	---	D	J1/2	Yield 17 gpm; Ca, L.
31R1	J. Kaizer	----------	6-29-50	720	Dr	270	---	----------	----	--------	-----	---	---	---	---	--------	Oil test; bedrock at 125 ft; water-bearing limestone from 255-270 ft; L.
32N1	D. and M. Lowry	A. A. Giesen	6-12-50	723	Dr	705	8	----------	----	--------	-----	---	---	---	---	--------	Oil test; bedrock at 140 ft; L.
33E1	G. Stull	E. W. Schroeder	7-12-57	755	J	41	2	S; 3ft, 60g, dia 1¼	30	11	G	Pl	C	25	D	--------	Yield 10 gpm; pea-sized gravel overlain by 30 ft yellow clay and top soil; Ca.
33L1	M. Mawer	E. Brooker	5- 2-55	756	J	39	2	S; 3½ft, 60g, dia 1¼	35	4	G,Sd	Pl	C	18	S	L	Yield 12 gpm; fine gravel and coarse sand overlain by 35 ft yellow gravelly clay.
33N1	N. Stull	----do----------	3-57	748	J	43	2	----do----------	37	6	Sd,G	Pl	C	30	D	L	Sand and gravel overlain by 37 ft clay.
34R1	J. Fulton	J. Payne	Spring 1954	742	J	42	2	Oe	----	--------	G	Pl	C	---	D,S	--------	Flows; discharge measured 5 gpm, 6-11-57; has number of springs on property; Ca.
35G1	L. C. Hummel	E. W. Schroeder	8- 8-56	772	J	27	2	S; 3ft, 60g, dia 1¼	22	5	G	Pl	C	5	D	--------	Yield 9 gpm; pea-sized gravel overlain by 22 ft yellow clay mixed with gravel.
36B1	P. A. Betz	Sriver Drilling Co.	12-11-56	837	J	84	2½	S; 5ft, 60g, dia 1½	70	14	Sd	Pl	C	22	D,S	--------	Ca, L.
36Q1	M. Jones	E. W. Schroeder	1-18-60	825	J	87	2	S; 3½ft, 60g, dia 1½	70	17	G	Pl	C	---	D,S	--------	Yield 10 gpm; Ca, L.
35/2-24J1	R. Wynn	Sriver Drilling Co.	10-30-48	835	J	58	2	S; 3ft, 60g, dia 1¼	52	6	Sd,G	Pl	C	28	D	J1/2	Sand and gravel overlain by 52 ft clay mixed with gravel; Ca.
24J2	----do----------	----do----------	12-11-54	835	J	58	2	S; 3½ft, 60g, dia 1¼	51	7	Sd	Pl	C	19	D	J1/4	Dark sand overlain by 51 ft blue clay; Ca.
26Q1	C. Crum	C. Rouch	10-20-59	832	J	60	2	S; 4ft, 60g, dia 1¼	45	15	Sd	Pl	C	13	D	--------	Yield 20 gpm; sand overlain by 45 ft clay; Ca.
27F1	Baltimore and Ohio Railroad	Layne-Northern Co., Inc.	9-15-27	846	Dr	156	26-12	Gp; S; 25ft, 80sl, dia 12	134	22	Sd,G	Pl	C	38	R	T15	Dd 12 ft pumping 475 gpm; Ca, L.
27G1	----do----------	----do----------	9- 9-29	846	Dr	202	---	----------	----	--------	-----	---	---	---	T	--------	Bedrock at 197 ft; L.
27N1	R. Ervin	C. Rouch	10-10-59	849	J	140	2	S; 4ft, 60g, dia 1¼	----	--------	Sd	Pl	---	40	D	--------	Yield 15 gpm; Ca.
27P1	C. Garner	E. W. Schroeder	5-22-56	847	J	160	2	S; 3ft, dia 1¼	150	10	G	Pl	C	30	P	--------	Yield 10 gpm; Ca, L.
28D1	J. Vice	----do----------	6-10-56	854	J	42	2	S; 3ft, 60g, dia 1¼	35	7	G	Pl	C	7	D	--------	Yield 8 gpm; Ca, L.
28D2	----do----------	----do----------	6-30-56	857	J	-----	2	----do----------	----	--------	Sd,G	Pl	C	18	D	P	Yield 4 gpm; well originally drilled to 37 ft but later deepened; depth unknown; medium sand & gravel overlain by 30 ft yellow clay; Ca.

35/2-28D3	W. Barrett	Sriver Drilling Co.	9-18-46	868	J	45	2	S; 3ft, 60g, dia 1½	-----	-------	Sd	Pl	----	20	N	-------	
28E1	Lapaz State Bank	----do----------	3-24-53	867	Dr	97	4	S; 6ft, 10sl	89	8	Sd	Pl	C	68	P	-------	L.
28E2	G. Martin	----do----------	6- 5-51	863	J	83	2	S; 3½ft, 60g, dia 1	75	8	Sd,G	Pl	C	53	D	-------	L.
28E3	G. Annis	E. W. Schroeder	8-30-56	867	J	42	2	S; 3ft, 60g, dia 1¼	38	4	G,Sd	Pl	C	16	P	-------	Yield 8 gpm; Ca, L.
28E4	E. H. Linn	----do----------	7-17-56	867	J	48	3	S; 4½ft, dia 2	38	10	Sd	Pl	C	28	---	-------	Yield 3 gpm; fine sand overlain by 38 ft yellow and blue clay.
28F1	D. Green	----do----------	9- 5-57	857	J	------	2	S; 3ft, 10sl, dia 1½	-----	-------	G	Pl	C	35	D	J1/2	Yield 15 gpm; well deepened; depth unknown; L.
28F2	Baltimore and Ohio Railroad	Sriver Drilling Co.	3-11-47	855	J	56	2	S; 3ft, 60g, dia 1¼	-----	-------	Sd,G	Pl	C	4	N	J1/2	
28F3	E. Clifton	E. W. Schroeder	9-21-56	857	J	105	2	----do----------	90	15	G	Pl	C	58	D	J1/2	Yield 10 gpm; Ca, L.
28F4	H. Wackerle	----do----------	1- 8-60	850	J	110	2	S; 3½ft, 12sl, dia 1½	90	20	G	Pl	C	50	D	-------	Yield 10 gpm; L.
28M1	R. Alberts	----do----------	9- 4-59	862	J	108	2	S; 3½ft, 25sl, dia 1½	95	13	Sd,G	Pl	C	50	D	-------	Yield 10 gpm; see log well 28F4.
28N1	Rogers Restaurant	----------	11- 5-41	862	Dr	120	---	----------	-----	-------	Sd,G	Pl	C	----	N	-------	
28N2	Standard Oil Co.	----------	---------	860	J	127	2	S; 8ft, 60g, dia 1¼	-----	-------	Sd	Pl	-----	92	P	J1	
28P1	J. Dorweiler	Sriver Drilling Co.	8-16-55	857	J	59	2	S; 3½ft, 60g, dia 1¼	45	14	Sd	Pl	C	14	D	-------	L.
28P2	H. Hall	E. W. Schroeder	9- 1-59	853	J	34	2	----do----------	28	6	G	Pl	C	20	D	-------	Yield 10 gpm; Ca, L.
29A1	Mr. Denniss	J. Hughes	6-56	868	J	48	2	S; 3ft, 60g, dia 1	30	18	G	Pl	C	30	D	J1/3	Yield 8 gpm; gravel overlain by 30 ft yellow and blue clay; gravel underlain by 12 ft blue gravelly clay.
29A2	R. Snyder	E. W. Schroeder	7- 7-57	862	J	126	2	S; 3ft, 60g, dia 1¼	115	11	G	Pl	C	55	D	-------	Yield 10 gpm; Ca, L.
29A3	----do----------	----do----------	6-22-56	867	J	55	2	----do----------	50	5	G	Pl	C	----	D	-------	Yield 8 gpm; L.
29H1	A. Wingett	----do----------	6-11-56	865	J	42	2	----do----------	38	4	G	Pl	C	----	D	L	Yield 8 gpm; see log well 29A3.
29H2	A. Kaser	----do----------	7-10-59	852	J	99	2	----do----------	90	9	G	Pl	C	----	D	-------	Yield 10 gpm; L.
29J1	T. Boyer	Sriver Drilling Co.	5-28-47	867	J	48	2	----do----------	-----	-------	G	Pl	-----	23	D	-------	Ca.
29L1	Pertic Blueberry Plantation	Layne-Northern Co., Inc.	4-56	848	Dr	133	6	S	94	47	Sd	Pl	C	----	O	-------	Observation well Marshall 4; water level measured 44.73 ft below lsd, 8-13-57; E, G, L.
29L2	----do----------	----do----------	5- 1-56	843	Dr	142	30-12	Gp; S; 30ft, 55sl, dia 12	69	71	Sd,G	Pl	C	48	Ir	T116	Dd 41 ft after 2 hr pumping 1,000 gpm; L.
29R1	F. Albert	E. W. Schroeder	5-19-57	862	J	108	2	S; 3ft, 60g, dia 1¼	-----	-------	G	Pl	C	50	P	-------	Yield 10 gpm; Ca, L.
29R2	----do----------	----do----------	5-19-57	862	J	108	2	----do----------	-----	-------	G	Pl	C	50	P	-------	Yield 10 gpm; see log well 29R1; Ca.
30M1	R. Halt	C. Rouch	5-20-60	837	J	87	2	S; 6ft, 60g, dia 1¼	50	37	Sd,G	Pl	U	50	D	-------	Yield 20 gpm; sand and gravel overlain by 30 ft clay; Ca.
30Q1	D. Creod	E. W. Schroeder	9-16-59	846	J	87	2	S; 3ft, 60g, dia 1¼	78	9	G	Pl	C	50	D	-------	Yield 10 gpm; Ca, L.
32A1	S. C. McCartney	----do----------	8-27-56	857	J	108	2	----do----------	99	9	G	Pl	C	48	D	-------	Yield 10 gpm; see log well 32A2.
32A2	F. Armstrong	----do----------	2- 4-56	860	J	100	2	----do----------	90	10	G	Pl	C	40	D	L	Ca, L.
32B1	E. Muffley	----do----------	5-28-56	863	J	110	2	S; 3ft, dia 1¼	100	10	G	Pl	C	70	D	-------	Yield 8 gpm; see log well 32A2; Ca.
32H1	R. Jackson	Sriver Drilling Co.	9-29-54	854	J	54	2	S; 3½ft, 60g, dia 1¼	-----	-------	Sd,G	Pl	C	15	D	-------	Ca, L.
32M1	L. Platz	----do----------	7-50	867	J	106	2	S; 4ft, 60g, dia 1	84	22	Sd,G	Pl	C	65	D	-------	L.
33B1	H. Hill	E. W. Schroeder	8-31-57	852	J	50	2	S; 3ft, 60g, dia 1¼	45	5	Sd	Pl	C	28	D	-------	Yield 8 gpm; L.
33B2	M. Albert	----do----------	3-25-56	852	J	165	2	S; 3ft, dia 1¼	160	5	G	Pl	C	60	D	J1/2	Pea-sized gravel overlain by 160 ft clay mixed with gravel.
33B3	G. C. Gold	----do----------	1-56	857	J	54	2	----do----------	50	4	G	Pl	C	20	D	L	Ca, L.
33D1	K. Emmons	----do----------	7-26-56	864	J	108	2	S; 3ft, 60g, dia 1¼	99	9	G	Pl	C	50	P	J1/2	Yield 10 gpm; see log well 33D3.
33D2	Sun Oil Co.	----do----------	6-29-56	862	J	108	2	----do----------	99	9	G	Pl	C	50	P	-------	Yield 7 gpm; see log well 33D3.
33D3	----do----------	----do----------	8-18-56	862	J	116	4	S; 7ft, dia 2	99	17	G	Pl	C	50	P	-------	Yield 40 gpm; Ca, L.
33D4	L. Dorweiler	Sriver Drilling Co.	8-18-55	857	J	114	3	S; 5ft, 60g, dia 2	100	14	Sd,G	Pl	C	22	N	-------	L.
36B1	C. Cline	----do----------	2-15-55	820	J	51	2	S; 3ft, 60g, dia 1¼	46	5	Sd	Pl	C	11	D	J1/3	Yellow sand overlain by 46 ft gray and brown clay.
35/3-19P1	V. Zillmer	E. J. Burkholder	--------	821	J	111	2	S; 4ft, 80g, dia 1	101	10	Sd	Pl	C	35	D,S	-------	Yield 10 gpm; sand overlain by 101 ft gray and blue clay; Ca.
21E1	R. Walker	Kennedy's Well Service	--------	820	J	142	2	S; 4½ft, 60g, dia 1¼	132	10	Sd,G	Pl	C	16	D	-------	Yield 15 gpm; tight sand and gravel overlain by 132 ft blue clay with some fine sand.
23D1	L. Hummel	E. J. Burkholder	6-12-57	827	J	51	2	S; 60g	-----	-------	Sd,G	Pl	-----	----	D,S	J1/2	Sand and gravel overlain by about 48 ft clay mixed with gravel; Ca.
25E1	D. Schine	Sriver Drilling Co.	10- 1-52	822	J	75	2	S; 4½ft, 80g, dia 1	-----	-------	Sd	Pl	-----	----	---	J3/4	Ca.
25J1	D. Soales	Kennedy's Well Service	8-11-56	827	J	61	2	S; 3½ft, 60g, dia 1¼	54	7	Sd	Pl	C	18	D	-------	Yield 15 gpm; gray coarse sand overlain by 54 ft blue clay mixed with little gravel.
25J2	Mr. Heckman	E. J. Burkholder	8-20-60	824	J	67	2	S; 4ft, 60g, dia 1¼	61	6	Sd	Pl	C	15	D	-------	Yield 15 gpm; sand overlain by 61 ft yellow and blue clay.
26N1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7- 5-56	803	B	30	4½	----------	10	20	Sd	Pl	-----	10	T	-------	L.
26P1	----do----------	----do----------	7- 5-56	812	B	30	4½	----------	15	15	Sd	Pl	U	15	T	-------	
26Q1	Town of Bremen	----------	1925	820	Dr	300	----	----------	-----	-------	Sd,G	Pl	-----	----	N	-------	Bedrock at 146 ft; L.

Table 3.--Records of wells and test holes in Marshall County, Indiana--Continued

Well	Owner	Driller	Date completed	Altitude (feet)	Type of well	Depth of well below land-surface (feet)	Diameter of well (inches)	Finish	Water-bearing zone					Water level (feet)	Use	Type of pump and horsepower	Remarks
									Depth to top (feet)	Thickness (feet)	Character	Geologic age	Conditions of occurrence				
35/3-26R1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7- 5-56	802	B	30	4½	----------	11	19	Sd	Pl	U	11	T	---------	L.
27K1	----do----------	----do----------	7- 5-56	800	B	30	4½	----------	18	12	Sd	Pl	C	7	T	---------	L.
27L1	----do----------	----do----------	7- 3-56	798	B	30	4½	----------	7	23	Sd,G	Pl	------	7	T	---------	L.
27M1	----do----------	----do----------	7- 3-56	802	B	30	4½	----------	9	21	Sd	Pl	U	9	T	---------	See log well 27L1.
27Q1	Town of Bremen	Indiana-Michigan Water Development Co.	11- 9-52	818	Dr	157	12	S; 10ft, 100sl, dia 11½	136	21	G	Pl	C	18	P	T40	Dd 17 ft pumping 1,200 gpm; L.
27Q2	----do----------	----do----------	4-18-60	818	Dr	175	6	----------	------	18	Sd,G	Pl	------	----	T	---------	Dd 5 ft pumping 300 gpm; L.
27Q3	----do----------	----do----------	5-12-60	815	Dr	155	6	----------	120	--------	G	Pl	C	----	T	---------	Do.
27R1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7- 5-56	802	B	30	4½	----------	10	9	Sd	Pl	C	9	T	---------	L.
29H1	J. and E. Goreel	C. A. Perry	--------	817	Dr	435	8	----------	------	--------	G	Pl	------	----	---	---------	Oil test; bedrock at 140 ft; L.
30N1	G. Clindaniel	M. C. Hahn	7- 2-60	814	J	45	3	S; 4½ft, 10sl, dia 2	38	7	Sd	Pl	C	8	---	---------	Yield 30 gpm; for mint still; sand overlain by 38 ft muck and clay.
31A1	G. Stichter	C. A. Perry	5-16-51	811	Dr	366	8-5¼	----------	------	--------	Sd,G	Pl	------	----	---	---------	Oil test; bedrock at 163 ft; L.
33C1	D. Stump	Kennedy's Well Service	7-10-56	804	J	53	2	S; 3½ft, 60g, dia 1¼	48	5	G,Sd	Pl	C	8	D	---------	Yield 15 gpm; L.
33D1	F. Krouse	C. Rouch	3-24-60	826	J	56	2	S; 4ft, 60g, dia 1¼	50	6	Sd	Pl	C	30	D,S	---------	Yield 15 gpm; sand overlain by 50 ft clay.
33H1	T. Walters	Sriver Drilling Co.	1- 6-54	806	J	87	2	S; 3ft, 60g, dia 1¼	75	12	Sd	Pl	C	12	D	---------	Ca, L.
34B1	Town of Bremen	Indiana-Michigan Water Development Co.	4-20-59	818	Dr	153	12	S; 15ft, 100sl	124	29	Sd,G	Pl	C	18	P	---------	Dd 62 ft after 4 hr pumping 800 gpm; L.
34E1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7- 3-56	800	B	30	4½	----------	17	13	Sd	Pl	U	17	T	---------	L.
34M1	----do----------	----do----------	7- 3-56	802	B	30	4½	----------	11	19	Sd	Pl	U	11	T	---------	L.
34N1	----do----------	----do----------	7- 3-56	798	B	30	4½	----------	16	3	Sd	Pl	C	12	T	---------	L.
35B1	Town of Bremen	Indiana-Michigan Water Development Co.	6-11-48	827	Dr	113	12	S; 10ft, dia 11½	104	9	Sd,G	Pl	C	34	N	T40	Dd 31 ft after 2.5 hr pumping 560 gpm; screen, upper 2 ft 40 sl, middle 3 ft, 80sl, lower 5 ft 40 sl; L.
35B2	----do----------	----do----------	7- 8-49	827	Dr	110	12	S; 12ft, 80sl, dia 11½	94	16	G,Sd	Pl	C	26	N	T40	Dd 21 ft after 2.5 hr pumping 525 gpm; L.
35Q1	D. Kiefer	C. Rouch	9-28-59	835	J	37	2	S; 4ft, 60g, dia 1¼	18	19	Sd	Pl	C	17	D	---------	Yield 20 gpm; sand overlain by 18 ft clay; Ca.
36C1	J. Huff	E. J. Burkholder	10-31-59	842	J	80	2	S; 4ft, 60g, dia 1	74	6	Sd	Pl	C	----	S	---------	L.
36D1	Indiana Flood Control & Water Resources Comm.	Corps of Engineers	7- 5-56	809	B	30	4½	----------	8	22	Sd	Pl	U	8	T	---------	See log well 36E1.
36E1	----do----------	----do----------	7- 6-56	805	B	30	4½	----------	9	21	Sd	Pl	U	9	T	---------	L.
35/4-20H1	D. Hochstetler	E. J. Burkholder	6-15-56	843	J	76	2	S; 60g	------	--------	Sd,G	Pl	------	----	D,S	L	
21G1	A. Whetstone	----do----------	7-26-56	852	J	93	2	----do----------	------	--------	Sd,G	Pl	------	-----	D,S	J	Ca.
28M1	R. Hochstetler	----do----------	9-15-56	868	J	22	2	S	------	--------	Sd,G	Pl	------	----	N	---------	
29H1	E. Burkholder	----do----------	9- 9-56	872	J	97	2	S; 60g	------	--------	G	Pl	------	----	D	J	Ca.
32L1	L. Hershberger	----do----------	6-25-60	847	J	95	2	S; 4ft, 80g, dia 1	88	7	Sd	Pl	C	15	D	---------	Yield 15 gpm; sand overlain by 88 ft clay.
33D1	E. J. Burkholder	----do----------	--------	859	J	90	2	S; 60g	------	--------	Sd	Pl	------	----	D,S	L	
33D2	R. Schaucker	----do----------	5-10-56	853	J	74	2	S; 10sl	------	--------	Sd	Pl	------	----	P	J1	
33E1	H. Yoder	----do----------	8-29-60	844	J	21	2	S; 4ft, 80g, dia 1	------	--------	Sd	Pl	------	----	P	---------	Yield 12 gpm.

Table 4.--Selected logs of wells and test holes in Marshall County, Indiana

Well 32/1- 2M1

Type of record: Driller's log. Altitude: 770 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue	60	60	
Sand	10	70	
Clay, blue	30	100	
Sand	10	110	
Gravel	6	116	

Well 32/1- 4B1

Type of record: Driller's log. Altitude: 775 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil and yellow clay	10	10	
Gravel, yellow	20	30	
Gravel, pea-sized	18	48	

Well 32/1- 4B2

Type of record: Driller's log. Altitude: 775 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay and sand	18	18	
Gravel and sand; with streaks of clay	35	53	
Sand and gravel; clean	4	57	

Well 32/1- 6C1

Type of record: Driller's log. Altitude: 759 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, red, and clay	15	15	
Sand, coarse, white	10	25	
Sand, very fine	7	32	
Sand and rocks	3	35	
Gravel	5	40	
Gravel and rocks	5	45	
Gravel, coarse, and boulders	25	70	
Sand, fine	10	80	
Sand, coarse, and boulders	10	90	

Well 32/1- 7N1

Type of record: Driller's log. Altitude: 747 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	21	21	
Gravel	34	55	
Clay, blue	15	70	
Gravel, coarse	17	87	

Table 4.--Slected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/1- 9C1

Type of record: Driller's log. Altitude: 788 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil and yellow clay---------	30	30	
Gravel----------	10	40	
Clay, blue, and gravel; mixed----	19	59	
Gravel, fine----------	16	75	

Well 32/1-10N1

Type of record: Driller's log. Altitude: 777 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and clay; mixed----------	25	25	
Gravel----------	7	32	
Clay, blue----------	58	90	
Gravel----------	6	96	

Well 32/1-10Q1

Type of record: Driller's log. Altitude: 813 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue----------	15	15	
Clay, blue, and fine sand; mixed-	76	91	
Gravel, coarse, gray, and sand---	5	96	

Well 32/1-12D1

Type of record: Driller's log. Altitude: 815 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue----------	40	40	
Sand and clay----------	5	45	
Clay, blue----------	25	70	
Sand and gravel----------	3	73	
Clay, blue----------	44	117	
Gravel, fine----------	5	122	

Well 32/1-15E6

Type of record: Driller's log. Altitude: 770 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Open pit----------	11	11	
Clay, sandy----------	10	21	
Sand and gravel----------	3	24	
Clay, gravelly----------	11	35	
Sand and gravel----------	10	45	

Table.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/1-15E6--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay	30	75	
Sand and gravel; with clay balls	5	80	
Sand and gravel	20	100	

Well 32/1-16J3

Type of record: Driller's log. Altitude: 750 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Fill	1	1	
Muck	2	3	
Marl	9	12	
Clay, sandy	3	15	
Sand and gravel; muddy	2	17	
Sand and gravel	3	20	
Clay, sandy	34	54	
Gravel with sand	20	74	
Clay, sandy, brown	3	77	

Well 32/1-16K1

Type of record: Driller's log. Altitude: 775 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, and clay; with boulders	18	18	
Clay, blue	12	30	
Sand and clay	5	35	
Gravel, clean, and sand	6	41	Blue clay at 41 feet.

Well 32/1-16K2

Type of record: Driller's log. Altitude: 748 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Fill; muck and clay	22	22	
Gravel, yellow	12	34	
Clay, blue, and gravel	11	45	
Sand and clay	13	58	
Clay, blue	16	74	
Sand and clay	5	79	
Gravel and sand; clean	5	84	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/1-17F1

Type of record: Driller's log. Altitude: 770 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand----------	11	11	
Clay, yellow----------	33	44	
Sand, coarse----------	5	49	

Well 32/1-17G1

Type of record: Driller's log. Altitude: 767 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow----------	10	10	
Clay, yellow----------	8	18	
Sand and gravel; muddy, gray-----	17	35	
Clay, blue, with some grit-------	45	80	
Sand becoming coarser and gravelly with depth----------	16	96	
Gravel, very coarse, very hard---	3	99	

Well 32/1-20R1

Type of record: Driller's log. Altitude: 747 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow----------	10	10	
Clay, blue----------	18	28	
Sand, yellow----------	8	36	
Sand and gravel----------	8	44	

Well 32/1-22H1

Type of record: Driller's log. Altitude: 770 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Soil and clay----------	6	6	
Sand----------	3	9	
Clay, blue----------	23	32	

Well 32/1-22H2

Type of record: Driller's log. Altitude: 760 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow----------	11	11	
Sand----------	25	36	
Clay, blue----------	62	98	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/1-22H3

Type of record: Driller's log from memory. Altitude: 750 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay	50	50	
Sand and gravel	8	58	
Clay	8	66	
Sand and gravel	2	68	

Well 32/1-22H7

Type of record: Driller's log. Altitude: 740 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, sandy, blue	41	41	
Gravel, coarse	8	49	
Clay, blue	32	81	
Sand, fine	12	93	
Clay, blue	12	105	
Sand, fine	13	118	
Sand, coarse	10	128	

Well 32/1-22J3

Type of record: Driller's log. Altitude: 753 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay and sand; yellow	40	40	
Sand, fine	14	54	
Clay, blue	24	78	
Gravel, dirty	24	102	
Clay and sand; blue	13	115	
Sand, coarse	5	120	

Well 32/1-22J4

Type of record: Driller's log. Altitude: 747 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	35	35	
Gravel, coarse	23	58	
Clay, blue	14	72	
Gravel, coarse	8	80	
Clay, yellow, and stone	23	103	
Sand and clay; blue	5	108	
Sand, coarse	6	114	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/1-22R2

Type of record: Driller's log. Altitude: 755 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	38	38	
Gravel, coarse, dirty	11	49	
Clay, blue	27	76	
Sand, fine	11	87	
Sand and gravel; dirty	31	118	
Gravel, medium	7	125	

Well 32/1-23D1

Type of record: Driller's log. Altitude: 790 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay	6	6	
Gravel	4	10	
Clay, blue	15	25	
Gravel	23	48	
Rocks	7	55	

Well 32/1-23D2

Type of record: Driller's log. Altitude: 790 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay	10	10	
Gravel	5	15	
Clay, yellow, and boulders	22	37	
Sand, fine	1	38	
Clay, sand, and gravel	15	53	
Sand and gravel	15	68	
Clay, yellow, and boulders	20	88	
Sand, fine	2	90	
Gravel, coarse	21	111	

Well 32/1-23E1

Type of record: Driller's log. Altitude: 775 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	53	53	
Sand, medium	2	55	
Clay, yellow, and stone	26	81	
Sand, coarse	6	87	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/1-25R1

Type of record: Driller's log. Altitude: 795 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	15	15	
Clay, blue	10	25	
Sand, muddy	5	30	
Sand and gravel becoming coarser with depth	10	40	

Well 32/1-31K2

Type of record: Driller's log. Altitude: 737 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand	10	10	
Sand, fine to medium	10	20	
Clay, blue, and boulders	1	21	
Sand, fine	24	45	
Sand, coarse, and gravel	18	63	

Well 32/1-34B1

Type of record: Driller's log. Altitude: 742 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil	3	3	
Clay, blue, with gravel	19	22	
Sand grading downward to gravel	13	35	
Gravel, rice-sized to pea-sized	7	42	

Well 32/1-34B2

Type of record: Driller's log. Altitude: 760 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	15	15	
Clay, blue, with streak of gravel	6	21	
Clay, blue	31	52	
Sand and gravel; muddy	2	54	
Sand	21	75	
Clay, blue with streak of sand and gravel	50	125	
Sand and gravel	8	133	
Gravel	6	139	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/1-34C4

Type of record: Driller's log. Altitude: 740 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	3	3	
Peat	3	6	
Sand	4	10	
Clay, blue	8	18	
Sand and gravel	15	33	
Gravel, pea-sized	4	37	

Well 32/1-34C5

Type of record: Driller's log. Altitude: 740 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand	10	10	
Clay, hard, blue	40	50	
Gravel, coarse	7	57	

Well 32/1-34D2

Type of record: Driller's log from memory. Altitude: 740 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay	50	50	
Sand	6	56	
Clay, blue	44	100	
Clay with streaks of sand	28	128	
Sand grading downward to gravel	10	138	

Well 32/2- 1N1

Type of record: Driller's log from memory. Altitude: 828 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	12	12	
Sand and gravel	23	35	
Clay, blue, streaked with sand	85	120	
Sand with some gravel grading downward into gravel	18	138	

Well 32/2- 2A1

Type of record: Driller's log. Altitude: 817 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	14	14	
Sand and gravel	17	31	
Clay, blue	19	50	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/2- 2A1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, muddy, with streak of blue clay 4 to 5 feet thick	40	90	
Sand, muddy	18	108	
Sand	10	118	
Gravel, pinhead-sized to pea-sized, very clean	7	125	

Well 32/2- 6Q1

Type of record: Driller's log. Altitude: 808 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	40	40	
Sand and gravel with streaks of blue clay	20	60	
Mud, sand, and gravel	20	80	
Sand, fine, clean	40	120	
Gravel, pinhead-sized to pea-sized	5	125	

Well 32/2- 7Q1

Type of record: Driller's log. Altitude: 798 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow	20	20	
Clay, blue	10	30	
Sand	6	36	
Gravel, pea-sized	2	38	
Clay, blue, with streak of sand and gravel	22	60	
Sand and gravel	8	68	

Well 32/2- 9B1

Type of record: Driller's log. Altitude: 776 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand	10	10	
Sand and gravel	10	20	
Sand with streaks of clay	10	30	
Clay, blue	6	36	
Sand and gravel; muddy	29	65	
Sand and gravel	19	84	
Gravel, pea-sized	4	88	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/2-10K2

Type of record: Driller's log. Altitude: 795 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	10	10	
Clay, blue	8	18	
Mud, sand, and gravel	30	48	
Clay, blue	6	54	
Sand	16	70	
Sand and gravel	7	77	
Gravel, pea-sized	6	83	

Well 32/2-11J1

Type of record: Driller's log. Altitude: 815 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	18	18	
Clay, blue	14	32	
Sand and gravel	7	39	

Well 32/2-12M1

Type of record: Driller's log. Altitude: 815 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	9	9	
Gravel and clay; mixed	29	38	
Clay, blue	20	58	
Sand, yellow	22	80	
Gravel	2	82	
Hardpan	13	95	
Clay and sticky sand	3	98	
Gravel	18	116	
Sand	4	120	
Gravel	13	133	Clay at 133 ft.

Well 32/2-15R1

Type of record: Driller's log. Altitude: 820 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Gravel with clay	14	14	
Gravel with brown stone	9	23	
Gravel with clay	2	25	
Gravel and sand; gray	5	30	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/2-22J2

Type of record: Driller's log. Altitude: 852 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	18	18	
Sand and gravel	17	35	
Clay	65	100	
Sand	10	110	
Gravel	10	120	

Well 32/2-22L1

Type of record: Driller's log. Altitude: 827 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	20	20	
Sand and gravel	20	40	
Clay, blue	100	140	
Gravel	10	150	

Well 32/2-24N1

Type of record: Driller's log. Altitude: 846 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil and sand	22	22	
Clay and hardpan	16	38	
Silt, fine	3	41	
Clay, blue	26	67	
Sand, fine	4	71	
Gravel, sharp, and fine sand; mixed	4	75	

Well 32/2-25D1

Type of record: Driller's log. Altitude: 850 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, sandy, yellow	12	12	
Sand and gravel	8	20	
Sand	3	23	
Clay, blue	42	65	
Sand, muddy	5	70	
Clay, blue, with streaks of sand	35	105	
Sand, muddy, very hard	15	120	
Sand, muddy, very hard, gray	45	165	
Sand, muddy, yellow	15	180	
Sand, muddy, gray	18	198	
Clay, blue	18	216	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/2-27L1

Type of record: Driller's log. Altitude: 860 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel	55	55	
Sand, fine	15	70	
Clay, blue	55	125	
Sand and gravel	12	137	

Well 32/2-30P1

Type of record: Driller's log. Altitude: 795 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	15	15	
Clay, blue	15	30	
Sand and gravel	5	35	
Gravel, coarse	7	42	

Well 32/2-33M1

Type of record: Driller's log. Altitude: 815 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	18	18	
Clay, blue	67	85	
Gravel, medium	6	91	

Well 32/2- 1A1

Type of record: Driller's log. Altitude: 832 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil	8	8	
Clay, yellow	16	24	
Clay and sand; blue	66	90	
Hardpan	20	110	
Sand and gravel	20	130	

Well 32/3- 2P1

Type of record: Driller's log. Altitude: 797 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	16	16	
Clay, sand, and gravel; blue	5	21	
Sand, fine	5	26	
Clay, blue, with streak of muddy sand	14	40	
Clay, blue	10	50	
Sand and gravel; muddy	10	60	
Gravel	6	66	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/3- 5R1

Type of record: Driller's log. Altitude: 785 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil	6	6	
Muck	4	10	
Clay, sandy, red	48	58	
Sand, fine, gray	42	100	
Sand, coarser, with little gravel	5	105	
Clay, hard, gray, with strips of gravel	33	138	
Clay, hard, brown	17	155	

Well 32/3-16D1

Type of record: Driller's log. Altitude: 804 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	25	25	
Clay, blue	34	59	
Sand	6	65	
Clay, blue	10	75	
Sand grading downward to coarse gravel with very little sand	9	84	

Well 32/3-21H1

Type of record: Driller's log. Altitude: 812 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	25	25	
Sand and gravel	10	35	
Clay, blue	55	90	
Sand and gravel	5	95	
Clay, blue	45	140	
Gravel	10	150	

Well 32/3-22D1

Type of record: Driller's log. Altitude: 792 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand	12	12	
Clay, blue, with gravel; hard	38	50	
Clay, black	5	55	
Sand and gravel	2	57	
Clay, blue, with sand	93	150	
Clay, reddish-brown, with sand	28	178	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/3-22D2

Type of record: Driller's log. Altitude: 792 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue	54	54	
Sand and gravel; with some clay	3	57	
Clay, soft, blue	40	97	
Sand, medium	4	101	

Well 32/3-23L1

Type of record: Driller's log. Altitude: 810 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow, with streak of sand and gravel	21	21	
Sand and gravel	21	42	
Clay, blue	42	84	
Clay, blue, with streaks of sand and gravel	81	165	
Sand, fine	10	175	
Sand, fine to coarse	9	184	
Sand, muddy	4	188	
Gravel, rice-sized, mixed with clay	4	192	
Clay, brown, with sand	33	225	

Well 32/3-23L2

Type of record: Driller's log. Altitude: 810 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow, with streaks of gravel	21	21	
Gravel	24	45	
Clay, blue, with gravel	73	118	
Sand, very fine	3	121	
Clay, blue	2	123	
Gravel, "BB"-sized to pea-sized	8	131	

Well 32/3-24K1

Type of record: Driller's log. Altitude: 775 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand	8	8	
Clay	4	12	
Sand and gravel	43	55	
Clay and sand	1	56	
Sand and gravel	32	88	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/3-24K1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel and sand----------	7	95	
Sand and gravel----------	7	102	
Clay, sandy----------	4	106	

Well 32/3-31R1

Type of record: Driller's log. Altitude: 852 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue----------	16	16	
Sand, fine----------	3	19	
Clay and sand; mixed----------	101	120	
Gravel, medium----------	6	126	

Well 32/3-34N1

Type of record: Driller's log. Altitude: 793 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel----------	25	25	
Clay, blue----------	8	33	
Sand and gravel; with streaks of clay----------	21	54	
Sand, fine, clean----------	26	80	
Sand and gravel----------	8	88	

Well 32/3-34Q1

Type of record: Driller's log. Altitude: 790 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Muck and marl----------	35	35	
Clay, blue, and gravel; very hard	33	68	
Sand and gravel----------	7	75	

Well 32/3-35E1

Type of record: Driller's log. Altitude: 817 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow----------	35	35	
Sand----------	4	39	
Clay, blue, with some gravel-----	46	85	
Sand, gravel, and clay; hard-----	10	95	
Gravel----------	10	105	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/3-36H1

Type of record: Driller's log. Altitude: 777 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel	15	15	
Clay, blue	25	40	
Sand	7	47	
Gravel	5	52	

Well 32/4-7[illegible]

Type of record: Driller's log. Altitude: 797 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow	20	20	
Clay, blue	16	36	
Sand, muddy, gray	6	42	
Sand becoming cleaner and coarser with depth	13	55	
Sand and gravel	8	63	

Well 32/4-19K1

Type of record: Driller's log. Altitude: 782 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand	21	21	
Clay, blue	14	35	
Sand, fine, gray	4	39	
Gravel becoming coarser with depth	3	42	

Well 32/4-19M1

Type of record: Driller's log. Altitude: 778 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Gravel and fine sand	18	18	
Sand, fine	4	22	
Clay, blue	7	29	
Gravel and sand; gray	4	33	

Well 32/4-21L1

Type of record: Driller's log. Altitude: 787 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow	8	8	
Clay, yellow	4	12	
Sand and gravel	3	15	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 32/4-21L1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue, with some gravel-----	17	32	
Sand, gray----------	22	54	
Sand and gravel----------	6	60	

Well 32/4-29J1

Type of record: Driller's log. Altitude: 795 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue----------	16	16	
Gravel----------	8	24	
Clay, blue----------	14	38	
Sand, coarse----------	3	41	

Well 32/4-29R1

Type of record: Driller's log. Altitude: 797 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil----------	1	1	
Clay, hard, brown----------	2	3	
Gravel, brown----------	12	15	
Clay, blue----------	10	25	
Clay and gravel; blue----------	6	31	
Gravel, medium, blue----------	4	35	

Well 33/1- 2N2

Type of record: Driller's log. Altitude: 818 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Gravel and clay----------	35	35	
Sand----------	6	41	
Gravel, coarse----------	4	45	

Well 33/1- 3D1

Type of record: Driller's log. Altitude: 820 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow----------	18	18	
Sand and gravel----------	3	21	
Clay, blue----------	6	27	
Gravel----------	18	45	
Sand with streaks of blue clay---	18	63	
Clay, yellow----------	7	70	
Sand, fine----------	39	109	

Well 33/1- 3D1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, coarse, with some pea-sized gravel	6	115	
Clay, blue	55	170	

Well 33/1- 6J1

Type of record: Driller's log. Altitude: 760 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand	12	12	
Clay	4	16	
Clay and sand	11	27	
Clay, blue and sand	5	32	
Clay, blue	16	48	
Sand, fine	6	54	
Sand, fine, dirty	4	58	
Sand and boulders	6	64	
Sand	5	69	
Clay, hard	19	88	
Gravel	2	90	
Clay, hard	6	96	

Well 33/1-10A1

Type of record: Driller's log. Altitude: 812 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Gravel	36	36	
Clay	10	46	
Sand and gravel	6	52	

Well 33/1-10B1

Type of record: Driller's log. Altitude: 787 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand	25	25	
Clay	25	50	
Sand underlain by layer of clay	30	80	
Sand, muddy	10	90	
Sand	10	100	
Sand, coarse, and gravel	8	108	

Well 33/1-10D1

Type of record: Driller's log. Altitude: 785 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Dirt and clay	27	27	
Sand, fine	6	33	
Clay, blue	5	38	
Sand and gravel	5	43	

Well 33/1-10L1

Type of record: Driller's log. Altitude: 784 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand	25	25	
Clay, blue	10	35	
Gravel	5	40	
Clay, blue	15	55	
Gravel, coarse	11	66	

Well 33/1-10L2

Type of record: Driller's log. Altitude: 790 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand	20	20	
Clay, blue	4	24	
Sand and gravel; dirty, with blue clay	3	27	
Gravel, gray, and sand	4	31	

Well 33/1-11H1

Type of record: Driller's log. Altitude: 811 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel	60	60	
Sand, hard	24	84	
Sand, coarse, and gravel; gray	6	90	

Well 33/1-11R1

Type of record: Driller's log. Altitude: 812 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil and yellow clay	18	18	
Gravel	17	35	
Clay, blue, with sand and gravel	27	62	
Sand and gravel; gray	6	68	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/1-13Q1

Type of record: Driller's log. Altitude: 806 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay and sand; yellow	25	25	
Clay, yellow, and stone	14	39	
Gravel, medium	6	45	

Well 33/1-14N1

Type of record: Driller's log. Altitude: 775 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Muck and marl	18	18	
Clay, blue	14	32	
Gravel	15	47	

Well 33/1-16R1

Type of record: Driller's log. Altitude: 812 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	18	18	
Gravel	7	25	
Clay, blue	11	36	
Sand, hard	12	48	
Clay, blue, with sand	12	60	
Gravel, gray, with sand	4	64	

Well 33/1-23H1

Type of record: Driller's log. Altitude: 780 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	20	20	
Sand, white	10	30	
Gravel	9	39	

Well 33/1-24E2

Type of record: Driller's log. Altitude: 797 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	12	12	
Gravel	18	30	
Sand and clay	14	44	
Gravel and sand; coarse	6	50	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/1-25PI

Type of record: Driller's log. Altitude: 752 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, silty, brown, with few fine roots and silt----------	2	2	Organic odor; silt less than 15 percent.
Sand, fine to medium, silty, brown----------	2	4	
Sand, fine to coarse, brown------	1	5	
Sand, fine to coarse, brown, with few fine gravel and trace of silt----------	2	7	
Sand, fine to coarse, slightly silty, brown, with fine gravel-	4	11	Gravel about 20 percent, up to 3/8 inch.
Sand, fine to coarse, slightly silty, gray-brown, with fine gravel----------	2	13	Organic odor; more gravel than above.
Do----------	2	15	More coarse sand than above.
Sand, fine to coarse, gray, with few fine gravel----------	3	18	
Sand, fine to coarse, gray, with some silt and trace of gravel--	3	21	
Sand, fine to coarse, gray, with some silt and few fine gravel--	3	24	
Sand, fine to coarse, gray, with few gravel----------	4	28	More gravel than above
Sand, fine to coarse, gray with fine gravel----------	2	30	Gravel 15 percent.

Well 33/1-26R1

Type of record: Driller's log. Altitude: 750 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, fine, sandy, dark-gray, with roots----------	2	2	Organic odor.
Silt, clayey, dark-gray, with fine to coarse sand----------	1	3	Sand 35 percent.
Gravel, fine, gray, with silty, fine to coarse sand----------	1	4	Gravel up to ½ inch.
Sand, fine to coarse, gravelly, gray----------	17	21	Some decayed wood

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/1-26R1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, clayey, with few fine gravel---	2	23	Sand mostly coarse.
Sand, fine to coarse, silty------	4	27	Silt less than 15 percent; sand mostly fine.
Sand, fine to medium, silty, gray----------	3	30	

Well 33/1-29L1

Type of record: Driller's log. Altitude: 737 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, brown---------	1	1	Organic odor; silt less than 15 percent.
Sand, fine to medium, brown, with few fine gravel and trace of silt----------	3	4	
Sand, fine to medium, brown, with fine gravel, and trace of silt----------	3	7	Sand mostly fine; gravel 10-15 percent.
Sand, fine to coarse, brown, with few fine gravel----------	3	10	Sand mostly medium.
Do----------	4	14	Sand mostly coarse.
Sand, fine to coarse, brown, with very few gravel----------	3	17	
Sand, fine to coarse, brown, with fine gravel----------	3	20	Gravel 5-10 percent.
Sand, fine to coarse, gray-brown, with fine gravel----------	4	24	Gravel 5-10 percent; sand mostly coarse.
Do----------	3	27	Gravel 5 percent.
Do----------	3	30	Gravel 5-10 percent.

Well 33/1-29N1

Type of record: Driller's log. Altitude: 736 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, silty, clayey, dark-brown--	2	2	
Sand, fine to medium, silty, clayey, brown----------	2	4	

Well 33/1-29N1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, gray-brown	1	5	
Sand, silty, gray-brown, with fine gravel	3	8	Gravel more than 20 percent.
Gravel, fine, with fine to medium sand and silt; dark-gray	2	10	Gravel 45 percent; up to ½ inch; sand 30 percent.
Sand, fine to coarse, silty, dark-gray, with fine gravel	3	13	Coarse sand 50 percent; gravel 30 percent.
Sand, fine to coarse, gravelly, dark-gray, with silt	2	15	Sand 70 percent; silt 5-10 percent.
Sand, gravelly, with silt	3	18	Gravel 25 percent; up to 3/8 inch; silt 5 percent.
Do	3	21	More silt than above.
Do	5	26	Gravel up to 1 inch.
Do	4	30	Gravel 20 percent.

Well 33/1-29Q1

Type of record: Driller's log. Altitude: 745 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, brown	2	2	Organic odor from 0-1 foot.
Sand, fine to medium, brown	7	9	
Sand, fine to medium, brown, with some fine to coarse gravel	2	11	Gravel up to 3/4 inch.
Sand, fine to coarse, slightly clayey, with very fine gravel	4	15	
Sand, fine to coarse, slightly clayey	3	18	
Sand, fine to coarse, slightly clayey, with trace of fine gravel	2	20	

Well 33/1-29Q1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, slightly clayey, with fine gravel-------	4	24	Gravel up to 3/8 inch.
Do----------	2	26	More gravel than above.
Clay, gray, with few fine gravel and medium sand---------	4	30	

Well 33/1-30Q1

Type of record: Driller's log. Altitude: 730 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, clayey, gray with roots----------	1	1	Organic odor.
Sand, fine, silty, clayey, gray-brown----------	1	2	
Clay, silty, brown, with fine sand----------	1	3	
Clay, silty, brown, with fine to coarse sand----------	1	4	
Sand, fine, silty, gray-brown, with trace of clay----------	3	7	
Sand, fine to coarse, silty, gray-brown, with trace of clay-	3	10	
Sand, fine to medium, silty, gray-brown, with trace of clay-	4	14	
Do----------	4	18	Silt less than 15 percent.
Sand, fine to medium, silty, gray-brown, with few fine gravel and trace of clay-------	4	22	
Sand, fine to medium, silty, gray-brown, with trace of clay-	3	25	

Well 33/1-30Q2

Type of record: Driller's log. Altitude: 742 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, brown, with few fine roots----------	2	2	
Sand, fine to coarse, gravelly, brown----------	2	4	Gravel up to 3/4 inch.
Do----------	2	6	Gravel 40 percent, up to 1 inch.

Well 33/1-30Q2--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, gravelly, brown, with trace of clay------	5	11	Gravel 25 percent, up to ½ inch.
Sand, fine to coarse, silty, gravelly, brown, with trace of clay----------	4	15	Gravel 30 percent, up to 3/4 inch.
Sand, fine to medium, slightly clayey, brown----------	3	18	
Sand, fine to medium, slightly clayey, light-gray, with trace to silt----------	10	28	
Sand, fine to medium, silty, slightly clayey, light-gray----	2	30	

Well 33/1-30R1

Type of record: Driller's log. Altitude: 733 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, fine, sandy, brown, with roots----------	2	2	Organic odor from 0-1 foot.
Clay, brown, with fine to medium sand and trace of silt--	1	3	
Clay, silty, gray-brown, with fine to medium sand----------	1	4	
Silt, dark-gray, with fine sand--	1	5	
Sand, fine, silty, dark-gray-----	3	8	Silt 30 percent.
Do----------	3	11	Silt 15 percent.
Sand, fine to coarse, gravelly, slightly silty, gray----------	10	21	Gravel up to 3/8 inch.
Sand, medium to coarse, slightly silty, gray, with fine gravel--	9	30	Coarse sand increases with depth.

Well 33/1-31D1

Type of record: Driller's log. Altitude: 747 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, dark-brown----------	1	1	
Sand, fine, brown----------	1	2	
Sand, fine----------	1	3	
Sand, silty----------	2	5	Silt 30 percent.

Well 33/1-31D1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, sticky, drab	2	7	Looks like shale.
Clay, light-gray, with fine sand	3	10	Sand 35 percent.
Sand, silty, light-gray	4	14	Coarse sand 20 percent.
Sand, silty, with rounded gravel	2	16	Gravel 10 percent.
Sand, fine to coarse, with very little silt	6	22	
Sand, fine	3	25	

Well 33/1-31D2

Type of record: Driller's log. Altitude: 732 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, brown	1	1	Silt 5-6 percent.
Sand, fine, brown	1	2	
Sand, silty, with fine gravel	1	3	Silt 15 percent; fine sand 10 percent.
Silt, sandy	4	7	
Clay, sandy, gray	8	15	Sand 50 percent.
Clay, sandy, gray	7	22	
Sand, gravelly	3	25	

Well 33/1-32A1

Type of record: Driller's log. Altitude: 742 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, gray-brown, with fine sand and roots	1	1	Organic odor.
Sand, fine to medium, brown, with trace of silt	1	2	
Sand, fine to medium, silty, gray-brown	1	3	
Sand, fine to coarse, silty, gray-brown	2	5	
Sand, fine to medium, silty, gray-brown, with few fine gravel	2	7	
Sand, fine to medium, silty, gravelly, gray-brown	4	11	Gravel 35 percent, up to 3/4 inch.
Gravel, sandy, gray-brown	2	13	Gravel 60 percent, up to ½ inch.
Do	4	17	Gravel 55 percent.

Well 33/1-32A1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel, sandy, gray-brown--------	4	21	Gravel 75 percent, up to 3/4 inch.
Do--------------------------	2	23	Gravel 60 percent, up to ½ inch
Clay, gray----------------------	7	30	

Well 33/1-33F1

Type of record: Driller's log. Altitude: 742 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, dark-gray, with little clay----------	1	1	
Silt, clayey, dark-brown, with fine sand----------	1	2	
Sand, silty, dark-brown, with clay----------	1	3	Silt 40 percent.
Do----------	2	5	Silt 30 percent; clay 5 percent.
Silt, dark-gray, with fine to medium sand----------	2	7	Silt 80 percent or more.
Sand, fine to coarse, silty, dark-gray, with trace of gravel----------	3	10	Silt 15 percent; sand mostly coarse.
Do----------	6	16	Less silt than above.
Sand, fine to coarse, silty, gray-brown, with fine gravel---	5	21	
Gravel, sandy, gray-brown, with trace of silt and clay---------	3	24	Gravel up to 1 inch.
Do----------	4	28	Gravel up to 3/4 inch.
Clay, gray, with fine sand-------	2	30	Sand 15 percent.

Well 33/1-34A1

Type of record: Driller's log. Altitude: 747 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, brown, with fine sand and roots----------	1	1	Slight organic odor.
Sand, fine, silty, brown---------	1	2	
Clay, brown, with fine sand------	1	3	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/1-34A1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, slightly silty, light-brown	1	4	
Sand, fine to medium, silty, dark-brown	1	5	Silt less than 15 percent.
Sand, fine to medium, silty, gray-brown	2	7	Silt about 20 percent; sand mostly fine.
Sand, fine to coarse, silty, gray-brown	5	12	More silt than above.
Sand, fine to coarse, slightly silty, gray-brown	4	16	
Sand, fine to medium, gray, with trace of coarse sand	14	30	

Well 33/1-34G1

Type of record: Driller's log. Altitude: 747 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, dark-brown, with roots	1	1	
Sand, fine, silty, lighter-brown	1	2	
Sand, fine to medium, slightly silty, brown	2	4	Sand mostly fine.
Sand, fine to medium, silty, brown	1	5	Sand about 80 percent.
Sand, fine to coarse, gravelly, brown	3	8	Sand mostly fine; gravel up to 3/8 inch.
Gravel, fine, brown, with fine to coarse sand	2	10	Gravel up to 1-½ inch.
Sand, fine to coarse, gravelly, brown	3	13	Sand 60 percent; gravel up to ½ inch.
Do	2	15	Gravel up to 1 inch.
Do	6	21	Sand 60 percent; gravel up to ½ inch.
Do	7	28	Gravel 20 percent, up to 3/8 inch.
Clay, gray, with fine to medium sand	2	30	Sand more than 20 percent.

Well 33/1-35A1

Type of record: Driller's log. Altitude: 752 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Silt, clayey, dark-brown, with fine sand and roots-------	1	1	Slight organic odor.
Silt, clayey, brown, with fine to medium sand----------	2	3	
Clay, sandy, silty, brown--------	1	4	Sand 25 percent.
Sand, fine to medium, silty, clayey, brown----------	1	5	
Sand, fine to medium, silty, slightly clayey, gray----------	5	10	
Do----------	6	16	
Sand, fine to coarse, silty, slightly clayey, gray----------	3	19	Sand 80 percent.
Sand, fine to coarse, silty, slightly clayey, gray, with trace of fine gravel----------	2	21	
Clay, light-gray, with fine to medium sand and few fine gravel----------	9	30	Sand 45 percent or more.

Well 33/1-35C1

Type of record: Driller's log. Altitude: 757 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, dark-brown, with few fine roots----------	1	1	Sand 80 percent or more.
Sand, fine to coarse, light-brown, with few fine gravel----	3	4	Sand mostly fine; gravel up to 3/8 inch.
Sand, fine to coarse, gravelly, light-brown----------	3	7	Gravel 20 percent, up to 3/4 inch.
Do----------	4	11	Sand mostly coarse; gravel up to 3/8 inch.
Sand, fine to coarse, gravelly, silty, light-brown, with trace of clay----------	5	16	
Sand, fine to coarse, silty, light-brown, with trace of gravel----------	4	20	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/1-35C1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, silty, gray, with fine sand and few fine gravel-------	5	25	Sand nearly 50 percent.
Sand, silty----------	5	30	

Well 33/1-35D1

Type of record: Driller's log. Altitude: 750 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, brown, with roots----------	1	1	Slight organic odor.
Sand, fine to medium, brown, with trace of fine gravel and silt----------	3	4	
Sand, fine to coarse, brown, with trace of fine gravel------	9	13	Sand mostly fine.
Sand, fine to coarse, slightly silty, brown, with fine gravel-	2	15	Gravel more than 20 percent, up to 3/8 inch.
Do----------	4	19	More gravel than above.
Sand, fine to coarse, slightly silty, brown, with fine gravel and trace of clay----------	5	24	
Sand, gray----------	3	27	Fine sand 20 percent.
Clay, gray, with fine sand-------	3	30	Sand 20 percent.

Well 33/1-35F1

Type of record: Driller's log. Altitude: 748 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, silty, brown, with roots---	1	1	Slight organic odor; silt 40 percent.
Sand, fine to medium, silty, brown, with few fine roots-----	1	2	Sand mostly fine.
Sand, fine to medium, brown------	1	3	
Sand, fine to medium, silty, brown----------	2	5	Sand 80 percent or more.
Sand, fine to medium, silty, brown with trace of coarse sand----------	2	7	

Table 4.--Selected logs of wells and test holes in Marshall, County, Ind.--Cont.

Well 33/1-35F1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, gray, with trace of coarse sand and fine gravel----------	1	8	
Do----------	2	10	Silt less than 20 percent.
Sand, fine to coarse, silty, gray, with few fine gravel-----	3	13	
Sand, fine to coarse, silty, gray, with fine gravel---------	3	16	More gravel than above.
Do----------	4	20	Gravel 20 percent.
Sand, fine to coarse, slightly silty, gray, with fine gravel--	4	24	Gravel 25 percent, up to 3/8 inch.
Sand, coarse, gravelly, gray-brown----------	3	27	More gravel than above.
Sand, coarse, gravelly, silty, gray-brown----------	3	30	

Well 33/1-36A1

Type of record: Driller's log. Altitude: 757 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, dark-brown, with roots and few fine gravel----------	1	1	Organic odor.
Sand, fine to coarse, silty, gravelly, brown----------	2	3	Gravel up to ½ inch.
Gravel, silty, brown, with fine to coarse sand----------	3	6	Sand 12 percent; silt 5 percent.
Do----------	5	11	Less silt than above; gravel up to 1 inch.
Do----------	3	14	More sand than above; gravel up to 3/4 inch.
Do----------	3	17	Sand 40 percent; silt 5 percent; gravel up to 1 inch.
Clay, fine to coarse, sandy, yellow-brown, with some fine gravel----------	2	19	Gravel up to 3/8 inch.

Well 33/1-36A1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, fine to coarse, sandy, yellow-brown	3	22	
Sand, fine to medium, clayey	3	25	Clay 45 percent.
Sand, fine silty, clayey	3	28	Sand 80 percent.
Sand, fine to medium, silty, brown	2	30	Sand mostly fine.

Well 33/1-36C1

Type of record: Driller's log. Altitude: 750 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, slightly sandy, dark-brown, with roots	1	1	Organic odor.
Silt, dark-brown, with fine sand	2	3	Sand more than 25 percent.
Sand, fine to medium, silty, dark-gray	4	7	
Sand, fine to coarse, gravelly, silty, dark-gray	3	10	Silt 10 percent; gravel up to 1 inch.
Do	3	13	Less sand and silt than above; gravel up to 3/4 inch.
Sand, fine to coarse, gravelly, slightly silty, dark-gray	7	20	Sand 25 percent, mostly coarse.
Do	4	24	Sand 15 percent.
Do	6	30	Sand 20 percent.

Well 33/1-36D1

Type of record: Driller's log. Altitude: 757 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, brown, slghtly organic, with roots	1	1	
Sand, fine to coarse, brown, with trace of fine gravel and silt	2	3	Sand mostly fine.
Sand, fine to coarse, slightly silty, brown, with fine gravel and rock fragments	2	5	Sand mostly medium; rock fragments up to 3/4 inch.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/1-36D1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, gravelly, brown	3	8	Silt less than 15 percent; gravel up to 3/4 inch.
Sand, fine to coarse, silty, gravelly, brown, with trace of clay	3	11	Gravel up to ½ inch.
Sand, fine to medium, clayey, slightly silty, brown	10	21	Clay about 20 percent.
Sand, fine to coarse, clayey, slghtly silty, brown	6	27	Less clay than above.
Clay, fine to medium, sandy, gray	3	30	

Well 33/2- 2N1

Type of record: Driller's log. Altitude: 837 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil	1	1	
Clay, brown	4	5	
Clay, gravelly, brown	10	15	
Sand, medium, red, and gravel	18	33	
Sand, fine, dirty, red	22	55	
Sand, medium, red	3	58	
Gravel, fine, and sand	2	60	
Sand, coarse, and fine gravel	8	68	
Gravel, yellow, with rock fragment	3	71	
Gravel, medium, gray, with little sand	4	75	Gray, soft, gummy clay at 75 feet.

Well 33/2- 3D1

Type of record: Driller's log. Altitude: 811 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	18	18	
Clay, blue	22	40	
Sand and gravel with streaks of fine sand	13	53	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2- 4D2

Type of record: Driller's log. Altitude: 782 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Silt, brown-gray, with fine to coarse sand, roots, and few gravel	1	1	Organic odor; sand nearly 50 percent.
Sand, fine to medium, silty, brown	1	2	
Sand, fine to medium, clean, brown	3	5	Sand mostly fine.
Sand, fine to coarse, silty, brown, with few gravel and trace of clay	2	7	Sand mostly fine.
Clay, silty, brown, with fine to medium sand and trace of gravel	1	8	Gravel up to 3/8 inch.
Do	3	11	Sand 40 percent.
Clay, silty, gray, with fine to medium sand	3	14	
Do	3	17	Sand nearly 30 percent.
Sand, fine to coarse, silty, light-gray, with very fine gravel	8	25	

Well 33/2- 4E4

Type of record: Driller's log. Altitude: 776 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, dark-gray, with fine gravel and brick fragments	2	2	
Sand, fine to coarse, silty, dark-gray, with fine gravel	1	3	Silt 15 percent or less.
Sand, fine to coarse, silty, gravelly, dark-gray, with brick fragments	2	5	Gravel and brick fragments more than 39 percent, up to 1 inch.
Sand, fine to coarse, silty, gravelly, dark-gray	2	7	Gravel 20 percent, up to ½ inch; more silt than above.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2- 4E4--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, dark-gray	2	9	Silt 5-10 percent.
Sand, fine to medium, silty, brown-gray	2	11	Sand mostly fine.
Sand, fine to medium, silty, dark-gray	2	13	Sand mostly fine.
Do	3	16	Silt 30-40 percent.
Sand, fine to coarse, silty, dark-gray	4	20	Silt 20-30 percent.
Sand, fine to medium, silty, dark-gray, with trace of coarse sand and gravel	5	25	

Well 33/2- 4F1

Type of record: Driller's log. Altitude: 782 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, gray, with gravel and fine roots	1	1	Organic odor; sand 50-60 percent; gravel up to 3/4 inch.
Sand, fine to medium, clayey, slightly silty, brown, with trace of gravel	2	3	Sand 70 percent.
Sand, silty, clayey, brown, with some fine gravel	2	5	
Sand, silty, clayey, brown, with trace of gravel	3	8	
Sand, fine to coarse, silty, clayey, brown, with trace of gravel	2	10	
Sand, fine to coarse, gravelly, slightly silty, brown	3	13	Gravel up to ½ inch.
Clay, gray, with fine to coarse sand and few fine gravel	8	21	Sand more than 40 percent.
Sand, fine, silty, gray	4	25	Sand more than 75 percent.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2-4Q1

Type of record: Driller's log. Altitude: 796 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil	10	10	
Sand, dirty	15	25	
Clay, tough, blue	20	45	
Sand, fine, clean	5	50	
Sand, dirty	10	60	
Sand, fine, clean	23	83	
Sand, fine, dirty	7	90	
Sand, medium, dirty	3	93	
Sand, medium, clean	3	96	
Sand, medium, dirty	24	120	
Sand, fine, clean	7	127	
Sand, medium, clean	21	148	
Sand, medium, clean, with some gravel	4	152	
Sand, fine, dirty	20	172	
Sand, coarse, clean, with some gravel	18	190	

Well 33/2-4Q2

Type of record: Driller's log. Altitude: 798 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil	2	2	
Sand, dirty, with some gravel	23	25	
Clay, sandy	20	45	
Sand, fine, dirty, with some gravel	15	60	
Sand, fine, dirty, with some clay	10	70	
Sand, fine, dirty, with clay	15	85	Clay 50 percent.
Sand, fine, dirty, with some clay	10	95	
Clay with fine sand and some gravel	34	129	
Sand and gravel	21	150	
Sand and coarse gravel	7	157	
Clay, sandy, with some gravel	16	173	
Sand	5	178	
Clay, yellow, and gravel	12	190	
Gravel	3	193	
Shale, black	5	198	Gravel?
Gravel, fine, with some sand	1	199	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, black	2	201	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind--Cont.

Well 33/2-4Q3

Type of record: Driller's log. Altitude: 796 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil	5	5	
Sand, dirty	20	25	
Gravel, sandy	15	40	
Sand, muddy, becoming cleaner with depth	100	140	
Gravel, sandy, little dirty	10	150	
Gravel, muddy	15	165	
Gravel, clean	5	170	
Sand, clean	10	180	
Sand, muddy	10	190	
Gravel, sandy, with some boulders	27	217	

Well 33/2-4Q4

Type of record: Driller's log. Altitude: 796 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil	4	4	
Sand and gravel	12	16	
Clay	29	45	
Sand	17	62	
Clay with some boulders	53	115	
Sand	10	125	
Sand and gravel	42	167	
Clay	10	177	
Gravel and sand; with boulders	15	192	

Well 33/2-4R1

Type of record: Driller's log. Altitude: 801 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil	1	1	
Sand	3	4	
Clay, sandy, with gravel	3	7	
Clay, sandy, gray	8	15	
Gravel	3	18	
Clay	6	24	
Sand and gravel	5	29	
Clay, sandy, with gravel	13	42	
Clay	10	52	
Sand and gravel	13	65	
Clay, sandy, with gravel	12	77	
Sand and gravel	4	81	
Clay, sandy, with gravel	47	128	
Sand and gravel	38	166	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2-4R1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, gravelly	3	169	
Gravel, sandy	20	189	
Boulders with trace of clay	3	192	
Clay, gravelly, with boulders	4	196	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, brown	4	200	

Well 33/2-5G1

Type of record: Driller's log. Altitude: 798 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	16	16	
Gravel	2	18	
Clay, blue, with streaks of gravel	16	34	
Gravel, clean, and sand	6	40	

Well 33/2-5G1

Type of record: Driller's log. Altitude: 790 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, red	4	4	
Sand and clay; with boulders	26	30	
Sand, coarse, and gravel	14	44	
Sand, fine to medium, and fine gravel	5	49	
Clay, sandy	7	56	
Sand, fine to medium	27	83	
Sand medium to coarse	10	93	
Gravel, fine to medium, and coarse sand	21	114	
Sand, coarse	7	121	
Clay, hard, brown	2	123	

Well 33/2-5H2

Type of record: Driller's log. Altitude: 796 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, brown	3	3	
Clay, sandy, brown	9	12	
Clay, sandy, gray, with gravel	20	32	
Sand, fine, muddy	8	40	
Sand and gravel; muddy	13	53	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2- 5H2--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, sandy, brown	7	60	
Sand, fine, muddy	10	70	
Sand, fine, with some gravel	24	94	
Sand, clean, and gravel	21	115	

Well 33/2- 5H3

Type of record: Driller's log. Altitude: 796 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Fill	10	10	
Clay, sandy, and gravel	14	24	
Clay, sandy, gray, and gravel	12	36	
Sand and gravel	19	55	
Sand and gravel with chunks of clay	9	64	
Sand, fine	16	80	
Sand, clean, brown, with some gravel	15	95	
Sand and gravel with chunks of clay	2	92	
Gravel, clean, and sand	15	112	

Well 33/2- 5J1

Type of record: Driller's log. Altitude: 775 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, gray, with fine gravel, brick fragments, and roots	2	2	Organic odor.
Sand, fine to coarse, silty, gravelly, gray with cinders	2	4	More gravel, less silt and sand than above.
Sand, fine to coarse, gravelly, slightly silty, brown	4	8	Sand mostly fine; gravel up to 3/4 inch.
Sand, fine to coarse, gravelly, silty, brown	3	11	More coarse sand than above; gravel about 30 percent, up to ½ inch.
Sand, fine to coarse, gravelly, slightly silty, brown, with trace of clay	4	15	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2- 5J1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, gravelly, silty, gray-brown, with trace of clay----------	3	18	Gravel 20 percent.
Sand, fine to coarse, silty, brown, with trace of clay------	4	22	
Sand, fine to coarse, silty, brown, with trace of clay------	3	25	Sand mostly fine.

Well 33/2- 5P1

Type of record: Driller's log. Altitude: 772 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, brown, with few roots and trace of cinders----------	1	1	
Sand, fine to medium, silty, slightly clayey, brown---------	2	3	
Sand, fine to coarse, silty, dark-gray, with fine gravel and rock fragments----------	1	6	Gravel and rock fragments 5 percent.
Gravel, silty, brown, with fine to coarse sand----------	8	14	Sand about 40 percent.
Sand, fine to coarse, silty, slightly clayey, gray, with trace of fine gravel----------	16	30	

Well 33/2- 5Q1

Type of record: Driller's log. Altitude: 774 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Fill; cinders, glass, and gravel with some fine to coarse sand----------	5	5	
Sand, fine to medium, red-brown--	2	7	
Gravel, fine, brown with fine to coarse sand----------	3	10	Sand about 40 percent.
Sand, fine to coarse, silty, slightly clayey, gray----------	3	13	
Do----------	3	16	Less coarse sand than above.
Silt, gray, with fine to medium sand----------	14	30	Sand about 30 percent.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2- 5R1

Type of record: Driller's log. Altitude: 773 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Silt, sandy, dark-brown, with roots and few fine gravel------	1	1	Organic odor.
Sand, fine to medium, silty, slightly organic, brown, with trace of gravel----------	1	2	Sand about 80 percent.
Sand, fine to medium, silty, brown----------	2	4	Sand about 95 percent.
Sand, fine to medium, slightly silty, light-brown, with trace of clay----------	1	5	
Sand, fine to medium, silty, light-brown, with trace of clay----------	5	10	More silt than above.
Sand, fine to coarse, silty, gray, with bits of wood and trace of gravel----------	3	13	Sand more than 80 percent.
Sand, fine to coarse, silty, gray, with few fine gravel-----	6	19	
Sand, fine to coarse, silty, gray, with gravel----------	3	22	More gravel than above.
Clay, slightly sandy, light-gray, with few fine gravel-----	3	25	

Well 33/2- 6H1

Type of record: Driller's log. Altitude: 802 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow, and some sand------	89	89	
Sand, fine----------	7	96	
Clay and stone----------	14	110	
Sand, medium----------	13	123	

Well 33/2- 7A1

Type of record: Driller's log. Altitude: 770 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, clayey, black----------	1	1	
Clay, silty, black----------	2	3	
Sand, fine to medium, silty, gray	2	5	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2- 7A1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, brown, with some silt----------	8	13	
Sand, fine to coarse, brown, with some silt----------	14	27	
Sand, fine to coarse, brownish-gray, with fine gravel---------	3	30	

Well 33/2- 7J1

Type of record: Driller's log. Altitude: 770 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, clayey, brown, with some fine sand----------	2	2	Clay 20 percent.
Sand, fine, silty, brown, with clay lumps----------	2	4	Silt 15 percent.
Sand, fine to medium, silty, brownish-gray----------	2	6	Silt 30 percent.
Sand, gravelly, brown, with some silt----------	2	8	Gravel 20-30 percent.
Sand, fine to coarse, brown, with some silt----------	9	17	
Sand, fine to coarse, and gravel; brown, with some silt----------	4	21	
Gravel, sandy, brown, with some silt----------	3	24	Gravel 30-40 percent.
Sand, fine to coarse, brown, with fine gravel----------	6	30	

Well 33/2- 7R1

Type of record: Driller's log. Altitude: 768 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, brown---------	2	2	Silt 10-15 percent.
Sand, fine to medium, silty, brown, with clay lumps---------	1	3	
Clay, sandy, brown----------	2	5	Sand 10-15 percent.
Clay, brown, with some sand------	2	7	
Sand, fine to medium, clayey, silty, brown----------	1	8	
Sand, fine to medium, brown, with some silt----------	22	30	

Well 33/2- 8C1

Type of record: Driller's log. Altitude: 807 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, sandy, yellow	32	32	
Sand, fine	14	46	
Clay and stone	8	54	
Clay, blue	9	63	
Sand, coarse	7	70	

Well 33/2- 9E1

Type of record: Driller's log. Altitude: 802 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay	16	16	
Sand and gravel	34	50	
Sand, coarse	17	67	

Well 33/2- 9F1

Type of record: Driller's log. Altitude: 806 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand	2	2	
Clay, hard	4	6	
Gravel	12	18	
Clay, sandy	27	45	
Sand, muddy	14	59	
Gravel, dirty	8	67	
Sand and gravel; dirty	23	90	
Clay, gravelly	55	145	
Clay, sandy	5	150	
Gravel and sand	51	201	
Gravel	2	203	

Well 33/2-11L1

Type of record: Driller's log. Altitude: 842 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	10	10	
Gravel	20	30	
Sand, fine, with streaks of blue clay	45	75	
Gravel and sand; coarse, gray	5	80	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2-12E1

Type of record: Driller's log. Altitude: 831 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel	30	30	
Clay, blue, with streak of sand	53	83	
Gravel	7	90	

Well 33/2-16A1

Type of record: Driller's log. Altitude: 845 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	10	10	
Gravel and stone	40	50	
Sand, fine	18	68	
Clay, blue, mixed with gravel	25	93	
Sand, coarse, clean, gray, and gravel	8	101	

Well 33/2-16B1

Type of record: Driller's log. Altitude: 840 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay and sand; yellow	15	15	
Gravel, coarse	15	30	
Clay, blue	10	40	
Gravel, brown	10	50	
Clay, blue	6	56	

Well 33/2-17M1

Type of record: Driller's log. Altitude: 770 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, brown	2	2	Silt 15-20 percent.
Sand, fine to medium, brown, with gravel	2	4	
Sand, fine, brown, with coarse gravel	3	7	
Clay, silty, brown, with some sand	6	13	
Sand, fine to medium, gravelly, brown	5	18	
Sand, fine to coarse, brown, with fine to coarse gravel	4	22	
Clay, brown, with fine to coarse sand and fine to coarse gravel-	3	25	Sand and gravel 20 percent.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2-17M1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, grayish-brown and brown	2	27	
Sand, fine to medium, brown	3	30	

Well 33/2-17M2

Type of record: Driller's log. Altitude: 812 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay and gravel	18	18	
Gravel and sand; yellow	45	63	
Sand, fine	2	65	
Sand, coarse	4	69	

Well 33/2-17N1

Type of record: Driller's log. Altitude: 763 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, silty, brown, with some fine sand	2	2	
Sand, fine silty, brown	1	3	
Gravel, fine, sandy, clayey, brown	1	4	Sand 15 percent; gravel up to 1½ inches.
Do	2	6	Sand 20-25 percent; gravel up to 1 inch.
Do	2	8	Gravel up to 1 inch.
Sand, fine to coarse, clayey, gray, with few fine gravel	3	11	
Sand, fine to coarse, clayey, gray, with trace of gravel	7	18	Clay 25 percent.
Sand, fine to coarse, clayey, gray, with fine gravel	3	21	Clay 10 percent; gravel 15-20 percent.
Sand, fine to coarse, clayey, gray, with gravel	5	26	Clay 10-15 percent.
Sand, fine to coarse, clayey, gray, with fine gravel	4	30	Gravel 25-30 percent, up to 1 inch.

Well 33/2-18A1

Type of record: Driller's log. Altitude: 766 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, silty, sandy, black, with fine gravel	1	1	
Clay, silty, brown, with fine sand	3	4	
Sand, fine, brown	2	6	
Sand, fine to coarse, brown, with fine gravel	2	8	
Sand, fine to coarse, brown	3	11	
Sand, fine to coarse, brown, with fine gravel	16	27	
Clay, gray, with fine to coarse sand	3	30	Sand 10 percent.

Well 33/2-18H1

Type of record: Driller's log. Altitude: 766 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, silty, grayish-brown, with some fine sand	1	1	
Clay, silty, brown, with some fine sand	2	3	
Sand, fine, brown, with some silt and clay lumps	1	4	
Sand, gravelly, brown, with clay lumps	2	6	
Sand, fine, brown	2	8	
Sand, fine to medium, brown	22	30	

Well 33/2-18P1

Type of record: Driller's log. Altitude: 812 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	32	32	
Clay, sandy	16	48	
Clay, blue	11	59	
Sand, coarse	7	66	

Well 33/2-19B1

Type of record: Driller's log. Altitude: 784 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow, and gravel	30	30	
Clay, blue	50	80	
Sand, fine, muddy	10	90	

Well 33/2-19B1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, brown	2	92	
Gravel	13	105	

Well 33/2-19D1

Type of record: Driller's log. Altitude: 810 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	18	18	
Gravel with streak of clay	24	42	
Gravel and sand; clean	4	46	

Well 33/2-19E1

Type of record: Driller's log. Altitude: 802 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow, and gravel	28	28	
Clay, blue	10	38	
Gravel and sand; coarse, gray	6	44	

Well 33/2-20D1

Type of record: Driller's log. Altitude: 770 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, gravelly, brown	1	1	Slight organic odor; gravel 15 percent, up to ½ inch; sand mostly fine.
Sand, fine to coarse, silty, gravelly, darker brown	1	2	Silt 20 percent.
Sand, fine to coarse, silty, gray-brown, with trace of gravel	1	3	Silt 45 percent; sand mostly fine.
Silt, clayey, sandy, with gravel	2	5	More gravel than above.
Sand, fine to medium, silty, clayey, gray	1	6	Sand 60 percent.
Sand, fine to medium, silty, clayey, gray with gravel	5	11	Gravel up to ½ inch.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2-20D1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, gravelly, silty, clayey, brown----------	3	14	Gravel up to ½ inch.
Do----------	2	16	Gravel 10 percent, up to ½ inch.
Gravel, silty, clayey, brown, with fine to coarse sand-------	2	18	Gravel 60 percent, up to ½ inch.
Sand, fine to coarse, gravelly, silty, clayey, brown----------	3	21	Sand 60 percent.
Gravel, silty, clayey, brown, with fine to coarse sand-------	3	24	Sand 35 percent or more; gravel up to ½ inch.
Sand, fine to medium, clayey, gray----------	2	26	Clay 25 percent.
Record missing----------	4	30	

Well 33/2-20F1

Type of record: Driller's log. Altitude: 765 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, with few gravel and roots------	1	1	Some organic odor.
Sand, fine to coarse, slightly silty and clayey, brown--------	3	4	Gravel 10 percent.
Do----------	3	7	Gravel 25 percent.
Do----------	3	10	Gravel 20 percent.
Sand, fine to coarse, slightly silty and clayey, brown, with few fine gravel----------	7	17	
Sand, fine to medium, slightly clayey, brown, with trace of coarse sand----------	2	19	
Sand, fine to coarse, slightly clayey, brown, with few fine gravel----------	3	22	
Sand, fine to coarse, brown, with few fine gravel and trace of clay----------	5	27	More gravel than above.
Sand, fine to coarse, brown, with some fine gravel----------	3	30	Sand mostly medium to coarse.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2-23H1

Type of record: Driller's log. Altitude: 843 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil and clay	10	10	
Gravel	30	40	
Sand, fine	47	87	

Well 33/2-25J1

Type of record: Driller's log. Altitude: 850 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	10	10	
Gravel, coarse	20	30	
Sand and gravel	10	40	
Sand	64	104	
Clay, blue	14	118	
Sand, fine, becoming coarse	22	140	
Gravel, pinhead-sized to pea-sized	6	146	

Well 33/2-26E1

Type of record: Driller's log. Altitude: 854 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel	60	60	
Sand, fine	50	110	
Gravel, medium	10	120	

Well 33/2-26M1

Type of record: Driller's log. Altitude: 872 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel	80	80	
Sand, fine	60	140	
Gravel, fine	10	150	

Well 33/2-27C1

Type of record: Driller's log. Altitude: 827 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue	45	45	
Gravel, coarse	10	55	
Sand, coarse	11	66	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2-29B1

Type of record: Driller's log. Altitude: 763 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, brown, with roots and bits of wood	2	2	Slight organic odor; sand mostly fine.
Sand, fine to coarse, silty, clayey, brown	2	4	Sand mostly fine.
Sand, fine to coarse, silty, clayey, brown, with few fine gravel	2	6	
Gravel, brown, with fine to coarse sand	1	7	
Sand, fine to coarse, gravelly, clayey, brown	4	11	Gravel 40 percent, up to ½ inch.
Do	3	14	Gravel 15 percent.
Do	2	16	Gravel 10 percent.
Do	4	20	Gravel 25 percent.
Do	4	24	Gravel 15 percent.
Sand, fine to coarse, slightly clayey and silty, brown with trace of gravel	4	28	Sand mostly medium.
Sand, fine to coarse, brown, with few gravel	2	30	Do.

Well 33/2-29F1

Type of record: Driller's log. Altitude: 760 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine slightly silty, brown, with few roots	3	3	
Sand, fine to medium, slightly silty, brown	2	5	
Sand, fine to coarse, clayey, gravelly, brown	3	8	Gravel 25 percent, up to ½ inch.
Do	3	11	Gravel 35 percent, up to 3/4 inch.
Clay, brown, with fine to coarse sand and few fine gravel	2	13	Sand more than 35 percent.
Sand, fine to coarse, brown, with clay and few fine gravel	3	16	Clay 15-20 percent.
Clay, gray, with fine sand and few fine gravel	3	19	Sand 15 percent.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2-29F1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, gray, with fine to coarse sand and few gravel----------	7	26	Sand 30 percent.
Do----------	4	30	Sand 40 percent.

Well 33/2-29M1

Type of record: Driller's log. Altitude: 758 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, brown, with few fine roots-----	1	1	Slight organic odor.
Clay, slightly silty, brown, with fine to medium sand-------	2	3	Sand 35 percent.
Sand, fine to medium, clayey, brown----------	1	4	Clay 45 percent; sand mostly fine.
Sand, fine to medium, silty, clayey, darker-brown----------	1	5	Silt 25 percent; clay 15 percent.
Sand, fine to medium, silty, gray, with bits of wood--------	6	11	Silt about 15 percent.
Sand, fine to coarse, silty, dark-brown----------	2	13	Sand mostly fine.
Sand, fine to medium, silty, brown----------	3	16	Silt 15 percent; sand mostly fine.
Sand, fine to medium, silty, clayey, brown----------	2	18	Do.
Sand, fine to medium, silty, clayey, brown-gray----------	3	21	Do.
Sand, fine to coarse, clayey, brown, with few gravel--------	3	24	Sand mostly medium.
Sand, fine to coarse, gravelly, silty, clayey, brown----------	4	28	Gravel more than 20 percent, up to 3/8 inch.
Clay, gray, with fine to coarse sand and fine gravel----------	2	30	Sand 25 percent; gravel 10-15 percent.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2-31A1

Type of record: Driller's log. Altitude: 760 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, brown, with few roots	1	1	Some organic odor.
Sand, fine silty, brown	4	5	Less silt than above.
Sand, fine to medium, silty, brown	3	8	Sand mostly fine.
Sand, fine to medium, silty, gray	3	11	Do.
Sand, fine to coarse, silty, gray, with bits of wood	5	16	Silt content increases with depth.
Gravel and fine to coarse sand; silty, gray	3	19	Sand 45 percent; gravel up to ½ inch.
Sand, fine to coarse, gravelly, silty, clayey, gray	2	21	Gravel 25 percent, up to 3/8 inch.
Sand, fine to coarse, clayey, gray, with trace of gravel	5	26	Clay 30 percent; sand mostly fine to medium.
Record missing	4	30	

Well 33/2-31C1

Type of record: Driller's log. Altitude: 760 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, brown, with trace of silt	2	2	Sand mostly fine.
Sand, fine to coarse, brown, with trace of silt and some fine gravel	1	3	More coarse sand than above.
Sand, fine to medium, gravelly, silty, brown	2	5	Gravel 20 percent, up to 3/8 inch.
Sand, fine to coarse, silty, gray-brown, with trace of gravel	3	8	Sand mostly fine.
Gravel, silty, gray-brown, with fine to coarse sand and trace of clay	3	11	Sand 40 percent, mostly fine to medium; gravel up to ½ inch.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/2-31C1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel, silty, gray-brown, with fine to coarse sand and trace of clay	4	15	Sand 45 percent, gravel up to 3/8 inch.
Sand, fine to coarse, gravelly, brown	3	18	Gravel 45 percent, up to ½ inch.
Do	3	21	Gravel 30 percent, up to 3/8 inch
Do	3	24	Gravel 15 percent, up to 3/8 inch; sand mostly fine.
Sand, fine to coarse, slightly clayey and silty, brown, with fine gravel	3	27	Gravel 25-30 percent.
Sand, fine to coarse, clayey, light-brown, with few fine gravel	3	30	

Well 33/2-31D1

Type of record: Driller's log. Altitude: 758 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, dark-brown	1	1	Some organic odor; silt about 10 percent.
Sand, fine to medium, silty, slightly clayey, dark-brown	1	2	Silt 20 percent.
Sand, fine to medium, silty, slightly clayey, gray	1	3	Silt more than 40 percent.
Silt, gray-black, with peat and trace of fine sand	1	4	Organic odor.
Sand, fine to medium, silty, black	1	5	Sand 70 percent.
Sand, fine to medium, silty, black, with fine gravel	1	6	Gravel 15 percent; silt 20 percent.
Sand, fine to medium, dark-gray	4	10	Sand 80 percent.
Sand, silty, light-gray	8	18	Silt 30 percent.
Record missing	7	25	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/3- 7N1

Type of record: Driller's log. Altitude: 832 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	30	30	
Clay, blue	30	60	
Sand, coarse	6	66	

Well 33/3- 7R1

Type of record: Driller's log. Altitude: 852 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil, sand and gravel	18	18	
Clay, blue	30	48	
Clay, blue, soft	12	60	
Clay, hard, blue	14	74	
Sand, coarse	10	84	

Well 33/3- 8P1

Type of record: Driller's log. Altitude: 840 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	21	21	
Sand, fine	4	25	
Clay, blue, and gravel; mixed	35	60	
Sand, coarse	4	64	

Well 33/3- 8Q2

Type of record: Driller's log. Altitude: 840 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay and gravel	30	30	
Clay, blue, mixed with gravel	87	117	
Gravel and sand; coarse, gray	6	123	

Well 33/3-10D1

Type of record: Driller's log. Altitude: 841 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	10	10	
Sand and clay	10	20	
Clay, yellow	9	29	
Clay, blue	7	36	
Sand and gravel; muddy	4	40	
Clay, blue	35	75	
Clay, blue, with streaks of sand-	53	128	
Sand and gravel becoming coarser and cleaner with depth	12	140	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/3-12M1

Type of record: Driller's log. Altitude: 838 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil	4	4	
Sand and gravel	36	40	
Hardpan or sandy shale	29	69	
Sand and gravel	31	100	
Hardpan or shale	13	113	
Clay, sandy	8	121	
Hardpan or shale	29	150	
Sand	5	155	
Hardpan, gray	7	162	
Hardpan, reddish	33	195	
Gravel	5	200	
Sand and gravel	13	213	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, brown	58	271	
Shale, gray	19	290	
Devonian System:			
Middle Devonian Series:			
Limestone	53	343	
Lime, broken, with some shale	4	347	
Lime, hard	20	367	
Lime, medium, brown	5	372	
Shale, soft, brown, with gypsum and calcite	12	384	
Lime, medium, brown	36	420	
Lime, gray	15	435	

Well 33/3-13P1

Type of record: Driller's log. Altitude: 845 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue	18	18	
Gravel, dirty, with blue clay	5	23	
Gravel and sand; gray	4	27	

Well 33/3-14C1

Type of record: Driller's log. Altitude: 850 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	12	12	
Sand	4	16	
Clay, blue	74	90	
Clay, blue, with streaks of sand and gravel	40	130	

Well 33/3-14C1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel; muddy, with some clay	18	148	
Sand	7	155	

Well 33/3-18E1

Type of record: Driller's log. Altitude: 828 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	18	18	
Sand	37	55	
Clay, blue	63	118	
Sand and gravel	8	126	

Well 33/3-24A1

Type of record: Driller's log. Altitude: 848 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, sandy	14	14	
Gravel	6	20	
Clay, yellow	5	25	
Sand, medium	4	29	

Well 33/3-24K1

Type of record: Driller's log. Altitude: 844 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil	16	16	
Sand	12	28	
Clay, blue	22	50	
Hardpan	30	80	
Sand, clayey	20	100	
Sand and clay; yellow	12	112	
Gravel, clean	4	116	
Clay and sand	34	150	
Gravel	2	152	
Clay and sand	26	178	
Sand and gravel; clean	12	190	

Well 33/3-24K2

Type of record: Driller's log. Altitude: 843 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Mud	18	18	
Sand	24	42	

Well 33/3-24K2--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Mud, soft	13	55	
Hardpan	35	90	
Clay and sand; yellow	19	109	
Gravel	6	115	
Hardpan	16	131	
Sand	10	141	
Hardpan	17	158	
Sand	9	167	
Hardpan	16	183	
Sand and gravel; mixed	19	202	

Well 33/3-26D1

Type of record: Driller's log. Altitude: 817 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	20	20	
Sand	5	25	
Clay, blue	75	100	
Sand and gravel	12	112	

Well 33/3-27A1

Type of record: Driller's log. Altitude: 822 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	20	20	
Sand	5	25	
Clay	55	80	
Sand and gravel	10	90	

Well 33/3-31N1

Type of record: Driller's log. Altitude: 834 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	12	12	
Sand and gravel	38	50	
Gravel, coarse	7	57	Blue clay at 57 feet.

Well 33/4-19A1

Type of record: Driller's log. Altitude: 832 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue	24	24	
Clay, blue, and sand	16	40	
Gravel, coarse	5	45	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 33/4-19E1

Type of record: Driller's log. Altitude: 843 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	15	15	
Gravel	20	35	Suitable for 40-slot screen.
Clay, blue	50	85	
Clay, very hard, yellow	45	130	
Sand and gravel	18	148	

Well 33/4-19H1

Type of record: Driller's log. Altitude: 838 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, sandy, yellow	15	15	
Clay, blue	26	41	
Sand, coarse	7	48	

Well 33/4-19M1

Type of record: Driller's log. Altitude: 842 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand and clay	40	40	
Clay, blue	66	106	
Gravel	3	109	Suitable for 30-slot screen.
Clay, blue	22	131	
Gravel	13	144	

Well 33/4-19M2

Type of record: Driller's log. Altitude: 838 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil, black	1	1	
Clay, brown and yellow	5	6	
Clay, blue	4	10	
Sand, dirty, and stones	20	32	
Clay, blue, and stones	20	32	
Clay, blue	12	44	
Clay, blue, and hardpan	16	60	
Clay, soft, blue	3	63	
Clay, blue, and hardpan	17	80	
Clay, yellow, and hardpan	7	87	
Clay, yellow	9	96	
Clay, yellow, and hardpan	8	104	

Well 33/4-19M2--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay balls, stones, and gravel---	3	107	
Sand, coarse, and gravel---------	10	117	Clay balls, dirty sand, and gravel at 117 feet.

Well 33/4-32M1

Type of record: Driller's log. Altitude: 847 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand----------	16	16	
Clay----------	14	30	
Sand and gravel----------	9	39	

Well 34/1- 1C1

Type of record: Driller's log. Altitude: 813 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow----------	18	18	
Clay, blue, and gravel; mixed----	57	75	
Sand, coarse, and gravel---------	12	87	

Well 34/1- 6C1

Type of record: Driller's log. Altitude: 727 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow----------	20	20	
Clay, blue----------	40	60	
Sand, fine----------	10	70	
Sand, coarse, and medium gravel--	7	77	

Well 34/1- 6C3

Type of record: Driller's log. Altitude: 723 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Drift; sand and sandy gravel-----	190	190	
Mississippian and Devonian Systems; undifferentiated:			
Lime, shaly, brown----------	10	200	
Limestone, hard, chocolate-brown-	10	210	
Limestone, hard, chocolate-brown, with shale lenses----------	30	240	
Shale, dense, medium-hard, gray--	18	258	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/1- 6C3--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Mississippian and Devonian Systems; undifferentiated:			
Lime, fine to coarse, medium-hard, brown	5	263	
Lime fine-grained, light-gray to gray-brown	5	268	

Well 34/1- 9P1

Type of record: Driller's log. Altitude: 755 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Gravel	10	10	
Clay	15	25	
Sand	8	33	
Gravel, pea-sized	2	35	

Well 34/1-10F1

Type of record: Driller's log. Altitude: 807 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	12	12	
Clay, yellow, and gravel	38	50	
Clay, blue	15	65	
Gravel	5	70	

Well 34/1-10L1

Type of record: Driller's log. Altitude: 812 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay and sand; yellow	30	30	
Clay, blue	12	42	
Sand, fine, gray	4	46	
Sand, coarse	4	50	

Well 34/1-10M1

Type of record: Driller's log. Altitude: 798 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	10	10	
Clay, blue	20	30	
Sand	11	41	
Gravel, medium	4	45	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/1-21C1

Type of record: Driller's log. Altitude: 778 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow	15	15	
Clay, blue	45	60	
Clay, blue, with streaks of sand	24	84	
Sand and gravel; muddy, becoming cleaner with depth	18	102	
Sand, clean	7	109	
Gravel	5	114	

Well 34/1-22R1

Type of record: Driller's log. Altitude: 852 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	12	12	
Clay, blue, and pea-sized gravel	48	60	
Gravel	30	90	

Well 34/1-23C1

Type of record: Driller's log. Altitude: 836 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand and clay	12	12	
Clay, yellow	20	32	
Clay, blue	16	48	
Sand	10	58	
Gravel, coarse	2	60	

Well 34/1-23D1

Type of record: Driller's log. Altitude: 826 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	30	30	
Clay, blue	40	70	
Sand	20	90	
Gravel, pea-sized, gray	4	94	

Well 34/1-23N1

Type of record: Driller's log. Altitude: 855 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow, and gravel; mixed	28	28	
Gravel, yellow	42	70	
Clay, blue, and gravel	5	75	
Gravel, very coarse	18	93	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/1-26B1

Type of record: Driller's log. Altitude: 827 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series;			
Clay, blue, with streaks of gravel	50	50	
Gravel with clay	8	58	
Clay, blue, with gravel	38	96	
Gravel and sand; with clay	33	129	
Gravel and sand	5	134	

Well 34/-27N1

Type of record: Driller's log. Altitude: 822 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	10	10	
Gravel	32	42	
Clay, blue	8	50	
Gravel, coarse, gray	6	56	

Well 34/1-29N1

Type of record: Driller's log. Altitude: 782 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, and gravel; mixed	24	24	
Clay, blue	10	34	
Sand, fine, and gravel; mixed	10	44	
Gravel and sand; brown	5	49	

Well 34/1-30R1

Type of record: Driller's log. Altitude: 774 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	25	25	
Clay, blue	30	55	
Sand, fine	6	61	
Sand, coarse	5	66	
Gravel, coarse	4	70	

Well 34/1-31D2

Type of record: Driller's log. Altitude: 747 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand	22	22	
Clay, blue	12	34	
Sand, fine	5	39	

Well 34/1-31D2--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue	6	45	
Gravel, coarse, gray	4	49	

Well 34/1-32C1

Type of record: Driller's log. Altitude: 778 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil, muck, and blue clay	24	24	
Gravel, dirty, with blue soft clay	4	28	
Gravel, clean, gray with some sand	4	32	

Well 34/1-33B1

Type of record: Driller's log. Altitude: 808 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	14	14	
Clay, blue	36	50	
Sand and gravel; white	8	58	

Well 34/1-33C1

Type of record: Driller's log. Altitude: 802 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue	26	26	
Sand, fine	3	29	
Clay, soft, blue, with sand	9	38	
Gravel and sand; coarse, gray	4	42	

Well 34/1-34D1

Type of record: Driller's log. Altitude: 827 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	25	25	
Clay, blue	12	37	
Gravel	27	64	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/2- 1B1

Type of record: Driller's log. Altitude: 826 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay	20	20	
Sand	12	32	
Clay	25	57	
Sand	8	65	

Well 34/2- 1J1

Type of record: Driller's log. Altitude: 807 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil, sandy	10	10	
Clay, blue	44	54	
Gravel, fine	3	57	

Well 34/2- 1J2

Type of record: Driller's log. Altitude: 822 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay	60	60	
Sand	8	68	
Clay	32	100	
Sand, fine	10	110	
Sand, coarse	7	117	

Well 34/2- 5H1

Type of record: Driller's log. Altitude: 852 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	20	20	
Clay, blue	6	26	
Gravel and sand; coarse, gray	4	30	

Well 34/2- 5J1

Type of record: Driller's log. Altitude: 862 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	18	18	
Clay, yellow, and gravel	22	40	
Gravel	10	50	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/2- 5N1

Type of record: Driller's log. Altitude: 847 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay and top soil----------	18	18	
Sand or gravel----------	12	30	
Clay----------	10	40	
Gravel, pea-sized----------	7	47	

Well 34/2- 5R1

Type of record: Driller's log. Altitude: 852 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil, sandy----------	10	10	
Clay, blue----------	20	30	
Sand, coarse, and gravel----------	14	44	

Well 34/2- 6L1

Type of record: Driller's log. Altitude: 833 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow----------	10	10	
Clay, blue, and gravel; mixed-----	47	57	
Sand and gravel----------	6	63	

Well 34/2- 8B2

Type of record: Driller's log. Altitude: 843 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Gravel, yellow----------	38	38	
Clay, blue----------	18	56	
Sand and stone----------	4	60	
Gravel and sand; gray----------	6	66	

Well 34/2- 8H1

Type of record: Driller's log. Altitude: 836 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil, sandy----------	18	18	
Gravel----------	6	24	
Clay, blue----------	24	48	
Gravel, coarse----------	9	57	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/2- 8J1

Type of record: Driller's log. Altitude: 823 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil and clay	16	16	
Sand, fine	10	26	
Clay, blue	3	29	
Clay, blue, with gravel	2	31	
Sand, fine	4	35	
Sand, coarse	5	40	

Well 34/2-10F1

Type of record: Driller's log. Altitude: 832 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay	28	28	
Sand and gravel	3	31	
Clay, hard, blue	27	58	
Clay, blue, with sand	34	92	
Clay, blue, with tight sand	28	120	
Clay, soft, and sand	6	126	
Sand, coarse, clean, gray, and gravel	4	130	

Well 34/2-11R1

Type of record: Driller's log. Altitude: 828 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Drift	259	259	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series: undifferentiated:			
Shale, green	35	294	
Shale, brown	62	356	
Devonian System:			
Middle Devonian Series:			
Lime, gray	14	370	
Lime, brown	4	374	

Well 34/2-12A2

Type of record: Driller's log. Altitude: 809 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue	40	40	
Sand, medium	10	50	
Gravel and blue clay	30	80	
Sand, medium	4	84	
Gravel, medium to coarse	9	93	

Well 34/2-12N1

Type of record: Driller's log. Altitude: 825 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Drift	60	60	
Mud and gravel	63	123	
Sand	41	164	
Sand and gravel	33	197	
Gravel	23	220	
Sand	10	230	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, dark	25	255	
Shale, brown	77	332	
Shale, gray	28	360	

Well 34/2-12P1

Type of record: Driller's log. Altitude: 825 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Mud and gravel	123	123	
Sand	41	164	
Sand and gravel	33	197	
Gravel	23	220	
Sand	10	230	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, dark	25	255	
Shale, brown	77	332	
Shale, gray	26	358	
Devonian System:			
Middle Devonian Series:			
Lime	42	400	

Well 34/2-13C1

Type of record: Driller's log. Altitude: 826 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Drift	173	173	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, gray	97	270	
Shale, light-brown	30	300	
Shale, dark-brown	15	315	
Devonian System:			
Middle Devonian Series:			
Lime, dark	39	354	
Lime	19	373	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/2-14D1

Type of record: Driller's log. Altitude: 824 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Drift	230	230	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale	155	385	
Devonian and Silurian Systems; undifferentiated:			
Limestone, fine-grained, light-brown	10	395	
Lime, coarser, gray to brownish-gray	30	425	
Lime, fine to coarse, light-brown to gray	20	445	
Lime, gray, grading to brown	15	460	
Lime, coarse, gray	15	475	
Lime, fine, hard, dense, gray	10	485	
Lime, coarse, grading to fine, soft, brown	15	500	
Lime, medium to coarse, brownish-	25	525	
Lime, fine to medium, gray to brownish-gray	25	550	
Lime, shaly, gray to gray-blue	25	575	
Shale and lime; gray to brown to gray	10	585	
Shale, slightly harder, gray to brown	5	590	
Shale, harder, gray-brown	5	595	
Lime, shaly, hard, brown	20	615	
Limestone, dolomitic, white	35	650	
Lime, dolomitic, white, with few tannish-colored phases	40	690	
Lime, gray-blue, with some buff	25	715	
Limestone, fine-grained, hard, dolomitic, white to grayish-white	105	820	
Limestone, white to grayish-white	70	890	
Lime, gray	25	915	
Lime, gray, grayish-white, and brownish	95	1,010	
Lime, coarse, brownish-gray, with calcite	30	1,040	
Ordovician? System:			
Upper? Ordovician Series:			
Lime, gray, and shaly lime; alternating	170	1,210	
Lime, shaly, brown, and medium hard shale; with few gray shale lenses and fine brown hard lime intervals	245	1,455	
Lime, hard, with abundant pyrite	35	1,490	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/2-15D1

Type of record: Driller's log. Altitude: 842 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow----------	10	10	
Gravel----------	50	60	
Clay, blue, and gravel; mixed----	65	125	
Gravel----------	10	135	

Well 34/2-17A2

Type of record: Driller's log. Altitude: 818 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and clay----------	22	22	
Clay, blue----------	16	38	
Sand, coarse, gray, and gravel---	6	44	

Well 34/2-17Q1

Type of record: Driller's log from memory. Altitude: 846 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine----------	40	40	
Clay, yellow, and boulders; mixed----------	30	70	
Sand, fine, with streak of gravel	5	75	
Clay, yellow, and sand; mixed----	33	108	
Gravel, coarse, gray----------	5	113	

Well 34/2-18A1

Type of record: Driller's log. Altitude: 822 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow----------	22	22	
Sand, fine----------	9	31	
Clay, blue----------	21	52	
Clay, and sand; yellow----------	23	75	
Sand, coarse----------	8	83	

Well 34/2-20Q2

Type of record: Driller's log. Altitude: 814 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil, sand, and blue clay----	42	42	
Sand, coarse----------	18	60	
Gravel, pea-sized----------	6	66	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/2-20Q3

Type of record: Driller's log. Altitude: 822 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil, sandy	10	10	
Clay, yellow	11	21	
Clay, blue	21	42	
Gravel, coarse	4	46	

Well 34/2-20Q5

Type of record: Driller's log. Altitude: 817 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand	10	10	
Clay, blue	20	30	
Clay, blue, and gravel; mixed	10	40	
Gravel, coarse	7	47	

Well 34/2-25E1

Type of record: Driller's log. Altitude: 783 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, gray with gravel	1	1	Gravel 15-20 percent, up to 3/8 inch.
Sand, fine to medium, silty, clayey, gray, with few gravel	2	3	Less silt than above.
Sand, fine to medium, silty, clayey, gray-brown	2	5	Clay 25 percent.
Do	1	6	Clay more than 40 percent.
Sand, fine to medium, silty, gray, with trace of coarse sand	2	8	Silt about 25 percent.
Sand, fine to coarse, silty, slightly clayey, gray and brown, with few fine gravel	3	11	
Sand, fine to coarse, silty, slightly clayey, gray, with few fine gravel	2	13	
Sand, fine to coarse, silty, slightly clayey, gray, with trace of gravel	7	20	
Sand, fine to medium, silty, gray	5	25	Silt 30 percent.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/2-25N1

Type of record: Driller's log. Altitude: 808 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Drift	190	190	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, blue	10	200	
Shale, brown and blue; mixed	10	210	
Shale, blue and gray	20	230	
Shale, gray	11	241	
Shale, hard, brown	29	270	
Shale, medium, brown	30	300	
Shale, hard, bray	12	312	
Devonian System:			
Middle Devonian Series:			
Lime, hard, gray	8	320	

Well 34/2-25P1

Type of record: Driller's log. Altitude: 786 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, brown	1	1	
Sand, fine, brown	3	4	
Sand, fine, brown, with some silt	2	6	
Sand, fine, silty, brown, with clay lumps	2	8	
Sand, fine, silty, clayey, grayish-brown	2	10	
Sand, fine to coarse, silty, brown, and fine gravel	2	12	
Sand, fine to medium, brown, with silt	3	15	
Sand, fine to coarse, brown, with some silt	10	25	

Well 34/2-25Q1

Type of record: Driller's log. Altitude: 792 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, clayey, sandy, black	1	1	
Clay, black, with some fine sand-	1	2	
Sand, fine, silty, dark-gray	13	15	Silt 20-30 percent.
Sand, fine to medium, silty	6	21	Silt 10-15 percent.
Sand, fine to coarse, with fine gravel; grayish-brown	4	25	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/2-26L1

Type of record: Driller's log. Altitude: 786 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Silt, sandy, clayey, dark-gray, with roots	1	1	Organic odor.
Clay, light-brown, with fine to coarse sand and trace of gravel	2	3	Sand 45 percent.
Clay, gray-brown, with fine to coarse sand and some fine gravel	2	5	Sand more than 45 percent; gravel up to 3/8 inch.
Sand, fine to coarse, clayey, brown, with some gravel	6	11	Clay 15 percent; sand mostly coarse; gravel up to 3/8 inch.
Sand, fine to coarse, clayey, silty, gravelly, gray	2	13	Silt 15 percent; less coarse sand than above; gravel up to ½ inch.
Sand, fine to coarse, gravelly, silty, gray	4	17	Gravel 20 percent, up to ½ inch.
Sand, fine to coarse, gravelly, silty, slightly clayey, gray	4	21	Sand 40 percent; gravel up to 1 inch.
Sand, fine to coarse, gravelly, slightly silty, gray, with trace of clay	4	25	Gravel 30 percent.

Well 34/2-26N2

Type of record: Driller's log. Altitude: 782 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, dark-gray, with many roots	1	1	Organic odor.
Sand, fine to coarse, brown, with few fine gravel	2	3	
Sand, fine to coarse, brown	3	6	Sand mostly fine.
Sand, fine to coarse, slightly clayey, dark-brown	2	8	More medium sand than above.
Sand, fine to coarse, clayey, dark-brown, with few fine gravel	5	13	

Well 34/2-26N2--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, clayey, yellow-brown, with few fine gravel	5	18	Sand mostly fine to medium.
Sand, fine to medium, clayey, yellow-brown	3	21	
Sand, fine to medium, clayey, light-gray	4	25	More fine sand than above.

Well 34/2-26P1

Type of record: Driller's log. Altitude: 814 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil, sandy	20	20	
Clay, blue, and gravel; soft	100	120	
Gravel, coarse	15	135	

Well 34/2-28H1

Type of record: Driller's log. Altitude: 820 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	25	25	
Clay, blue	10	35	
Gravel and sand; coarse	11	46	

Well 34/2-29Q3

Type of record: Driller's log. Altitude: 800 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, silty, clayey, black	2	2	
Sand, brown, with trace of silt	1	3	
Sand, silty, brown	8	11	
Gravel, sandy, brown, with trace of silt and clay	5	16	
Clay, silty, gray, with trace of sand and gravel; hard	14	30	

Well 34/2-29Q4

Type of record: Driller's log. Altitude: 799 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil	1	1	
Sand, silty, clayey, brown, with trace of gravel	1	2	

Well 34/2-29Q4--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, silty, brown, with trace of gravel	4	6	
Clay, silty, brown, with trace of sand and gravel	4	10	
Clay, silty, gray, with trace of sand and gravel; hard	28	38	
Gravel, sandy, gray, with trace of silt and clay	12	50	
Sand, gray, with trace of gravel-	2	52	

Well 34/2-29Q6

Type of record: Driller's log. Altitude: 801 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil	1	1	
Sand, silty, brown	1	2	
Sand, gravelly, brown	4	6	
Clay, silty, brown, with trace of sand and gravel	2	8	
Sand, brown	2	10	
Clay, silty, brown, with trace of sand and gravel; hard	5	15	
Clay, silty, gray, with trace of sand and gravel	18	33	
Gravel, sandy, gray, with trace of silt and clay	2	35	

Well 34/2-29R2

Type of record: Driller's log. Altitude: 802 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil	1	1	
Sand, gravelly, brown, with trace of silt	1	2	
Clay, silty, brown, with trace of sand and gravel	14	16	
Clay, silty, gray, with trace of sand and gravel; hard	8	24	
Sand, gray, with trace of gravel and silt	4	28	
Clay, silty, gray, with trace of sand and gravel; hard	6	34	
Sand, gravelly, gray, with trace of clay and silt	16	50	

Well 34/2-29R3

Type of record: Driller's log. Altitude: 802 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series			
Top soil	1	1	
Clay, silty, brown, with trace of sand and gravel	1	2	
Sand, fine, silty, brown	4	6	
Sand, fine, brown, with trace of silt	8	14	
Sand, fine, brown, with trace of silt and gravel	2	16	
Clay, silty, gray, with trace of sand and gravel	8	24	
Gravel, sandy, gray, with trace of silt and clay	4	28	
Clay, silty, gray, with trace of sand and gravel	8	36	
Sand, silty, gray, with trace of clay and gravel	4	40	
Gravel, sandy, brown, with trace of silt	10	50	

Well 34/2-29R4

Type of record: Driller's log. Altitude: 802 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil	1	1	
Sand, fine, silty, brown	1	2	
Clay, silty, sandy, brown	2	4	
Sand, fine, brown, with trace of silt	14	18	
Gravel, sandy, gray, with trace of silt and clay	7	25	
Clay, silty, gray, with trace of sand and gravel; hard	5	30	
Gravel, sandy, gray	1	31	Gray silty clay with trace of sand and gravel at 31 feet.

Well 34/2-31D1

Type of record: Driller's log. Altitude: 809 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Drift	195	195	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, soft, gray	10	205	

Well 34/2-31D1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, brown	30	235	
Shale, gray, with gravel	50	285	
Devonian and Silurian Systems; undifferentiated:			
Lime, brown	15	300	
Lime, gray	50	350	
Lime, brown	20	370	
Lime, brown and gray	15	385	
Lime, brown	15	400	
Lime, dark-gray	15	415	
Lime, dark-gray, with trace of shale	10	425	
Lime, dark-gray	20	445	
Lime, light-gray	20	465	
Lime, hard, light-gray	5	470	
Lime, light-gray	65	535	
Lime, soft, light-gray	25	560	
Lime, hard, light-gray	15	575	
Lime, hard, light-brown	20	595	
Lime, very hard, brown	10	605	
Lime, very hard, gray	5	610	
Lime, light-gray	30	640	
Lime, medium, light-gray	20	660	
Shale, hard, light-gray	40	700	
Shale, medium-hard, darker-gray	5	705	
Shale, hard, gray	30	735	
Shale, medium, gray	20	755	
Shale, medium, blue-gray	10	765	
Shale, hard, blue-gray	5	770	
Shale, medium, blue-gray	10	780	
Shale, hard, blue-gray	10	790	
Record indefinite	60	850	

Well 34/2-32D1

Type of record: Driller's log. Altitude: 812 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and yellow clay	45	45	
Sand, fine	7	52	
Sand, coarse	5	57	

Well 34/2-32J4

Type of record: Driller's log. Altitude: 803 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, muddy	5	5	
Clay	33	38	
Sand and gravel	17	55	

Well 34/2-32J4--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel and clay	7	62	
Clay, soft, with gravel	38	100	
Gravel and sand	27	127	
Clay, gray	6	133	
Gravel with strips of clay	17	150	
Gravel, very fine, and sand	20	170	
Clay, gray	28	198	
Gravel, fine	2	200	
Clay, gray	1	201	

Well 34/2-32Q1

Type of record: Driller's log. Altitude: 802 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and clay; yellow	45	45	
Sand	5	50	Suitable for 10-slot screen.
Hardpan	28	78	
Sand, fine	2	80	Suitable for 6-slot screen.
Sand, fine	19	99	Suitable for 15-slot screen.
Sand, fine	6	105	Suitable for 6-slot screen.
Gravel	28	133	
Clay, blue	2	135	

Well 34/2-33B1

Type of record: Driller's log. Altitude: 801 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil, sand, and gravel	18	18	
Sand and gravel	15	33	
Clay, blue	6	39	
Gravel, coarse, clean	4	43	

Well 34/2-33H1

Type of record: Driller's log. Altitude: 778 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, dark-gray, with trace of coarse sand	2	2	Sand 75 percent
Sand, fine to medium, silty, gray-brown	1	3	Silt less than 15 percent; sand mostly fine.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/2-33H1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, tan--------	1	4	Sand mostly fine.
Do----------	3	7	More medium sand than above.
Sand, fine to medium, silty, tan-	4	11	
Sand, fine to medium, silty, slightly clayey, dark-brown----	2	13	Silt 35 percent; sand mostly medium.
Sand, fine to medium, slightly silty and clayey, brown--------	4	17	Sand mostly fine.
Sand, fine to coarse, silty, gray----------	3	20	Sand mostly fine to medium.
Sand, fine to coarse, silty, gray-brown----------	3	23	
Sand, fine to coarse, slightly silty, brown----------	2	25	

Well 34/2-33K1

Type of record: Driller's log. Altitude: 777 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, dark-gray, with fine to coarse sand, few gravel, and fine roots----------	1	1	Organic odor.
Sand, fine to coarse, silty, gray-brown, with few gravel----	1	2	Organic odor; sand 80 percent.
Sand, fine to coarse, silty, yellow-brown, with some clay and few fine gravel----------	2	4	
Sand, fine to coarse, clayey, yellow-brown, with some silt and few fine gravel----------	3	7	
Sand, fine to coarse, silty, clayey, yellow-brown, with few fine gravel----------	3	10	
Sand, fine to coarse, silty, slightly clayey, brown---------	3	13	Silt 40 percent; sand mostly fine.
Sand with fine to medium sand; slightly clayey, brown---------	3	16	Sand 35 percent.
Sand, fine to medium, silty, slightly clayey, brown---------	2	18	Sand 75 percent.
Do----------	4	22	Sand 85 percent.
Sand, fine to medium, silty, brown, with trace of clay------	3	25	

Well 34/2-33L1

Type of record: Driller's log. Altitude: 780 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, dark-brown, with fine roots	1	1	Organic odor; silt less than 15 percent.
Sand, fine to medium, light-brown	1	2	Sand mostly fine.
Do	3	5	Medium sand 25 percent.
Sand, fine to medium, slightly silty and clayey, light-brown	2	7	
Sand, fine to coarse, silty, light-brown, with trace of clay	2	9	
Silt, clayey, gray, with fine to medium sand	2	11	Sand less than 15 percent.
Clay, sandy, brown-gray	1	12	
Sand, fine to coarse, silty, clayey, gray, with trace of gravel	2	14	
Do	4	18	More coarse sand, less clay than above.
Do	3	21	Slightly more clay than above.
Do	4	25	More silt than above.

Well 34/2-33L2

Type of record: Driller's log. Altitude: 783 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, brown-gray, with fine roots and trace of medium to coarse sand	1	1	Organic odor; silt 30 percent or more.
Sand, fine to medium, silty, brown	1	2	Silt 10-15 percent.
Silt, brown, with fine to coarse sand and trace of gravel	2	4	Sand 35 percent.
Silt, slightly clayey, brown, with fine to medium sand	2	6	Sand 30-35 percent.
Sand, fine to medium, silty, slightly clayey, brown	3	9	Silt 15-20 percent.
Do	2	11	More sand, less silt than above.

Well 34/2-33L2--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, clayey, brown	3	14	
Sand, fine to medium, silty, clayey, brownish-gray	2	16	Silt 20 percent.
Silt, gray, with fine to medium sand	3	19	Sand more than 30 percent.
Do	3	22	Sand nearly 50 percent.
Sand, fine to medium, silty, gray	3	25	Silt 45 percent.

Well 34/2-34A1

Type of record: Driller's log. Altitude: 782 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, gray-brown	2	2	Slight organic odor; silt less than 15 percent.
Sand, fine to medium, slightly silty, brown	1	3	Sand mostly fine.
Do	2	5	Slightly more silt than above; sand mostly fine
Sand, fine to medium, slightly silty, gray	2	7	Sand mostly fine.
Sand, fine to medium, silty, gray	1	8	Sand mostly fine; silt less than 15 percent.
Sand, fine to coarse, silty, brown, with few fine gravel	3	11	Sand mostly fine to medium.
Sand, fine to coarse, silty, brown	2	13	More coarse sand than above.
Sand, fine to coarse, silty, brown, with trace of gravel	4	17	
Clay, gray, with fine to coarse sand and few fine gravel	2	19	
Record missing	6	25	

Well 34/2-34A2

Type of record: Driller's log. Altitude: 787 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, slightly silty, slightly clayey, dark-brown----	1	1	
Sand, fine to medium, silty, slightly clayey, brown---------	2	3	Sand 60 percent, mostly fine.
Silt, slightly clayey, brown, with fine sand----------	1	4	Sand 25 percent.
Sand, fine to medium, clean, light-brown----------	4	8	Sand mostly fine.
Sand, fine to medium, slightly silty, clean, brown, with trace of clay----------	2	10	Do.
Sand, fine to medium, clean, brown, with trace of silt------	8	18	Do.
Sand, fine to medium, clean, brown, with trace of coarse sand----------	7	25	

Well 34/2-34F1

Type of record: Driller's log. Altitude: 778 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, dark-gray, with fine roots-----	1	1	Some organic odor; sand about 85 percent, mostly fine.
Sand, fine to medium, silty, dark-gray, with fine roots-----	1	2	Silt about 50 percent; sand mostly fine.
Sand, fine to medium, clayey, silty, light gray-brown--------	1	3	Clay 30 percent.
Clay, hard, light-gray, with fine sand----------	8	11	Sand 10-15 percent.
Sand, fine to medium, silty, light-gray----------	4	15	Penetrating odor; sand mostly fine.
Sand, fine to coarse, silty, light-gray----------	3	18	Silt about 15 percent; sand mostly fine to medium.
Do----------	7	25	Silt about 15 percent; more coarse sand than above.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/2-34G1

Type of record: Driller's log. Altitude: 780 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, brown-gray, with trace of gravel	1	1	Slight organic odor; silt about 20 percent; sand mostly fine.
Sand, fine to coarse, silty, brown	2	3	Silt 25 percent; sand mostly fine to medium.
Sand, fine to coarse, gravelly, silty, brown, with some clay	2	5	Gravel up to 3/8 inch.
Sand, fine to coarse, silty, brown, with some gravel and clay	3	8	Gravel 5-10 percent; sand mostly coarse.
Sand, fine to coarse, clayey, silty, brown	2	10	
Do	5	15	Silt less than 15 percent.
Clay, gray, with fine to medium sand	7	22	Sand 15 percent, mostly fine.
Silt, gray, with fine to medium sand	3	25	Sand 20 percent, mostly fine.

Well 34/2-34M1

Type of record: Driller's log. Altitude: 792 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, gray-brown, with fine roots	1	1	Organic odor; silt more than 30 percent.
Sand, fine to coarse, gravelly, silty, brown, with trace of clay	2	3	Gravel 20 percent, up to 3/8 inch; sand mostly medium to coarse.
Sand, fine to coarse, silty, clayey, brown, with trace of gravel	2	5	Sand about 55 percent.

Well 34/2-34M1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, clayey, brown, with trace of gravel	3	8	Slightly more clay and less sand than above.
Silt, clayey, gray-brown, with fine to coarse sand	3	11	Sand more than 40 percent.
Sand, fine to coarse, silty, brown, with some gravel	3	14	Sand mostly medium to coarse; gravel up to 3/8 inch.
Sand, fine to coarse, slightly silty, brown, with few fine gravel	3	17	Sand mostly fine to medium.
Sand, fine to medium, slightly silty, brown	8	25	Sand mostly fine.

Well 34/2-35G1

Type of record: Driller's log. Altitude: 817 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	18	18	
Clay, blue	31	49	
Gravel, coarse	5	54	

Well 34/2-35G2

Type of record: Driller's log. Altitude: 810 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, sandy, yellow	18	18	
Gravel and blue clay	42	60	
Gravel, pea-sized	4	64	

Well 34/2-36A1

Type of record: Driller's log. Altitude: 797 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Drift	180	180	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/2-36A1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, brown and blue	30	210	
Shale, brown	68	278	
Shale, gray	13	291	
Devonian and Silurian Systems; undifferentiated:			
Lime, brown	39	330	
Lime, brown and gray	20	350	
Lime, gray	5	355	
Shale, gray	2	357	
Lime, gray	3	360	
Lime, light-brown	30	390	
Lime and strips of shale	50	440	
Lime, gray	362	802	

Well 34/2-36D1

Type of record: Driller's log. Altitude: 805 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Drift	200	200	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, brown	116	316	
Devonian and Silurian Systems; undifferentiated:			
Lime, hard, gray	109	425	
Lime, gray	448	873	
Lime, brown	11	884	
Lime, hard, blue-gray	31	915	
Lime, gray	41	956	
Lime, brown	19	975	
Lime with strips of shale	85	1,060	
Ordovician? System:			
Upper Ordovician? Series:			
Shale, gray	210	1,270	
Shale, brown	118	1,388	
Middle Ordovician Series:			
Lime, brown	32	1,420	

Well 34/3- 3E1

Type of record: Driller's log. Altitude: 802 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, silty, brown	1	1	
Sand, fine to coarse, silty, brown, with fine gravel	3	4	
Sand, fine to medium, brown	2	6	
Clay, sandy, stiff, brown and gray	2	8	

Well 34/3- 3E1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, gravelly, brown	3	11	Gravel 15 percent.
Clay, brownish-gray, with fine to coarse sand	8	19	Sand 15 percent.
Sand, silty, gray	7	26	Silt 30 percent.
Sand, fine to coarse, silty, brownish-gray	4	30	Do.

Well 34/3- 3N1

Type of record: Driller's log. Altitude: 797 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, clayey, sandy, brownish-gray	1	1	
Sand, fine, brown, with clay lumps	1	2	
Sand, fine to medium, clayey, brown	2	4	
Sand, fine to coarse, silty, brown, with fine gravel	2	6	
Clay, sandy, stiff, grayish-brown	2	8	Sand 20-30 percent.
Clay, sandy, silty, grayish-brown	3	11	Do.
Clay, gray, with some sand	10	21	
Clay, gray, with fine to coarse sand	3	24	Sand 10-15 percent.
Clay, gray, with some sand	6	30	

Well 34/3- 6Q1

Type of record: Driller's log. Altitude: 808 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue, and gravel	22	22	
Clay, blue, and gravel; hard	8	30	
Clay, soft	12	42	
Sand, coarse	4	46	

Well 34/3- 6Q2

Type of record: Driller's log. Altitude: 809 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and blue clay	38	38	
Gravel mixed with blue clay	5	43	

Well 34/3- 6Q2--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue	15	58	
Sand, fine	7	65	
Sand, coarse	5	70	

Well 34/3- 7B3

Type of record: Driller's log. Altitude: 807 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil and sand	14	14	
Clay, blue	21	35	
Sand	5	40	

Well 34/3- 7G1

Type of record: Driller's log. Altitude: 807 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay and sand; yellow	30	30	
Clay, blue	10	40	
Sand, fine	3	43	
Gravel and sand; coarse, gray	6	49	

Well 34/3- 9J1

Type of record: Driller's log. Altitude: 792 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, brown, with fine sand and gravel	1	1	
Sand, fine to medium, silty, brown	2	3	Silt 15-20 percent.
Sand, fine to medium, silty, brown, with clay lumps	1	4	Silt 30 percent.
Sand, fine to medium, brown	2	6	
Sand, fine to coarse, brown, with fine gravel and clay lumps	4	10	
Sand, fine to coarse, brown, with fine gravel	6	16	
Sand, fine to coarse, grayish-brown, with fine gravel	2	18	
Clay, brownish-gray, with fine to coarse sand and fine gravel	7	25	
Sand, fine to coarse, silty, grayish-brown, with fine gravel	3	28	
Sand, silty, grayish-brown, with fine gravel	2	30	Silt 30-40 percent.

Well 34/3- 9Q1

Type of record: Driller's log. Altitude: 792 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Silt, sandy, brown	1	1	
Silt, sandy, brown, with clay lumps	1	2	
Sand, fine, silty, brown, with clay lumps	1	3	Silt 40 percent.
Sand, fine to medium, brown	2	5	
Sand, fine to coarse, grayish-brown, with fine gravel and some silt	3	8	
Sand, fine to medium, brown	2	10	
Sand, fine to medium, silty, brown	6	16	
Clay, gray, with fine to medium sand	5	21	
Clay, sandy, stiff, gray-brown	9	30	Sand 15 percent.

Well 34/3-10C1

Type of record: Driller's log. Altitude: 800 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay	16	16	
Sand	5	21	
Clay, blue	26	47	
Clay, yellow	13	60	
Sand	10	70	
Gravel	5	75	

Well 34/3-10D1

Type of record: Driller's log. Altitude: 797 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, silty, sandy, brown	1	1	
Clay, stiff, brown	3	4	
Clay, sandy, brown	1	5	Sand 15-20 percent.
Sand, silty, brown	2	7	Silt 30 percent.
Clay, gray, with some sand	6	13	
Sand, fine, silty, gray	2	15	Silt 30 percent.
Clay, stiff, gray, with fine to medium sand	3	18	Sand 20 percent.
Sand, fine to medium, silty, brown	3	21	
Clay, sandy, stiff, brown	4	25	Sand 15 percent.
Clay, stiff, gray, with some sand	5	30	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/3-10E1

Type of record: Driller's log. Altitude: 796 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, clayey, brown	1	1	Clay 30-40 percent.
Sand, fine to medium, brown	1	2	
Sand, fine to coarse, silty, brown, with fine gravel	1	3	Silt 10-15 percent.
Clay, sandy, brownish-gray	4	7	Sand 10-15 percent.
Do	4	11	Sand 20 percent.
Clay, gray	3	14	
Silt, sandy, gray	5	19	Sand 10-15 percent.
Silt, clayey, gray, with some sand	3	22	
Clay, stiff, gray, with some sand	2	24	
Sand, fine, silty, gray	4	28	
Clay, stiff, gray	2	30	

Well 34/3-11A1

Type of record: Driller's log. Altitude: 807 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay	7	7	
Sand	9	16	
Clay, blue	16	32	
Gravel and sand	6	38	Blue clay at 38 ft.

Well 34/3-16B1

Type of record: Driller's log. Altitude: 793 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, silty, gray	1	1	Silt 30 percent.
Sand, fine to medium, silty, brown, with clay lumps	3	4	
Sand, fine to medium, brown	1	5	
Clay, brown, with fine to coarse sand	3	8	
Silt, clayey, brownish-gray, with fine to medium sand	3	11	
Clay, stiff, gray	7	18	
Sand, fine, silty, grayish-brown	8	26	
Silt, sandy, grayish-brown	4	30	

Well 34/3-16G1

Type of record: Driller's log. Altitude: 792 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Silt, slightly clayey, gray, with fine to coarse sand, few fine gravel, and roots-----	2	2	Organic odor; sand more than 40 percent.
Sand, fine to medium, silty, gray-brown, with trace of roots	1	3	Sand 85 percent.
Sand, fine to medium, silty, gray-brown----------	1	4	
Sand, fine to medium, slightly silty, slightly clayey, gray-brown, with bits of wood-------	1	5	
Sand, fine to medium, silty, gray-black, with trace of fine gravel----------	2	7	
Silt, clayey, gray, with fine to coarse sand and bits of wood	4	11	Sand 40 percent, mostly fine.
Clay, gray, with some medium to coarse sand----------	3	14	
Sand, fine, silty, gray----------	7	21	Silt 40 percent.
Sand, silty, brownish-gray-------	6	27	Silt 10-15 percent.
Clay, gray, with some sand-------	3	30	

Well 34/3-16J1

Type of record: Driller's log. Altitude: 797 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, dark-gray, with fine sand----------	1	1	Some organic odor; sand nearly 50 percent.
Clay, silty, brown, with fine to medium sand----------	2	3	Sand 25 percent; silt 20 percent.
Sand, fine to medium, clayey, silty, brown----------	1	4	Sand about 65 percent; silt 15 percent.
Sand, fine to medium, clayey, silty, gray-brown, with few fine gravel----------	1	5	Clay 30 percent.
Sand, fine to medium, clayey, silty, gray-brown----------	3	8	More silt than above.

Well 34/3-16J1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Silt, fine to medium, sandy, clayey, gray-brown, with trace of quartz	3	11	Clay about 10 percent.
Silt, slightly clayey, gray-brown, with fine sand and trace of gravel	5	16	Sand about 15 percent.
Clay, silty, gray, with fine sand	7	23	Sand 15-20 percent.
Clay, very silty, gray, with fine to coarse sand	3	26	Sand 40 percent, mostly fine to medium.
Clay, silty, gray, with fine to coarse sand and few gravel	4	30	Sand almost 50 percent; gravel up to 3/8 inch.

Well 34/3-16R1

Type of record: Driller's log. Altitude: 792 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, sandy, black	1	1	Sand 20 percent.
Sand, fine, silty, light-brown	4	5	
Sand, gray, with fine gravel	8	13	
Sand, fine to coarse, brown	2	15	Sand mostly fine to medium.
Sand, fine to medium, bluish-gray, with trace of very fine gravel	9	24	Gravel 3 percent.
Sand, fine to medium, clayey, bluish-gray	6	30	Sand about 75 percent.

Well 34/3-21A1

Type of record: Driller's log. Altitude: 798 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Silt, sandy, gray, with fine gravel and fibers	1	1	
Sand, silty, light-brown, with fine gravel	1	2	Sand 40 percent; silt 35 percent; gravel 25 percent.

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 34/3-21A1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series;			
Clay, grayish-brown, with fine sand	3	5	Sand 35 percent.
Clay, silty, grayish-brown, with fine sand	3	8	
Clay, bluish-gray, with fine sand	3	11	Sand 30 percent.
Clay, stiff, with fine sand	2	13	Sand 10 percent.
Clay, stiff, bluish-gray	5	18	
Clay, soft, sand	4	22	Sand 15 percent.
Sand, fine to medium, clayey	8	30	Sand 55 percent.

Well 34/3-21H1

Type of record: Driller's log. Altitude: 792 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, gray	1	1	Silt 15 percent.
Sand, fine	4	5	
Sand, fine, with fine gravel	2	7	Gravel 5 percent.
Sand	4	11	
Sand, fine, silty, gray	2	13	Silt 45 percent.
Clay, bluish-gray, with coarse sand	4	17	Sand 45 percent
Clay, sandy, stiff, gray	3	20	Do.
Silt, bluish-gray, with fine to medium sand	11	31	Sand 45-50 percent.

Well 34/3-21P1

Type of record: Driller's log. Altitude: 787 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, gray, with clay lumps	1	1	
Sand, fine to medium, silty brown	2	3	
Sand, fine to medium, silty, brown, with clay lumps	1	4	Silt 20 percent.
Sand, fine to medium, silty, brown	2	6	Do.
Sand, fine to coarse, silty, brown, with fine gravel	1	7	Silt 10-15 percent.
Sand, fine to coarse, silty, greenish-brown	3	10	
Sand, fine to coarse, silty, brown	6	16	
Do	3	19	Silt 30-40 percent.

Well 34/3-21P1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, gray	3	22	Silt 30-40 percent.
Clay, sandy, gray	3	25	Sand 10-15 percent.

Well 34/3-28C1

Type of record: Driller's log. Altitude: 790 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, brown with fine gravel	1	1	
Sand, fine, silty, brown, with fine gravel	1	2	Silt 10-15 percent.
Sand, fine to coarse, silty, brown, with clay lumps	1	3	
Clay, silty, sandy, brown	1	4	Sand 20 percent.
Sand, fine to medium, silty, clayey, brown, with gravel	3	7	
Sand, fine, silty, brown, with fine gravel	4	11	Silt 10-15 percent.
Sand, fine to medium, silty, brown, with clay lumps	4	15	
Sand, fine to medium, silty, gray, with clay lumps	3	18	
Sand, fine to medium, silty, brown	10	28	
Clay, gray, with fine to medium sand	2	30	Sand 10-15 percent.

Well 34/3-29M1

Type of record: Driller's log. Altitude: 790 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, gray	1	1	
Sand, fine to medium, silty, brown	2	3	
Sand, fine to coarse, silty, clayey, grayish-brown, with fine gravel	6	9	
Sand, fine, silty, brown	6	15	
Sand, fine to medium, silty, clayey, gray	3	18	
Sand, fine to coarse, silty, clayey, gray	3	21	
Sand, fine to coarse, silty, brown	4	25	

Well 34/3-30P1

Type of record: Driller's log. Altitude: 793 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, brown, with some fine gravel---	2	2	
Sand, fine to coarse, silty, brown, with fine gravel--------	1	3	
Sand, fine to medium, silty, brown--------------------------	2	5	
Sand, silty, brown----------------	2	7	
Sand, fine to medium, silty, brown, with fine gravel--------	1	8	
Clay, sandy, stiff, brown, with fine gravel----------------	2	10	Sand 30-40 percent.
Sand, fine to medium, silty, grayish-brown, with clay lumps-	5	15	Silt 20-30 percent.
Sand, fine to medium, silty, brown--------------------------	3	18	
Sand, fine to coarse, brown, with some silt-----------------	7	25	

Well 34/3-30Q1

Type of record: Driller's log. Altitude: 787 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, brown----------	1	1	
Sand, fine brown, with fine gravel--------------------------	2	3	
Sand, fine to medium, silty, brown--------------------------	2	5	
Sand, fine to medium, silty, brown, with clay lumps---------	3	8	
Clay, sandy, soft, brown----------	6	14	Sand 15 percent.

Well 34/3-31D1

Type of record: Driller's log. Altitude: 797 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, silty, grayish-brown---------------------------	2	2	
Sand, fine, silty, brown----------	1	3	
Sand, fine, brown, with some silt	6	9	
Sand, fine, silty, brown----------	5	14	Silt 20-30 percent.
Sand, fine to coarse, silty, brown, with some gravel--------	3	17	Do.
Sand, medium to coarse, silty, brown, with clay lumps---------	1	18	Silt 30-40 percent.

Well 34/3-31D1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, clayey, brown	4	22	Silt 30 percent.
Sand, fine, silty, gray, with some gravel	3	25	Silt 30-40 percent.

Well 34/3-34J1

Type of record: Driller's log. Altitude: 793 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Muck	8	8	
Clay	23	31	
Sand, fine	22	53	
Clay	5	58	
Clay and gravel; mixed	2	60	
Sand, fine	5	65	
Sand, medium	15	80	Clay at 80 feet.

Well 35/1-23P2

Type of record: Driller's log. Altitude: 787 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	20	20	
Clay, blue	25	45	
Sand	10	55	
Gravel, medium	3	58	

Well 35/1-27N1

Type of record: Driller's log. Altitude: 763 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	25	25	
Clay, blue	60	85	
Clay and gravel	12	97	
Sand	11	108	
Gravel, pea-sized, gray	4	112	

Well 35/1-31H1

Type of record: Driller's log from memory. Altitude: 725 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow, and gravel; mixed	36	36	
Record missing	15	51	Yellow sand at 36 feet.
Clay	4	55	

Well 35/1-31H1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, gray	19	74	
Gravel	3	77	

Well 35/1-31R1

Type of record: Driller's log. Altitude: 720 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Drift; clay, sand, and sandy gravel	125	125	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, blue-gray and brown	45	170	
Shale, limey, brown	15	185	
Limestone, chocolate-brown	43	228	
Shale, hard, gray	13	241	
Middle Devonian Series:			
Caprock, brown, and coarse lime	8	249	
Lime, sandy, brown	6	255	
Lime, medium-grained, sandy, hard, brown to gray	15	270	

Well 35/1-32N1

Type of record: Driller's log. Altitude: 723 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Drift	140	140	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, blue-gray, and light-brown	45	185	
Shale, limey, brown	25	210	
Limestone, chocolate-brown	30	240	
Shale, medium-hard, gray	13	253	
Devonian and Silurian Systems; undifferentiated:			
Limestone, hard, brownish-white	7	260	
Limestone, fine to coarse, brown-	8	268	
Lime, medium to coarse, brownish-gray	27	295	
Lime, medium to coarse, brown-gray to gray-white	32	327	
Lime fine-grained, dense, gray-white	33	360	
Lime, soft to medium-hard, coarse, shaly, gray to brown	49	409	
Lime, fine-grained, dense, gray to gray-white	41	450	

Well 35/1-32N1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Devonian and Silurian Systems; undifferentiated:			
Shale, gray-green, and dolomitic lime; interbedded	48	493	
Lime, hard, shaly, buff, gray, and gray-blue	52	545	
Lime, dolomitic, white to buff, with some shale	40	585	
Lime, dolomitic, white to gray, with considerable shale	23	608	
Lime, very fine, extremely hard, dense, dolomitic	47	655	
Lime, fine-grained, hard, dolomitic, with some gypsum	50	705	

Well 35/1-36B1

Type of record: Driller's log. Altitude: 837 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	34	34	
Clay, blue	11	45	
Sand, dark	15	60	
Clay, blue	10	70	
Sand	14	84	

Well 35/1-36Q1

Type of record: Driller's log. Altitude: 825 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil, sandy	20	20	
Clay, soft, blue	40	60	
Clay, blue, and gravel; mixed	10	70	
Gravel, pea-sized	17	87	

Well 35/2-27F1

Type of record: Driller's log. Altitude: 846 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay	48	48	
Hardpan	22	70	
Mud	64	134	
Sand and gravel	20	154	
Record missing	2	156	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.--Cont.

Well 35/2-27G1

Type of record: Driller's log. Altitude: 846 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay	30	30	
Hardpan	150	180	
Mud, red	7	187	
Clay	10	197	
Mississippian System:			
Lower Mississippian Series:			
Limestone	5	202	

Well 35/2-27P1

Type of record: Driller's log. Altitude: 847 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	16	16	
Gravel, pea-sized	4	20	
Clay, blue, and gravel; mixed	45	65	
Shale fragments	2	67	
Clay, blue, and gravel	83	150	
Gravel, pea-sized	10	160	

Well 35/2-28D1

Type of record: Driller's log. Altitude: 854 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	18	18	
Gravel and blue clay; mixed	17	35	
Gravel, pea-sized	7	42	

Well 35/2-28E1

Type of record: Driller's log. Altitude: 867 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue	35	35	
Clay, blue and gravel	11	46	
Clay, blue	43	89	
Sand, yellow	8	97	

Well 35/2-28E2

Type of record: Driller's log. Altitude: 863 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, brown	18	18	
Sand, brown	2	20	
Clay, blue, and gravel	55	75	
Sand and gravel; red	8	83	

Well 35/2-28E3

Type of record: Driller's log. Altitude: 867 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow, and gravel---------	30	30	
Clay, blue, and gravel----------	8	38	
Gravel and coarse sand----------	4	42	

Well 35/2-28F1

Type of record: Driller's log. Altitude: 857 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Record missing-------------------	40	40	
Clay, blue-----------------------	40	80	
Clay, yellow, and gravel; mixed--	20	100	
Gravel, fine---------------------	8	108	

Well 35/2-28F3

Type of record: Driller's log. Altitude: 857 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow---------------------	20	20	
Gravel---------------------------	10	30	
Gravel, pea-sized, and sand------	10	40	
Clay, blue, and gravel-----------	50	90	
Gravel, pea-sized----------------	15	105	

Well 35/2-28F4

Type of record: Driller's log. Altitude: 850 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow---------------------	18	18	
Clay, blue-----------------------	22	40	
Gravel with slate and blue shale-	15	55	
Clay, blue, and gravel; mixed, hard---------------------------	35	90	
Gravel, coarse-------------------	20	110	

Well 35/2-28P1

Type of record: Driller's log. Altitude: 857 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay-----------------------------	20	20	
Sand-----------------------------	15	35	
Clay, sandy----------------------	10	45	
Sand-----------------------------	14	59	

Well 35/2-28P2

Type of record: Driller's log. Altitude: 853 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	10	10	
Clay, blue, and gravel; mixed	18	28	
Gravel, pea-sized, and slate; mixed	6	34	

Well 35/2-29A2

Type of record: Driller's log. Altitude: 862 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	25	25	
Clay, blue	45	70	
Clay, blue, and gravel; mixed	45	115	
Gravel	11	126	

Well 35/2-29A3

Type of record: Driller's log. Altitude: 867 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	36	36	
Gravel	7	43	
Clay, blue	7	50	
Gravel, pea-sized	5	55	

Well 35/2-29H2

Type of record: Driller's log. Altitude: 852 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow, and gravel; mixed	30	30	
Gravel, yellow, mixed with mud and silt	6	36	
Gravel and clay; mixed, yellow	14	50	
Clay, blue, and gravel; mixed	40	90	
Gravel, coarse	9	99	

Well 35/2-29L1

Type of record: Driller's log. Altitude: 848 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Muck	5	5	
Mud and clay; soft	7	12	
Clay, soft	11	23	
Clay, hard	71	94	
Sand	47	141	

Well 35/2-29L2

Type of record: Driller's log. Altitude: 843 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Muck	5	5	
Mud and clay; soft	7	12	
Sand and gravel	4	16	
Clay	25	41	
Sand	2	43	
Clay	26	69	
Sand with some gravel	26	95	
Sand, medium	13	108	
Sand, fine	7	115	
Sand, medium	25	140	
Clay	2	142	

Well 35/2-29R1

Type of record: Driller's log. Altitude: 862 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	21	21	
Clay, blue	11	32	
Gravel	28	60	
Clay, blue, and gravel	39	99	
Gravel, pea-sized	9	108	

Well 35/2-30Q1

Type of record: Driller's log. Altitude: 846 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	21	21	
Clay, blue, and gravel; mixed, hard	57	78	
Gravel, coarse	9	87	

Well 35/2-32A2

Type of record: Driller's log. Altitude: 860 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow	30	30	
Sand, fine	10	40	
Clay, blue, and gravel	50	90	
Gravel	10	100	

Table 4.--Selected logs of wells and test holes in Marshall County, Ind.

Well 35/2-32H1

Type of record: Driller's log. Altitude: 854 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay----------	30	30	
Sand and clay----------	10	40	
Gravel----------	5	45	
Sand----------	9	54	

Well 35/2-32M1

Type of record: Driller's log. Altitude: 867 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay and rocks----------	84	84	
Gravel, dirty----------	10	94	
Sand, coarse----------	12	106	

Well 35/2-33B1

Type of record: Driller's log. Altitude: 852 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow----------	8	8	
Clay, blue, and gravel; mixed----	37	45	
Sand, coarse----------	5	50	

Well 35/2-33B3

Type of record: Driller's log. Altitude: 857 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow----------	20	20	
Clay, blue, and gravel; mixed----	16	36	
Clay, blue----------	14	50	
Gravel----------	4	54	

Well 35/2-33D3

Type of record: Driller's log. Altitude: 862 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow----------	30	30	
Gravel, pea-sized, and sand------	18	48	
Clay, blue, and gravel----------	51	99	
Gravel, pea-sized----------	17	116	

Well 35/2-33D4

Type of record: Driller's log. Altitude: 857 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue	59	59	
Rock	3	62	Boulder.
Clay, sandy	28	90	
Clay, blue	10	100	
Sand and gravel	14	114	

Well 35/3-26N1

Type of record: Driller's log. Altitude: 803 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, brown	1	1	Silt 15 percent.
Sand, fine, silty, brown, with clay lumps	2	3	Do.
Sand, fine to coarse, silty, brown, with fine gravel, and clay lumps	2	5	Do.
Silt, clayey, gray with white specks, with fine sand and gravel	1	6	
Silt, sandy, black	4	10	
Sand, fine, silty, dark-brown	3	13	Silt 20 percent.
Sand, fine, brown	5	18	
Sand, fine, silty, gray	3	21	
Sand, fine, brown	9	30	

Well 35/3-26Q1

Type of record: Driller's log. Altitude: 820 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Record missing	20	20	
Sand, fine	27	47	
Sand and gravel	27	74	
Clay and sand	1	75	
Sand, coarse	5	80	
Sand, very fine	5	85	
Gravel	9	94	
Clay, blue	23	117	
Hardpan and clay	29	146	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Slate and shale; blue	149	295	
Shale, black	5	300	

Well 35/3-26R1

Type of record: Driller's log. Altitude: 802 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, silty, brown, with roots---	1	1	Silt 20-30 percent.
Sand, medium to coarse, silty, brown, with fine gravel--------	2	3	
Sand, fine to medium, brown------	5	8	
Sand, fine to coarse, brown, with fine gravel----------	3	11	
Sand, fine, gray----------	2	13	
Sand, fine, silty, gray----------	6	19	Silt 10 percent.
Sand, fine, silty, brown---------	2	21	Do.
Sand, fine, silty, gray----------	6	27	Do.
Sand, fine, brown----------	3	30	

Well 35/3-27K1

Type of record: Driller's log. Altitude: 800 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Silt, clayey, black, with some sand----------	5	5	
Silt, sandy, clayey, dark-brown, with white specks----------	6	11	
Silt, sandy, soft, gray----------	5	16	
Silt, gray, with fine to medium sand----------	2	18	
Sand, fine to medium, brown------	12	30	

Well 35/3-27L1

Type of record: Driller's log. Altitude: 798 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Silt, sandy, brown, with clay lumps----------	1	1	
Silt, sandy, clayey, brown-------	1	2	
Clay, silty, dark-brown, with some fine sand----------	2	4	
Silt, sandy, dark-brown, with white specks----------	3	7	
Sand, fine, silty, brown---------	3	10	Silt 10 percent.
Sand, fine, silty, brown, with fine gravel----------	5	15	Do.
Sand, fine, brown----------	15	30	

Well 35/3-27Q1

Type of record: Driller's log. Altitude: 818 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand	20	20	
Clay with some streaks of sand	103	123	
Hardpan	13	136	
Gravel and clay balls	2	138	
Gravel	19	157	Clay at 157 feet.

Well 35/3-27Q2

Type of record: Driller's log. Altitude: 818 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, clean, gray	35	35	
Clay, blue	47	82	
Shale, blue	4	86	Gravel?
Clay, blue	35	121	
Gravel, dirty	2	123	
Clay and hardpan	18	141	
Gravel	1	142	
Clay	33	175	

Well 35/3-27Q3

Type of record: Driller's log. Altitude: 815 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Fill	10	10	
Clay, blue	90	100	
Clay, sandy	20	120	
Gravel, clean	3	123	
Gravel, dirty	9	132	
Gravel, clean	6	138	
Clay with sand	17	155	

Well 35/3-27R1

Type of record: Driller's log. Altitude: 802 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Silt, brown, with fine sand	2	2	Sand 30 percent.
Silt, clayey, brown, with fine sand	1	3	Sand 20 percent.
Silt, clayey, black, with some fine sand	1	4	
Silt, black, with fine sand	6	10	Sand 10-15 percent.
Sand, fine to coarse, silty, gray	9	19	Silt 40 percent.
Clay, gray, with some fine sand	11	30	

Well 35/3-29H1

Type of record: Driller's log. Altitude: 817 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay	10	10	
Mud, sandy	50	60	
Gravel	20	80	
Gravel, muddy	60	140	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, pea-green	15	155	
Lime, gray	15	170	
Shale, gray	80	250	
Shale, light-brown	80	330	
Shale, dark-brown	74	404	
Shale, limey, gray	21	425	
Devonian System:			
Middle Devonian Series:			
Limestone	10	435	

Well 35/3-31A1

Type of record: Driller's log. Altitude: 811 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand	80	80	
Mud	34	114	
Gravel	4	118	
Mud, gray	6	124	
Mud, red	19	143	
Mud, gray-blue	20	163	
Mississippian System:			
Lower Mississippian Series:			
Lime and shells	14	177	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series; undifferentiated:			
Shale, sandy, gray	68	245	
Shale, light-brown	40	285	
Shale, dark-brown	55	340	
Shale, gray	21	361	
Record missing	5	366	Limestone?

Well 35/3-33C1

Type of record: Driller's log. Altitude: 804 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay and gravel	15	15	
Clay, slick, blue	22	37	
Record missing	4	41	
Gravel, sand, and clay; mixed	7	48	
Gravel and sand; clean, gray	5	53	

Well 35/3-33H1

Type of record: Driller's log. Altitude: 806 feet.

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow	25	25	
Clay, blue	50	75	
Sand, yellow	12	87	

Well 35/3-34B1

Type of record: Driller's log. Altitude: 818 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil	2	2	
Sand, dirty, yellow	16	18	
Sand and gravel	12	30	
Clay, blue	94	124	
Sand, dirty, and gravel	4	128	
Gravel, coarse	12	140	
Sand, coarse, with some gravel	13	153	Blue clay at 153 feet.

Well 35/3-34E1

Type of record: Driller's log. Altitude: 800 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, silty, brown, with some sand	1	1	
Sand, fine to medium, clayey, brown	1	2	
Sand, fine to medium, brown	9	11	
Clay, gray, with fine to coarse sand	5	16	Sand 20 percent.
Sand, fine to medium, gray, with some silt	3	19	
Sand, fine to [illegible]	6	25	
Sand, fine to medium, silty, brownish-gray	5	30	

Well 35/3-34M1

Type of record: Driller's log. Altitude: 802 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to coarse, silty, brown, with fine gravel	1	1	
Sand, fine to medium, brown, with some gravel	4	5	
Sand, fine to coarse, brown, with fine gravel	1	6	

Well 35/3-34M1--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, brown------	1	7	
Sand, fine to coarse, brown, with fine gravel----------	1	8	
Sand, fine to coarse, silty, gray, with fine gravel---------	3	11	
Sand, fine to medium, silty, gray----------	15	26	
Sand, fine to medium, silty, brown----------	4	30	

Well 35/3-34N1

Type of record: Driller's log. Altitude: 798 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, silty, sandy, brown--------	1	1	
Sand, fine to coarse, brown, with fine to coarse gravel-----	1	2	
Sand, fine to medium, brown------	3	5	
Sand, fine to coarse, brown, with fine to coarse gravel-----	7	12	
Clay, sandy, brownish-gray-------	4	16	Sand 20-30 percent.
Sand, fine to coarse, silty, brown, with fine gravel--------	3	19	
Clay, brownish-gray, with fine to coarse sand----------	11	30	

Well 35/3-35B1

Type of record: Driller's log. Altitude: 827 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine, brown----------	30	30	
Sand, coarse, brown, and gravel--	11	41	
Clay, blue----------	46	87	
Hardpan----------	17	104	
Sand, fine, dirty----------	1	105	
Sand, coarse, gray, and gravel---	8	113	

Well 35/3-35B2

Type of record: Driller's log. Altitude: 827 feet.

Quaternary System:			
Recent and Pleistocene Series			
Top soil----------	5	5	
Sand and gravel----------	31	36	
Clay, blue----------	58	94	

Well 35/3-35B2--Continued

Material	Thickness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel, coarse	10	104	
Sand, coarse	3	107	
Sand, coarse, and gravel	3	110	Clay at 110 feet.

Well 35/3-36C1

Type of record: Driller's log. Altitude: 842 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and yellow clay	36	36	
Clay, blue	38	74	
Sand	6	80	

Well 35/3-36E1

Type of record: Driller's log. Altitude: 805 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, fine to medium, silty, brown	2	2	Silt 20 percent.
Sand, fine to medium, silty, clayey, brown	1	3	Do.
Sand, fine to medium, silty, brown, with clay and gravel	1	4	Do.
Sand, fine to coarse, brown, with fine gravel and some silt	1	5	
Sand, fine to coarse, silty, brown, with fine gravel	2	7	Silt 20 percent.
Sand, medium to coarse, brown, with gravel and some silt	1	8	
Sand, fine, brown	12	20	
Sand, fine, gray	6	26	
Sand, fine to medium, gray	4	30	

Table 5.--Field chemical analyses of water from wells in Marshall County, Indiana
(Results in parts per million. Analyses by U. S. Geological Survey, except where otherwise noted.)

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

Material: G, gravel; Sd, sand.

Geologic age: Pl, Pleistocene.

U. S. Public Health Service drinking-water standards: Iron (Fe) - 0.3 ppm for iron and manganese together; Sulfate (SO_4) - 250 ppm; Chloride (Cl) - 250 ppm.

Remarks: BOR, analysis by Baltimore and Ohio Railroad.

Well	Material	Geologic age	Date of collection	Temperature (°F)	Iron (Fe)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Hardness as $CaCO_3$ (Calcium, magnesium)	Remarks
32/1- 1C1	Sd,G	Pl	8-60	--	2.0	386	80	8	344	
1D1	Sd,G	Pl	1-17-61	56	.5	395	75	16	332	
4B2	Sd,G	Pl	12-15-60	--	.3	254	100	12	300	
7N1	G	Pl	12-15-60	54	.5	361	45	12	188	
10N1	G	Pl	12-28-60	54	3.8	395	10	8	304	
13N1	Sd,G	Pl	1-17-61	--	3.0	420	35	4	316	
15K1	Sd	Pl	12-28-60	52	1.0	381	25	12	300	
16J3	G,Sd	Pl	12-28-60	53	2.5	405	10	12	304	
16K1	G,Sd	Pl	12-16-57	53	1.0	---	---	---	---	
17A1	Sd	Pl	6-27-56	--	---	359	---	6	412	
17B1	G,Sd	Pl	12-28-60	51	2.5	366	65	12	340	
17B2	G	Pl	1-17-61	51	7.5	478	15	4	328	
17F1	Sd	Pl	1-17-61	55	4.0	346	30	<4	252	
18A2	Sd,G	Pl	7-24-57	52	.5	151	---	6	172	
18B3	Sd,G	Pl	7-24-57	53	.6	183	---	<2	164	
20R1	Sd,G	Pl	12-28-60	55	.4	224	75	20	252	
22H3	Sd,G	Pl	7-24-57	--	2.0	325	---	2	284	
22H7	Sd	Pl	12-28-60	52	2.0	361	20	8	304	
22J2	Sd,G	Pl	7-24-57	53	2.0	351	---	2	304	
23D2	G,Sd	Pl	77-26-57	52	4.0	234	---	<2	200	
23E1	Sd	Pl	12-28-60	52	1.0	381	30	12	320	
23K1	Sd,G	Pl	1-17-61	54	1.0	429	5	4	300	
24L1	Sd,G	Pl	12-15-60	55	2.0	278	10	8	200	

Table 5.--Field chemical analyses of water from wells in Marshall County, Indiana--Continued

Well	Material	Geologic age	Date of collection	Temperature (°F)	Iron (Fe)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Hardness as $CaCO_3$ (Calcium, magnesium)	Remarks
32/1-25R1	Sd,G	Pl	1-17-61	52	1.0	371	50	4	288	
27Q1	Sd,G	Pl	7-26-57	52	2.5	334	---	6	328	
30E1	Sd,G	Pl	11-21-57	55	2.0	229	---	28	236	
31K2	Sd,G	Pl	7-25-57	52	1.5	242	---	6	264	After pumping 1 hr.
31K2	Sd,G	Pl	7-25-57	--	1.4	222	---	6	244	After pumping 2.5 hr.
34B2	G,Sd	Pl	12-28-60	52	.6	376	20	8	276	
34C3	Sd,G	Pl	7-24-57	52	2.0	303	---	4	296	
35G1	Sd,G	Pl	1-17-61	55	1.0	337	25	4	244	
36D1	Sd,G	Pl	12-16-57	58	1.0	322	---	38	328	
32/2- 2A1	Sd,G	Pl	12-15-60	53	.5	283	55	8	264	
6B1	Sd,G	Pl	6-23-60	--	.5	337	45	8	264	
7P1	G	Pl	1-17-61	--	1.0	390	65	4	320	
7Q1	Sd,G	Pl	1-17-61	52	1.0	429	120	24	412	
9A1	Sd,G	Pl	12- 5-60	53	1.2	449	50	<4	368	
9B1	Sd,G	Pl	12-15-60	53	1.1	322	30	8	272	
10G1	G	Pl	6-21-57	52	1.0	361	---	10	388	
10K1	G,Sd	Pl	6-21-57	--	2.0	371	---	18	408	
10K2	Sd,G	Pl	12-15-60	52	1.2	464	85	12	412	
11J1	Sd,G	Pl	1-17-61	--	3.0	503	80	56	480	
14N1	Sd,G	Pl	12-15-60	55	<.1	307	90	16	304	
15R1	G,Sd	Pl	1-17-61	49	<.1	425	60	4	352	
20E1	Sd,G	Pl	9- 3-57	56	.9	171	---	12	196	
20E1	Sd,G	Pl	12-15-60	--	.3	259	55	8	244	
22L1	G	Pl	9- 3-57	--	1.2	415	---	8	316	
24R1	Sd,G	Pl	1-16-61	55	.5	464	10	<4	308	
26H1	G	Pl	11-17-61	--	.3	532	15	4	332	
30J1	G,Sd	Pl	9- 3-57	--	.4	195	---	10	188	
30P1	G,Sd	Pl	12-15-60	53	1.0	283	145	16	380	

32/2-33M1	G	P1	1-18-61	--	0.1	366	40	4	276
32/3- 1A1	Sd,G	P1	1-17-61	--	1.0	410	5	< 4	272
2P1	Sd,G	P1	12-15-60	53	1.5	264	90	8	248
5R2	Sd,G	P1	6-20-57	52	1.5	334	---	66	432
7G1	Sd,G	P1	1-16-61	--	.1	332	45	12	292
7Q1	Sd,G	P1	1-16-61	--	1.5	488	10	4	312
16D1	G,Sd	P1	1-16-61	--	1.0	303	65	8	256
21H1	G	P1	12-15-60	54	1.4	312	10	4	212
22D2	Sd	P1	11-22-57	53	1.0	200	---	24	160
23E1	G	P1	12-15-60	52	2.4	346	5	8	244
28N1	Sd,G	P1	1-16-61	--	3.0	478	20	4	364
34N1	Sd,G	P1	12-15-60	54	.4	434	30	4	348
35E1	G	P1	12-14-60	--	2.5	386	10	8	244
36P1	Sd	P1	6-20-57	52	2.2	173	---	< 4	160
32/4- 5R1	Sd	P1	7-14-60	52	.1	351	55	16	396
8F1	G	P1	7-14-60	--	1.0	390	5	4	252
19F1	Sd,G	P1	7-14-60	--	1.0	273	55	8	288
21L1	Sd,G	P1	7-14-60	--	3.0	386	20	4	292
29R1	G	P1	7-14-60	56	1.5	307	75	8	300
32R1	Sd,G	P1	6-29-56	--	----	314	---	6	312
32R1	Sd,G	P1	7-14-60	--	2.0	386	55	12	320
33/1- 2N2	Sd,G	P1	6-29-60	--	.3	293	35	12	248
3D1	Sd,G	P1	7-14-60	--	.3	381	35	4	264
3N1	Sd	P1	6-29-60	56	.1	366	20	4	284
3N2	Sd	P1	6-18-57	--	.4	239	---	18	268
6C1	G	P1	12-16-57	49	1.5	176	---	24	208
6C1	G	P1	6-29-60	--	.3	181	35	8	132
10A1	Sd,G	P1	12-60	--	.5	312	50	4	268
10D1	Sd,G	P1	12-16-57	49	.8	249	---	60	268
10L1	G	P1	11-21-57	54	3.0	259	---	16	212
10L2	G,Sd	P1	6-29-60	--	.3	210	25	8	160
11H1	Sd,G	P1	6-29-60	--	.1	371	65	8	308
11R1	Sd,G	P1	6-22-60	56	.5	293	50	8	236
16R1	G,Sd	P1	6-29-60	--	.5	371	50	4	304
22K1	G	P1	9- 4-57	--	.4	400	---	30	380

Table 5.--Field chemical analyses of water from wells in Marshall County, Indiana--Continued

Well	Material	Geologic age	Date of collection	Temperature (°F)	Iron (Fe)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Hardness as $CaCO_3$ (Calcium, magnesium)	Remarks
33/1-22K1	G	Pl	6-29-60	--	0.3	503	40	8	384	
32H1	Sd,G	Pl	6-29-60	54	.3	351	85	12	344	
35K1	G	Pl	12-16-57	54	.5	390	---	44	372	
35K1	G	Pl	6-22-60	--	.5	346	110	28	372	
33/2- 2N1	Sd,G	Pl	6-22-60	--	.1	332	60	8	308	
5C1	G,Sd	Pl	9- 4-57	--	< .1	171	---	12	192	
5H2	Sd,G	Pl	7-13-60	54	3.0	425	40	4	320	
6H1	Sd	Pl	6-22-60	56	1.5	351	40	8	272	
9E1	Sd,G	Pl	6-56	--	-----	237	---	6	260	
9E1	Sd,G	Pl	6-22-60	--	3.0	268	55	12	256	
12E1	G	Pl	7-13-60	56	2.0	381	10	4	260	
16P1	Sd,G	Pl	1-18-61	49	.1	361	50	4	284	
18P1	Sd	Pl	12- 8-60	--	.5	322	70	4	264	
18Q1	Sd	Pl	6-23-60	56	.5	346	85	8	328	
19D1	G,Sd	Pl	12-60	--	.2	395	90	4	360	
19E1	G,Sd	Pl	9- 4-57	54	.3	368	---	6	384	
19F1	Sd	Pl	6-23-60	--	1.0	366	40	16	292	
21R1	G	Pl	6-23-60	54	1.0	298	65	12	268	
23H1	Sd	Pl	9- 4-57	--	< .1	312	---	12	316	
25J1	Sd,G	Pl	12- 9-60	--	.3	366	60	4	352	
26E1	Sd,G	Pl	12-60	--	.1	332	45	4	284	
27C1	Sd,G	Pl	12- 8-60	--	.6	317	65	4	264	
30N1	Sd	Pl	7-19-60	58	.5	288	15	4	192	
33/3- 5J1	G,Sd	Pl	7-13-60	59	2.0	361	5	8	248	
7N1	Sd	Pl	7-13-60	--	1.0	317	60	4	248	
7R1	Sd	Pl	12- 8-60	--	.3	249	105	8	260	
8P1	Sd	Pl	7-13-60	--	7.5	468	70	12	388	
10D1	Sd,G	Pl	1-17-61	--	2.0	390	10	< 4	288	

33/3-13P1	G,Sd	P1	7-12-60	--	1.0	351	75	8	324
18E1	Sd,G	P1	9- 4-57	--	1.5	293	---	10	208
18E1	Sd,G	P1	7-13-60	--	1.5	317	5	4	204
24A1	Sd	P1	7-12-60	--	1.5	483	95	12	444
24K1	Sd,G	P1	7-15-60	--	.5	429	10	4	272
24K2	Sd,G	P1	7-15-60	--	1.0	381	10	4	276
26D1	Sd,G	P1	7-12-60	54	1.5	376	5	4	228
31N1	Sd,G	P1	9- 4-57	--	.1	249	---	10	264
31N1	Sd,G	P1	7-12-60	--	.1	234	35	8	216
34R1	Sd,G	P1	7-13-60	55	2.0	337	60	8	296
33/4- 5F1	Sd,G	P1	7-12-60	53	.1	381	10	4	268
16M1	Sd,G	P1	7-12-60	56	< 7.5	586	45	4	464
19A1	G	P1	7-12-60	58	1.0	366	70	8	312
19H1	Sd	P1	7-12-60	--	.5	390	75	12	356
19M1	G	P1	7-12-60	--	1.0	386	15	4	260
32M1	Sd,G	P1	7-12-60	--	.3	342	80	12	308
32M2	Sd	P1	7-12-60	53	1.5	342	75	8	300
34/1- 1C1	Sd,G	P1	7-14-60	53	1.5	351	35	4	292
6C1	Sd,G	P1	9- 5-57	57	.5	210	---	8	188
6C1	Sd,G	P1	6-13-60	--	1.0	234	35	4	184
9P1	Sd,G	P1	9- 5-57	54	1.2	288	---	68	400
9P1	Sd,G	P1	6-13-60	--	.5	307	45	28	296
10L1	Sd	P1	6-13-60	--	.3	244	60	28	256
11E1	Sd,G	P1	6-13-60	--	1.0	351	70	8	332
20G1	Sd	P1	6-14-60	--	.3	312	45	8	260
21C1	Sd,G	P1	12-60	--	1.2	429	35	4	348
22R1	G	P1	11-20-57	--	1.0	220	---	20	264
23C1	Sd,G	P1	1-17-61	--	.1	400	130	12	408
23D1	Sd,G	P1	12-60	--	1.4	366	65	8	320
23N1	G	P1	12-60	--	3.0	508	30	< 4	404
23Q1	Sd,G	P1	6-14-60	--	3.0	405	65	8	364
26P1	G,Sd	P1	9- 4-57	--	1.2	264	---	14	300
27R1	Sd,G	P1	6-29-60	59	.5	376	40	8	320
29R1	Sd,G	P1	6-29-60	--	.3	303	65	8	288
31D2	G	P1	6-29-60	58	.3	142	10	8	148
32C1	G,Sd	P1	6-29-60	59	.3	337	65	12	312
33C1	G,Sd	P1	6-29-60	59	.3	410	35	8	308

Table 5.--Field chemical analyses of water from wells in Marshall County, Indiana--Continued

Well	Material	Geologic age	Date of collection	Temperature (°F)	Iron (Fe)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Hardness as $CaCO_3$ (Calcium, magnesium)	Remarks
34/2- 1B1	Sd	Pl	6-16-60	--	1.0	234	55	8	220	
1J2	Sd	Pl	12-60	--	1.3	410	5	4	276	
5J1	G	Pl	6-15-60	57	.3	390	125	80	536	
5R1	Sd,G	Pl	11-18-58	57	.5	220	---	40	256	
6L1	Sd,G	Pl	6-15-60	53	1.0	366	35	4	296	
8B2	G,Sd	Pl	7-14-60	58	.5	342	75	8	312	
8J1	Sd	Pl	7-14-60	--	.1	293	50	8	272	
10F1	Sd,G	Pl	12- 7-60	--	2.5	366	20	4	260	
13J1	G,Sd	Pl	12-60	--	.4	283	30	16	216	
18A1	Sd	Pl	6-16-60	58	1.0	293	20	8	212	
20G1	Sd,G	Pl	12-60	53	1.2	298	40	4	256	
20Q5	G	Pl	11-18-57	55	1.5	220	---	24	228	
20Q6	G,Sd	Pl	6-20-60	--	2.0	278	65	4	236	
21C1	G	Pl	6-16-60	--	.1	361	60	8	312	
24M1	Sd	Pl	12-60	--	1.0	351	85	12	356	
26P1	G	Pl	6-22-60	56	1.0	386	5	4	240	
28H1	G,Sd	Pl	7-14-60	58	< .1	503	45	8	372	
30R1	G,Sd	Pl	6-22-60	55	3.0	410	125	24	440	
32A1	Sd,G	Pl	6-22-60	59	1.0	410	35	8	328	
32D1	Sd	Pl	6-22-60	53	3.0	381	90	8	372	
33B1	G	Pl	6-22-60	49	1.5	405	50	8	320	
33B2	Sd	Pl	6-22-60	--	2.0	366	55	60	308	
35G1	G	Pl	11-19-57	54	1.0	----	---	< 4	200	
35G2	G	Pl	6-22-60	--	.5	278	45	4	212	
34/3- 2A1	Sd	Pl	6-21-60	--	.3	439	55	20	404	
6Q4	Sd	Pl	6-21-60	52	3.0	366	20	8	260	
6Q5	Sd	Pl	12-60	--	1.4	317	10	< 4	220	
10C1	Sd,G	Pl	6-13-57	53	4.0	337	---	4	288	

34/3-10P1	Sd	P1	12-60	--	1.5	293	95	24	336
11A1	G,Sd	P1	6-21-60	52	1.0	337	55	8	276
14P1	G	P1	6-21-60	--	1.5	429	5	4	280
34J1	Sd	P1	6-13-57	53	.8	198	---	4	164
34/4- 5C1	Sdq	P1	11-20-57	54	.3	122	---	28	184
17R1	G	P1	1-17-61	--	1.0	473	10	< 4	312
21D1	Sd	P1	1- 6-61	--	----	468	25	8	336
35/1-22B1	Sd,G	P1	6-14-60	--	.5	439	10	8	316
23C1	Sd,G	P1	6-11-57	--	4.0	386	---	6	336
23C1	Sd,G	P1	6-14-60	--	5.0	420	15	8	320
23G1	G	P1	6-28-56	--	----	327	---	2	392
23L1	Sd,G	P1	6-11-57	52	.5	249	---	< 4	236
23P2	Sd,G	P1	9- 5-57	--	.5	212	---	12	236
25N1	Sd,G	P1	6-14-60	--	.3	503	115	40	592
25P1	G	P1	9- 5-57	--	1.0	312	---	30	280
27N1	Sd,G	P1	12-60	--	.6	425	10	4	296
31H1	Sd,G	P1	9- 5-57	--	3.0	229	---	8	236
31H1	Sd,G	P1	6-14-60	--	4.0	386	155	8	392
33E1	G	P1	11-21-57	52	.1	312	---	32	308
33E1	G	P1	6-14-60	58	.1	317	40	12	288
34R1	G	P1	6-14-60	58	1.5	351	25	4	280
36B1	Sd	P1	6-15-60	--	.5	503	40	8	420
36Q1	G	P1	6-14-60	--	----	346	25	8	280
35/2-24J1	Sd,G	P1	6-28-56	--	----	300	---	4	308
24J1	Sd,G	P1	6-16-60	--	1.0	405	40	8	316
24J2	Sd	P1	6-28-56	--	----	305	---	6	316
26Q1	Sd	P1	6-14-60	--	1.5	420	10	8	308
27F1	Sd,G	P1	--------	--	----	322	---	6	239
27N1	Sd	P1	6-15-60	--	.1	400	5	16	244
27P1	G	P1	6-14-60	--	.3	395	10	4	288
28D1	G	P1	9- 5-57	57	1.2	346	---	22	372
28D2	Sd,G	P1	9- 5-57	--	1.0	317	---	2[illegible]	344
28E3	G,Sd	P1	7-14-60	--	1.5	468	115	36	468
28F3	G	P1	9- 5-57	58	.9	354	---	32	448
28P2	G	P1	6-15-60	--	.5	298	65	8	288

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Table 5.--Field chemical analyses of water from wells in Marshall County, Indiana--Continued

Well	Material	Geologic age	Date of collection	Temperature (°F)	Iron (Fe)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Hardness as $CaCO_3$ (Calcium, magnesium)	Remarks
35/2-29A2	G	Pl	6-14-60	--	1.0	366	55	8	320	
29J1	G	Pl	5- 9-57	58	1.0	188	---	48	348	
29R1	G	Pl	11-19-57	50	.7	366	---	---	288	
29R2	G	Pl	9- 5-57	58	.5	334	---	20	280	
30M1	Sd,G	Pl	12- 7-60	--	4.5	459	35	4	364	
30Q1	G	Pl	7-12-60	--	7.5	459	50	4	388	
32A2	G	Pl	6-15-60	58	1.0	415	10	4	288	
32B1	G	Pl	9- 5-57	59	1.0	210	---	16	184	
32H1	Sd,G	Pl	6-28-56	--	---	271	---	4	292	
33B3	G	Pl	1-17-61	57	.5	429	30	8	304	
33D3	G	Pl	9- 5-57	--	.2	212	---	14	172	
35/3-19P1	Sd	Pl	6-16-60	58	1.0	371	35	8	288	
23D1	Sd,G	Pl	6-16-60	--	1.0	356	70	24	324	
25E1	Sd	Pl	6-28-56	--	---	383	---	2	332	
25E1	Sd	Pl	6-16-60	54	4.0	444	25	8	332	
33H1	Sd	Pl	6-16-60	54	4.0	400	10	8	240	
35Q1	Sd	Pl	12-60	--	.1	434	60	16	440	
35/4-21G1	Sd,G	Pl	6-30-60	55	.5	386	15	4	272	
29H1	G	Pl	6-30-56	58	1.0	454	15	4	284	

Table 6.--Water levels in observation wells in Marshall County, Indiana
(In feet below land-surface datum. Water level:
e, estimated; h, tape measurement).

Marshall 1. (33/3-16A1). Howard Lemler. NE¼NE¼ sec. 16, T. 33 N., R. 3 E. Dug unused water-table well in glacial drift, diameter 36 inches, depth 17.3 feet. Land-surface datum is about 832 feet above msl. Highest water level is 1.07 below lsd, April 9, 1950; lowest 10.09 below lsd, October 1, 1955. Records available: 1948-60.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1948		Mar. 3	3.58	1950		Nov. 18	8.49
		10	3.94			25	8.20
May 20	3.82	18	4.67	Jan. 5	2.96	Dec. 2	6.93
27	5.12	24	5.01	19	3.19	9	4.59
June 24	6.67	31	4.80	Feb. 2	2.73	16	5.12
July 1	6.56	April 7	5.01	9	2.97	23	5.51
8	6.85	14	5.48	16	2.58	30	5.88
15	7.13	21	5.93	27	2.53		
22	7.22	28	6.40	Mar. 2	2.71	1951	
29	7.40	May 5	6.47	9	3.25		
Aug. 5	7.59	12	6.75	25	1.12	Jan. 6	3.31
12	7.56	19	7.08	April 1	1.17	13	4.26
19	7.85	26	6.57	9	1.07	20	4.51
26	8.06	June 2	7.02	15	2.83	27	4.72
Sept. 2	8.29	9	7.03	30	3.40	Feb. 3	5.31
9	8.50	16	6.41	May 6	4.41	10	5.12
16	8.64	23	6.68	13	5.19	17	4.75
23	8.75	30	7.03	20	5.82	24	3.72
30	8.90	July 8	7.33	27	6.34	Mar. 3	3.55
Oct. 7	9.01	15	7.50	June 3	6.60	10	4.08
14	9.13	21	7.54	10	6.96	17	3.56
21	9.24	29	8.88	17	6.56	24	4.34
28	9.34	Aug. 4	7.96	24	6.39	31	3.80
Nov. 4	9.29	11	8.10	July 1	6.47	April 7	3.00
11	9.25	18	8.29	8	6.52	14	2.49
18	9.21	25	8.49	15	7.01	21	3.51
25	9.20	Sept. 1	8.64	22	5.49	28	3.80
Dec. 2	9.17	8	8.78	30	6.24	May 5	4.92
9	8.76	15	8.89	Aug. 5	6.54	12	4.99
16	8.40	29	9.00	17	6.95	19	5.10
23	9.07	Oct. 6	8.97	19	7.44	26	5.55
30	7.79	13	8.67	26	7.72	June 2	6.02
		20	8.57	Sept. 2	7.76	9	6.39
1949		27	8.52	9	8.04	16	6.79
		Nov. 10	8.56	16	8.12	23	6.85
Jan. 6	7.24	17	8.53	23	8.23	30	7.00
13	6.39	Dec. 1	8.50	30	8.34	July 7	7.06
20	4.06	8	8.49	Oct. 7	8.35	14	5.11
27	3.91	22	5.57	14	8.49	21	6.29
Feb. 3	4.27	29	4.38	21	8.54	28	6.96
10	4.62			28	8.59	Aug. 4	7.49
17	4.10			Nov. 4	8.66	11	8.03
24	3.79			11	8.67	18	8.15

Table 6.--Water levels in observation wells in Marshall County, Ind.--Cont.

Marshall 1--Continued

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Aug. 25	8.40	July 26	8.17	Aug. 22	8.77	Aug. 14	8.70
Sept. 8	8.64	Aug. 2	8.38	29	9.05	21	8.67
15	8.79	9	8.49	Sept. 5	9.26	24	8.69
22	9.01	16	8.65	12	9.42	28	8.50
29	9.18	23	8.82	19	9.46	Sept. 4	8.58
Oct. 6	9.20	30	9.14	26	9.50	11	8.47
13	9.37	Sept. 6	9.39	Oct. 3	9.70	18	8.92
20	9.39	20	9.63	24	9.86	25	8.93
27	8.83	27	9.73	31	9.90	Oct. 2	8.91
Nov. 3	8.32	Oct. 4	9.82	Nov. 7	9.91	9	8.59
10	8.24	11	9.84	14	9.96	10	1.17
24	6.26	18	9.89	21	9.97	16	2.26
Dec. 1	6.39	25	9.87	28	10.01	23	3.57
8	5.44	Nov. 1	9.93	Dec. 5	10.02	30	4.53
15	5.80	8	9.96			Nov. 6	4.71
22	6.38	15	9.99	1954		13	5.04
29	4.16	21	9.74			20	5.45
		29	9.92	Jan. 2	10.06	27	5.93
1952		Dec. 6	9.90	9	10.07	Dec. 4	6.50
		13	9.91	16	10.08	11	6.46
Jan. 5	4.50	27	9.78	23	10.05	18	6.44
12	4.80			30	9.87	25	6.30
19	3.34	1953		Feb. 6	9.80		
26	3.77			13	9.78	1955	
Feb. 2	4.45	Jan. 10	9.58	20	9.40		
9	4.50	17	9.46	27	9.08	Jan. 1	4.22
16	4.56	31	8.43	Mar. 6	8.60	8	3.24
23	4.96	Feb. 7	8.39	13	8.00	15	3.71
Mar. 1	5.37	14	8.26	20	7.74	22	4.73
8	5.20	28	7.36	27	3.67	29	5.78
15	4.49	Mar. 7	6.87	April 3	3.77	Feb. 5	6.52
22	3.50	21	4.69	10	4.04	12	6.50
29	4.78	April 4	5.75	17	4.13	19	5.70
April 5	3.99	11	6.42	24	2.30	26	3.68
12	3.22	18	5.96	May 1	3.09	Mar. 5	4.17
19	3.68	25	6.44	8	4.20	12	4.70
26	4.53	May 2	6.64	15	5.49	19	5.07
May 3	5.51	9	7.15	22	6.30	26	4.71
10	6.31	23	7.26	29	6.36	April 2	4.76
17	6.64	June 6	7.62	June 5	6.90	9	4.83
24	5.18	20	9.05	12	7.33	16	4.94
31	5.26	27	8.69	19	7.69	23	5.07
June 7	5.72	July 4	7.92	26	8.05	30	5.20
14	5.25	11	8.28	July 3	8.07	May 7	5.79
21	6.20	18	8.51	10	8.11	14	6.19
28	7.27	25	8.66	17	8.22	21	6.64
July 5	7.73	Aug. 1	8.69	24	8.27	28	6.69
12	7.76	8	8.45	31	8.51	June 4	7.50
19	7.90	15	8.55	Aug. 7	8.59	11	7.65

Table 6.--Water levels in observation wells in Marshall County, Ind.--Cont.

Marshall 1--Continued

Date	Water level	Date	Water level	Date	Water level	Date	Water level
June 18	7.71	May 5	4.21	Mar. 23	7.29	Feb. 8	6.40
25	7.84	12	3.42	30	7.23	15	6.42
July 2	7.95	19	4.20	April 6	7.10	22	6.49
9	8.38	26	4.88	13	6.19	Mar. 1	5.51
16	8.41	June 2	5.30	20	3.78	8	5.56
23	8.59	9	5.96	27	4.76	15	5.62
30	8.70	16	6.04	May 4	5.70	22	5.80
Aug. 6	8.85	23	6.46	11	5.66	29	6.14
13	9.05	30	7.29	18	5.69	April 5	6.39
20	9.17	July 7	7.40	25	5.94	12	6.50
27	9.33	14	7.53	June 1	6.25	19	6.69
Sept. 3	9.46	21	7.62	8	6.53	26	6.95
10	9.69	28	7.63	15	6.55	May 3	7.33
17	9.95	Aug. 4	7.69	22	6.61	10	7.53
24	10.02	11	7.93	29	5.38	17	7.04
Oct. 1	10.09	18	8.09	July 6	5.76	24	7.81
8	9.96	25	8.21	13	6.70	31	8.67
15	9.95	Sept. 1	8.30	20	7.54	June 7	8.26
22	9.93	8	8.34	27	7.58	14	8.13
29	9.91	15	8.49	Aug. 3	7.73	21	8.01
Nov. 5	9.71	22	8.65	10	8.20	28	7.94
12	9.43	29	8.75	17	8.44	July 5	7.88
19	9.19	Oct. 6	9.03	24	8.56	12	7.05
26	8.94	13	9.19	31	8.76	19	6.03
Dec. 3	8.66	20	9.48	Sept. 7	9.05	26	5.22
10	8.62	27	9.60	14	9.23	Aug. 2	4.69
17	8.65	Nov. 3	9.65	21	9.42	9	4.41
24	8.64	10	9.66	28	9.60	16	4.67
31	8.65	17	9.69	Oct. 5	9.67	23	4.82
		24	9.70	12	9.71	30	5.72
1956		Dec. 1	9.71	19	9.83	Sept. 6	6.54
		8	9.70	26	9.29	13	6.53
Jan. 7	8.67	15	9.68	Nov. 2	8.78	20	6.49
14	8.75	22	9.62	9	8.46	27	6.46
21	8.81	29	9.49	16	8.19	Oct. 4	6.50
28	8.95			23	7.24	11	6.54
Feb. 4	9.05	1957		30	5.96	18	6.62
11	8.48			Dec. 2	5.40	25	6.72
18	8.30	Jan. 5	9.50	14	4.22	Nov. 1	7.05
25	7.43	12	9.51	21	3.69	8	7.10
Mar. 3	7.39	19	9.53	28	3.51	15	7.06
10	6.78	26	8.70			22	6.71
17	6.63	Feb. 2	8.63	1958		29	6.31
24	6.25	9	8.20			Dec. 6	6.69
31	6.21	16	7.87	Jan. 4	3.71	13	7.07
April 7	6.29	23	7.73	11	4.25	20	7.26
14	6.37	Mar. 2	7.49	18	4.72	27	7.42
21	6.39	9	7.47	25	5.58		
28	6.40	16	7.33	Feb. 1	6.36		

Marshall 1--Continued

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1959		June 27	5.57	1960		July 2	5.85
		July 4	5.95			9	5.91
Jan. 3	7.38	11	6.59	Jan. 2	4.89	16	6.21
10	7.27	18	7.04	9	4.84	23	6.71
17	7.22	25	7.21	16	4.82	30	7.23
24	7.19	Aug. 1	7.59	23	4.69	Aug. 6	7.46
31	7.00	8	7.72	30	4.51	13	7.75
Feb. 7	6.86	15	8.04	Feb. 6	4.20	20	7.81
14	6.37	22	8.22	13	3.77	27	7.93
21	6.36	29	8.43	20	3.74	Sept. 3	8.10
28	6.38	Sept. 5	8.50	27	3.73	10	8.33
Mar. 7	6.35	12	8.61	Mar. 12	3.74	17	8.40
14	6.28	19	8.68	19	3.76	24	8.45
21	6.11	26	8.79	26	3.69	Oct. 1	8.53
28	5.06	Oct. 3	8.70	April 2	3.05	8	8.60
April 4	5.10	10	8.53	9	3.20	15	8.69
11	5.18	17	7.68	16	3.31	22	8.75
25	5.33	24	7.05	23	3.36	29	8.83
May 2	5.21	31	6.97	30	3.59	Nov. 5	8.88
9	5.12	Nov. 7	6.55	May 7	3.71	12	8.95
16	5.10	14	5.69	14	4.73	19	9.07
23	5.15	21	5.10	21	5.41	26	9.11
30	5.23	28	4.97	28	5.45	Dec. 3	9.16
June 6	5.31	Dec. 5	4.99	June 4	5.51	10	9.20
13	5.37	12	5.01	11	5.53	17	9 27
20	6.07	19	5.04	18	5.45	24	9.32
		26	4.91	25	5.70	31	9.37

Marshall 2. (34/2-32J3). City of Plymouth. Plymouth Waterworks. NE¼SE¼ sec. 32, T. 34 N., R. 2 E. Drilled unused artesian well in gravel, diameter 16 inches, depth 127 feet. Land-surface datum is about 803 feet above msl. Recording gage installed June 4, 1956. Highest water level is 17.80 below lsd, April 20, 1960; lowest 23.10 below lsd, June 11, 1958. Records available: 1956-60. Affected by nearby pumping and by trains.

(Daily highest water level from recorder graph, 1956)

1956		Dec. 28	22.09	Dec. 30	22.07	Dec. 31	22.07
		29	22.12				
Dec. 27	22.09						

(Daily highest water level from recorder graph, 1957)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	22.18	22.10	21.99	21.81	21.56	-----	20.43	21.58	-----	22.10h	21.98	-----
2	22.12	22.15	21.98	21.87	21.38	-----	20.59	20.53	-----	22.17	-----	-----
3	22.20	22.05	21.97	21.95	21.41	-----	-----	21.46	-----	22.35	-----	-----
4	22.23	-----	21.96	-----	-----	-----	-----	21.44	-----	22.22	-----	-----
5	22.25e	22.31	22.01	21.57	-----	-----	-----	-----	22.15	-----	-----	-----

Table 6.--Water levels in observation wells in Marshall County, Ind.--Cont.

Marshall 2--Continued

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
6	22.17	22.22	22.01	21.45	-----	-----	-----	-----	22.02	-----	-----	-----
7	22.12	22.19	22.04	21.31	-----	-----	-----	21.59	22.00	-----	-----	-----
8	22.24	22.25	22.08	21.24	20.55	-----	-----	21.79	21.99	22.19	21.93h	21.81
9	22.24	22.07	22.08	21.28	20.53	-----	-----	21.66	21.98	22.20	21.93	-----
10	22.30	21.96	22.05	21.22	20.51	-----	-----	21.52e	22.06	22.33	-----	-----
11	-----	21.93	21.98	21.95	20.53	-----	-----	21.47	21.99	22.23	-----	-----
12	-----	21.89	22.06	21.94	20.49	-----	-----	e21.46	22.18	22.21	-----	-----
13	-----	21.91	22.11	21.87	20.43	-----	-----	-----	22.06	22.17	-----	-----
14	-----	21.95	22.06	21.90	20.47	-----	-----	-----	22.03	22.12	-----	-----
15	-----	21.94	-----	21.92	-----	-----	-----	-----	21.94	-----	-----	-----
16	-----	21.92	22.08	21.97	-----	-----	-----	-----	21.93	-----	-----	-----
17	-----	21.95	22.00	22.02	-----	-----	-----	-----	22.04	-----	-----	-----
18	-----	21.88	21.94	22.00	-----	-----	-----	-----	-----	-----	-----	21.19
19	-----	22.01	21.93	21.95	-----	-----	-----	-----	-----	22.14	-----	-----
20	-----	22.06	22.03	21.83	-----	20.94	-----	-----	-----	22.07	-----	-----
21	-----	22.06	21.99	21.78	-----	21.05	21.77	-----	22.06	22.03	21.49	-----
22	-----	22.09	21.98	21.72	-----	-----	21.81	-----	22.07	22.09	21.38	-----
23	-----	22.11	21.99	21.78	-----	-----	21.97	-----	22.01	21.83	21.29h	20.30
24	-----	22.00	21.94	21.86	-----	-----	21.85	-----	22.09	21.79	21.31	-----
25	-----	21.96	21.87	21.88	-----	-----	21.83	-----	22.08	21.79	21.30	-----
26	-----	22.02	21.91	21.55	-----	21.05	21.86	-----	22.22	21.72	-----	-----
27	-----	22.09	21.95	21.28	-----	21.11	21.81	-----	22.12	21.67	-----	-----
28	-----	22.02	21.93	21.09	-----	20.83	-----	-----	22.09	21.69	-----	-----
29	-----	-----	21.90	21.12	-----	20.59	-----	-----	22.04	21.81	-----	-----
30	22.12	-----	21.96	21.22	-----	20.45	21.52	-----	22.00	-----	-----	-----
31	22.08	-----	21.88	-----	-----	-----	21.70	-----	-----	-----	-----	-----

(Daily highest water level from recorder graph, 1958)

1	-----	20.70	-----	-----	21.03	-----	-----	-----	20.28	-----	-----	-----
2	-----	20.69	-----	20.60	20.95	-----	-----	-----	-----	-----	-----	-----
3	-----	20.69	-----	-----	20.94	-----	-----	-----	-----	20.65	-----	-----
4	-----	20.78	-----	-----	-----	-----	-----	-----	-----	20.64	-----	-----
5	-----	-----	-----	-----	-----	21.56	-----	-----	-----	20.69	-----	-----
6	-----	-----	-----	-----	-----	-----	-----	20.90	-----	20.66	-----	20.95
7	-----	-----	-----	-----	21.01	-----	-----	20.73	-----	-----	-----	20.90
8	-----	-----	-----	20.91	21.22	-----	20.63	-----	-----	-----	-----	20.85
9	20.61	-----	-----	20.92	21.11	-----	20.70	-----	-----	-----	-----	20.95
10	20.75	-----	-----	20.80	21.08	-----	20.91	-----	-----	-----	-----	21.00
11	20.63	-----	-----	20.76	21.08	22.81	20.78	-----	-----	-----	-----	20.95
12	20.56	-----	-----	20.76	21.12	-----	20.65	20.07	-----	-----	-----	20.95
13	20.53	-----	-----	20.74	21.26	-----	20.54	20.06	-----	-----	-----	21.05
14	20.55	-----	-----	20.74	21.38	-----	20.50	20.13	-----	-----	-----	20.95
15	20.62	-----	-----	20.81	21.44	-----	20.56	20.10	-----	-----	-----	21.00
16	20.66	-----	-----	20.82	21.44	-----	-----	19.77	-----	-----	-----	21.10
17	-----	-----	-----	21.03	21.49	-----	-----	19.55	-----	-----	-----	21.05
18	-----	-----	20.47	20.94	21.41	-----	-----	19.56	-----	-----	-----	21.05

Table 6.--Water levels in observation wells in Marshall County, Ind.--Cont.

Marshall 2--Continued

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
19	-----	-----	20.50	20.88	21.31	-----	20.75	19.67	-----	-----	-----	21.00
20	-----	-----	20.48	20.78	21.30	-----	20.70	19.87	-----	-----	-----	21.15
21	-----	-----	20.50	20.75	21.42	-----	20.66	19.96	-----	-----	-----	21.10
22	-----	-----	20.50	20.78	-----	-----	20.73	20.05	-----	-----	-----	21.05
23	-----	-----	20.49	20.89	-----	-----	20.81	20.01	-----	-----	-----	21.10
24	-----	-----	-----	20.80	-----	-----	20.99	19.91	-----	-----	-----	21.15
25	20.60	-----	20.52	20.97	-----	-----	20.91	-----	-----	-----	-----	21.10
26	20.56	-----	20.58	20.95	-----	-----	20.93	20.06	-----	-----	-----	21.10
27	20.56	-----	20.59	20.84	-----	-----	-----	20.16	-----	-----	-----	21.10
28	20.69	-----	20.57	20.79	-----	-----	-----	20.20	-----	-----	-----	21.15
29	20.69	-----	20.59	20.87	-----	-----	-----	20.23	-----	-----	-----	21.10
30	20.67	-----	20.52	20.96	-----	-----	-----	20.30	-----	-----	-----	21.20
31	20.69	-----	20.51	20.97	-----	-----	-----	20.33	-----	-----	-----	21.10

(Daily highest water level from recorder graph, 1959)

1	21.00	20.95	19.40	19.20	18.35	19.20	-----	20.15	21.00	20.95	20.70	20.20
2	21.00	20.90	19.40	19.05	18.35	19.35	-----	20.10	20.90	20.95	20.70	20.25
3	21.05	20.90	19.50	19.05	18.50	19.45	-----	19.90	21.00	20.95	20.80	20.25
4	21.05	21.00	19.70	19.00	18.85	19.65	-----	20.10	20.95	20.95	20.75	20.25
5	21.10	21.05	19.60	18.90	18.90	19.65	-----	20.25	21.10	20.90	20.65	20.25
6	21.15	21.15	19.60	19.05	19.00	19.60	-----	20.30	21.00	21.00	20.65	20.15
7	21.15	21.15	19.75	19.20	19.20	-----	-----	20.30	21.00	21.05	20.60	20.10
8	21.20	21.00	19.70	19.20	19.20	-----	-----	20.30	21.15	21.00	20.55	20.25
9	21.25	20.85	19.70	19.20	19.10	-----	19.90	20.20	21.30	21.10	20.50	20.30
10	21.25	20.55	19.80	19.15	19.05	-----	19.75	20.20	21.30	21.00	20.60	20.35
11	21.15	20.30	19.85	19.15	19.05	19.65	19.70	20.45	21.20	20.90	20.60	20.25
12	21.20	20.05	19.85	19.10	19.25	-----	19.60	20.50	21.10	20.80	20.65	20.20
13	21.25	19.75	19.90	19.10	19.30	-----	19.60	20.55	21.05	20.90	20.55	20.10
14	21.25	19.50	19.80	19.25	19.35	19.15	19.80	20.65	21.00	20.90	20.20	20.05
15	21.20	19.30	19.70	19.35	19.45	19.10	19.90	20.60	21.10	20.90	19.85	20.10
16	21.05	19.30	19.80	19.50	19.45	-----	19.95	20.40	21.15	21.15	19.75	20.10
17	21.10	19.40	19.85	19.50	19.40	-----	20.00	20.35	21.20	21.05	19.90	20.15
18	21.00	19.50	20.00	19 45	19.35	-----	19.95	20.50	21.20	20.90	20.00	20.20
19	20.95	19.75	19.95	19.35	19.50	-----	19.85	20.55	21.15	20.90	20.05	20.25
20	21.10	19.90	19.90	19.35	19.60	-----	19.75	20.65	21.10	21.00	20.15	20.15
21	21.00	20.00	19.85	19.55	-----	-----	19.95	20.70	21.10	21.10	20.05	20.15
22	21.10	19.85	19.80	19.55	19.85	-----	20.00	20.75	21.35	21.05	20.05	20.25
23	21.05	19.75	19.80	19.60	-----	-----	19.90	20.65	21.30	21.05	20.00	20.25
24	21.00	19.60	19.90	19.60	19.45	-----	19.85	20.60	21.25	20.85	20.05	20.25
25	20.95	19.50	20.05	19.60	19.45	19.75	19.85	20.70	21.20	20.75	20.15	20.20
26	20.95	19.45	19.80	19.50	19.50	19.50	19.75	20.75	21.10	20.70	20.15	20.15
27	21.10	19.50	19.60	19 25	19.95	19.15	19.75	20.80e	21.05	20.80	20.15	20.05
28	21.15	19.45	-----	18.85	-----	-----	20.00	20.90e	21.10	20.85	20.20	20.00
29	21.15	-----	18.95	18.50	19.90	-----	20.15	20.90	20.85	20.80	20.20	20.10
30	21.20	-----	18.95	18.35	19.40	-----	20.15	20.85	20.95	20.80	20.10	20.10
31	21.00	-----	19.05	-----	19.20	-----	20.20	20.80	-----	20.75	-----	20.15

Marshall 2--Continued

(Daily highest water level from recorder graph, 1960)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	20.10	19.60	19.45	18.15	18.70	-----	19.60	20.50	20.90	20.85	21.05	21.15
2	20.00	19.70	19.50	18.05	18.65	-----	19.70	20.45	21.00	20.75	21.10	21.10
3	20.05	19.90	19.35	18.15	18.80	-----	19.35	20.35	20.95	20.75	21.15	21.05
4	20.05	19.85	19.45	18.25	18.90	-----	19.35	20.20	20.80	20.90	21.15	21.00
5	20.20	19.70	19.50	18.50	18.95	-----	19.35	20.20	20.75	20.90	21.05	20.95
6	20.20	19.50	19.50	18.60	18.95	-----	19.60	20.25	20.75	20.95	21.00	21.05
7	20.20	19.30	19.45	18.70	18.80	-----	19.65	20.10	21.00	20.95	21.05	21.10
8	20.30	19.20	19.55	18.80	18.75	-----	19.70	20.10	21.05	20.90	21.10	21.10
9	20.30	19.35	19.55	18.90	18.75	-----	19.75	20.30	21.00	20.85	21.10	21.10
10	20.25	19.00	19.60	18.90	18.85	-----	19.60	20.50	20.90	20.85	21.15	21.10
11	20.25	18.90	19.65	18.85	18.95	-----	19.60	20.45	20.75	21.00	21.25	21.00
12	20.00	18.55	19.65	19.05	19.00	-----	19.80	20.45	20.70	21.05	21.10	21.00
13	19.75	18.35	19.60	19.15	19.00	19.30	19.90	-----	20.80	21.05	21.05	21.15
14	19.35	18.35	19.55	19.15	-----	19.05	-----	-----	20.85	21.10	21.00	21.10
15	19.25	18.50	19.70	19.10	-----	18.95	-----	20.25	20.90	21.05	21.00	21.15
16	19.25	18.70	19.60	18.85	-----	18.95	-----	20.40	20.90	20.95	21.10	21.15
17	19.25	18.80	19.60	18.30	-----	18.90	-----	20.40	20.90	20.90	21.05	21.20
18	19.20	18.90	19.75	18.10	-----	18.85	-----	20.40	20.80	21.05	21.00	21.15
19	19.50	19.05	19.70	17.90	-----	18.85	-----	20.55	20.65	21.05	21.00	21.15
20	19.65	19.10	19.65	17.80	-----	18.90	-----	20.50	20.75	21.10	20.95	21.25
21	19.65	18.95	19.65	17.85	-----	19.10	-----	20.30	20.75	21.10	20.90	21.30
22	19.70	19.00	19.65	18.15	-----	19.15	-----	20.30	20.75	21.00	21.00	21.30
23	19.75	19.20	19.75	18.35	19.00	19.25	-----	20.50	20.85	20.95	21.10	21.30
24	19.70	19.20	19.70	18.40	19.15	19.50	-----	20.55	20.85	21.00	21.00	21.25
25	19.65	19.20	19.80	18.40	19.20	19.40	-----	20.65	20.80	21.10	20.95	21.10
26	19.85	19.25	19.75	18.60	19.25	19.35	-----	20.70	20.70	21.05	21.00	21.10
27	19.80	19.30	19.55	18.85	19.30	19.35	-----	20.75	20.80	21.05	20.95	21.20
28	19.85	19.25	19.20	18.85	19.25	19.65	-----	20.70	20.95	21.10	20.95	21.30
29	19.85	19.25	18.70	18.85	19.20	19.60	-----	20.65	20.90	21.05	21.05	21.25
30	19.75	-----	18.50	18.75	19.15	19.65	-----	20.80	20.90	20.95	21.10	21.30
31	19.65	-----	18.30	-----	19.20	-----	-----	20.80	-----	20.90	-----	21.30

Marshall 3. (32/1-31K1). Fred Banks. NW¼SE¼ sec. 31, T. 32 N., R. 1 E. Drilled unused water-table well in sand, diameter 36-18 inches, depth 43 feet. Highest water level is 7.45 below lsd, April 25 and May 2, 1960; lowest 11.25 below lsd, Sept. 28, 1959. Records available: 1957-60.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1957		Dec. 2	9.55	1958		Feb. 3	9.05
		8	9.55			10	8.95
Nov. 11	10.22	16	9.55	Jan. 6	8.55	17	9.05
18	9.78	23	9.15	13	8.65	24	9.45
20	9.58	30	8.65	20	8.85	Mar. 3	9.55
25	9.29			27	8.85	10	9.55

Table 6.--Water levels in observation wells in Marshall County, Ind.--Cont.

Marshall 3--Continued

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 17	9.55	Dec. 15	9.75	Aug. 24	11.05	May 2	7.45
24	9.65	22	9.85	31	11.05	9	7.65
31	9.65	29	9.95	Sept. 7	10.95	16	7.85
April 7	9.75			14	11.05	23	8.15
14	9.85	1959		21	11.15	30	8.35
21	9.85			28	11.25	June 6	8.65
28	9.95	Jan. 5	10.15	Oct. 5	11.15	13	8.85
May 5	10.05	12	10.15	12	11.15	20	9.05
12	10.05	19	10.25	19	10.85	27	9.15
19	10.25	26	10.15	26	10.85	July 4	9.25
26	10.35	Feb. 2	10.15	Nov. 2	10.85	11	9.25
June 2	10.45	9	10.05	9	10.85	18	9.35
9	10.35	16	10.05	16	10.75	25	9.55
16	8.15	23	9.85	23	9.95	Aug. 1	9.75
23	8.25	Mar. 2	8.95	30	9.95	8	9.65
30	7.95	9	8.85	Dec. 7	9.95	15	9.65
July 7	8.05	16	8.75	14	9.95	22	9.75
14	8.25	23	8.55	21	9.95	29	9.85
21	8.05	30	8.45	28	9.95	Sept. 5	9.95
28	8.25	April 6	8.25			12	10.05
Aug. 4	8.65	13	8.05	1960		19	10.15
11	8.95	20	8.15			26	10.25
18	8.85	27	8.45	Jan. 4	9.95	Oct. 3	10.35
25	8.75	May 4	8.35	11	9.85	10	10.35
Sept. 1	8.95	11	8.35	18	9.75	17	10.55
8	9.25	18	8.25	25	9.75	24	10.65
15	9.55	25	8.55	Feb. 1	9.45	31	10.75
22	9.45	June 1	8.65	8	9.45	Nov. 7	10.75
29	9.55	8	8.55	15	9.15	14	10.75
Oct. 6	9.65	15	8.75	22	8.75	21	10.85
13	9.75	22	9.35	29	8.65	28	10.85
20	9.85	29	9.45	Mar. 7	8.75	Dec. 5	10.75
27	9.95	July 6	9.75	14	9.55	12	10.75
Nov. 3	9.95	13	10.15	21	9.35	19	10.65
10	10.15	20	10.25	28	9.25	26	10.65
17	9.95	27	10.15	April 4	8.95		
24	9.85	Aug. 3	10.25	11	8.85		
Dec. 1	9.75	10	10.35	18	7.85		
8	9.75	17	10.75	25	7.45		

Marshall 4. (35/2-29L1). Pertic Blueberry Plantation. NE¼SW¼ sec. 29, T. 35 N., R. 2 E. Drilled unused artesian well in sand, diameter 6 inches, depth 133 feet. Land-surface datum is about 848 feet above msl. Recording gage installed Aug. 12, 1957. Highest water level is 41.6 below lsd, April 30, and May 6 and 7, 1960; lowest 54.2 below lsd, May 16, 1959 and May 13, 1960. Records available: 1957-60. Affected by barometric pressure and by occasional pumping.

Table 6.--Water levels in observation wells in Marshall County, Ind.--Cont.

Marshall 4--Continued

(Daily highest water level from recorder graph, 1957)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Aug. 13	44.73	Sept. 17	45.05	Oct. 10	45.26	Nov. 2	45.30
14	44.70	18	45.03	11	45.33	3	45.31
15	44.70	19	44.96	12	45.36	4	45.38
16	44.73	20	44.95	13	45.35	5	45.36
17	44.81	21	44.94	14	45.26	6	45.40
20	h44.88	22	44.98	15	45.16	7	45.16
29	44.84	23	45.06	16	45.03	8	44.95
30	44.87	24	45.13	17	45.03	9	45.19
31	44.89	25	45.10	18	45.17	10	45.54
Sept. 1	44.86	26	45.13	19	45.32	11	45.60
2	44.73	27	45.28	20	45.40	12	45.40
3	44.70	28	45.31	21	45.44	13	45.15
4	44.70	29	45.19	22	45.31	14	44.82
5	44.90	30	45.04	23	45.13	15	45.03
6	44.96	Oct. 1	45.04	24	44.97	16	45.13
7	44.94	2	45.07	25	45.26	17	e45.37
8	44.95	3	45.11	26	45.38	20	45.10
9	44.96	4	45.18	27	45.43	21	45.23
10	44.95	5	45.20	28	45.40	22	45.39
13	44.93	6	45.17	29	45.16	23	45.07
14	44.95	7	45.14	30	45.09	24	45.07
15	44.87	8	45.15	31	45.13	25	45.14
16	44.89	9	45.19	Nov. 1	45.31	26	45.14

(Daily highest water level from recorder graph, 1958)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	-----	-----	44.15	43.90	43.93	-----	-----	44.1	43.7	-----	-----	44.1
2	-----	-----	44.21	43.85	43.91	-----	-----	44.0	43.8	-----	-----	43.8
3	-----	-----	44.21	43.82	43.85	-----	-----	44.0	43.8	-----	-----	43.8
4	-----	-----	44.23	43.78	43.87	44.15	-----	44.1	43.8	-----	-----	44.0
5	-----	-----	44.23	43.49	43.93	44.10	-----	44.1	43.8	-----	-----	----
6	-----	-----	44.23	43.48	43.91	44.20	-----	44.1	43.7	-----	-----	44.3
7	-----	-----	44.22	43.69	43.84	-----	-----	43.9	43.8	-----	-----	44.5
8	-----	-----	44.04	43.93	43.81	-----	-----	44.0	43.8	-----	-----	44.3
9	-----	-----	44.03	44.08	43.82	-----	-----	44.1	43.6	43.7	-----	44.4
10	-----	-----	44.04	-----	43.95	-----	-----	44.0	43.7	43.8	-----	44.5
11	-----	-----	44.04	-----	43.95	-----	-----	44.0	43.8	44.0	-----	44.4
12	-----	-----	43.93	-----	44.10	-----	-----	43.9	43.8	44.1	-----	44.3
13	-----	-----	43.90	-----	44.17	-----	-----	44.0	43.7	44.1	44.0	44.4
14	-----	-----	43.90	-----	44.04	-----	-----	43.9	43.7	44.0	44.0	44.5
15	-----	-----	43.88	-----	44.04	-----	-----	43.9	43.7	43.9	44.1	44.5
16	-----	-----	43.88	-----	43.98	-----	-----	43.8	43.7	43.8	44.0	44.5
17	-----	-----	43.89	-----	43.89	-----	-----	43.7	43.6	43.8	44.0	44.4
18	-----	-----	43.94	-----	43.89	-----	-----	43.8	43.7	44.0	44.1	44.5

Table 6.--Water levels in observation wells in Marshall County, Ind.--Cont.

Marshall 4--Continued

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
19	-----	-----	43.92	43.82	44.00	-----	-----	43.8	-----	43.9	44.2	44.4
20	-----	-----	43.89	43.76	44.04	-----	-----	43.7	-----	43.9	44.2	44.6
21	-----	-----	43.89	43.72	43.92	-----	-----	43.7	-----	43.9	44.2	44.6
22	-----	-----	43.93	43.71	43.92	-----	-----	43.8	-----	43.9	44.1	44.6
23	-----	-----	43.99	43.70	-----	-----	-----	43.7	-----	43.9	44.1	44.6
24	-----	-----	43.95	43.70	-----	-----	-----	43.6	-----	43.9	44.0	44.7
25	-----	-----	43.92	44.09	-----	-----	-----	43.6	-----	44.0	44.0	44.8
26	-----	-----	43.87	44.03	44.20	-----	43.95	43.7	-----	44.0	44.2	44.8
27	-----	-----	43.87	43.88	44.11	-----	43.71	43.7	-----	-----	44.1	44.7
28	-----	-----	43.85	43.82	44.12	-----	44.05	43.7	-----	-----	44.1	44.7
29	-----	-----	43.88	43.88	-----	-----	44.05	43.7	-----	-----	44.3	44.7
30	-----	-----	43.86	43.92	-----	-----	44.05	43.6	-----	-----	44.3	44.9
31	-----	-----	43.87	-----	-----	-----	44.0	43.6	-----	-----	-----	44.5

(Daily highest water level from recorder graph, 1959)

1	44.4	45.2	43.9	42.9	42.5	42.8	42.9	43.3	43.6	43.9	43.8	43.4
2	44.5	44.7	43.8	42.7	42.5	42.9	43.0	43.3	43.7	43.8	43.8	43.5
3	44.6	44.4	43.8	42.7	42.5	42.9	43.1	43.3	43.8	43.8	43.7	43.4
4	44.7	44.5	43.9	42.9	42.5	42.9	42.9	43.3	43.9	43.8	43.5	43.3
5	44.9	44.6	43.4	42.9	43.0	----	42.9	43.3	43.9	43.8	43.6	43.3
6	44.8	45.0	43.4	43.0	42.9	----	42.9	43.3	43.8	43.7	43.8	43.3
7	44.8	44.9	43.8	42.9	43.0	----	43.1	43.3	43.8	43.7	44.0	43.3
8	44.9	44.8	43.9	42.9	43.2	----	43.0	43.3	43.9	43.7	44.0	43.3
9	44.9	44.6	43.8	42.9	42.8	----	43.0	43.4	43.9	43.7	43.8	43.5
10	44.9	44.5	43.9	43.0	42.7	----	43.0	43.5	43.9	43.8	43.7	43.5
11	44.8	44.7	43.8	43.0	42.7	42.8	43.0	43.5	44.0	43.8	43.7	43.2
12	44.7	44.4	43.7	42.9	42.8	42.8	43.0	43.6	44.0	43.9	43.8	43.1
13	44.7	44.4	43.7	42.8	42.8	42.8	43.1	43.6	44.0	43.9	43.6	43.3
14	44.5	44.3	43.5	42.8	42.8	43.0	43.1	43.6	43.8	43.9	43.6	43.5
15	44.5	44.3	43.3	42.7	42.8	43.0	43.2	43.6	43.8	43.9	43.7	43.4
16	44.5	44.2	43.7	42.7	43.5	43.0	43.1	43.6	43.8	43.9	43.7	43.3
17	44.5	44.1	43.7	42.6	43.1	43.0	43.0	43.6	43.9	43.9	43.7	43.3
18	44.6	44.1	43.9	42.6	42.9	43.0	43.0	43.5	44.0	43.9	43.6	43.4
19	44.6	44.2	43.7	42.6	42.8	43.0	43.0	43.6	44.0	43.9	43.6	43.5
20	44.6	44.3	43.5	42.6	42.9	43.0	43.0	43.6	43.9	43.9	43.4	43.4
21	44.4	44.2	43.5	42.7	42.9	42.9	43.1	43.6	43.8	44.0	43.4	43.4
22	44.6	44.0	43.5	42.7	42.9	42.9	43.1	43.6	43.8	43.9	43.4	43.4
23	45.0	43.9	43.4	42.7	42.9	43.0	43.1	43.7	43.8	43.5	43.2	43.4
24	44.8	44.1	43.4	42.6	43.0	43.0	43.1	43.7	43.9	43.4	43.1	43.3
25	44.8	44.0	43.4	42.6	42.9	42.9	43.2	43.7	43.9	43.4	43.2	43.3
26	44.8	44.0	43.0	42.6	42.9	42.9	43.2	43.6	----	43.7	43.4	43.2
27	44.9	44.0	43.1	42.2	42.9	43.0	43.2	43.6	----	43.8	43.5	42.9
28	44.9	44.0	43.3	42.2	42.9	43.0	43.3	43.6	----	44.1	43.6	42.9
29	44.7	----	43.3	42.4	42.9	43.0	43.3	43.6	43.7	44.1	43.6	42.9
30	44.8	----	43.1	42.5	42.9	43.0	43.3	43.6	43.9	44.0	43.5	43.1
31	45.1	----	43.1	----	42.8	----	43.3	43.6	----	43.9	----	43.2

Table 6.--Water levels in observation wells in Marshall County, Ind.--Cont.

Marshall 4--Continued

(Daily highest water level from recorder graph, 1960)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	43.3	42.9	----	42.2	41.8	41.9	42.1	42.5	42.9	43.1	43.1	43.8
2	43.1	42.9	42.4	42.1	41.9	----	41.9	42.5	42.9	43.0	43.2	43.7
3	43.1	42.9	42.3	42.1	41.9	----	41.9	42.5	42.9	43.2	43.5	43.6
4	43.3	42.8	42.3	42.0	41.9	----	----	42.5	42.9	43.2	43.7	43.6
5	43.3	42.4	42.4	42.0	41.8	----	----	42.5	42.9	43.1	43.6	43.6
6	43.2	42.4	42.5	41.9	41.6	----	----	42.6	42.9	43.1	43.5	43.6
7	43.0	42.6	42.5	41.9	41.6	----	----	42.5	43.0	43.2	43.6	43.7
8	43.1	42.4	42.5	42.0	----	----	----	42.5	42.9	43.2	43.6	43.7
9	43.2	42.2	42.3	42.0	----	----	----	42.5	42.9	43.2	43.6	43.6
10	43.2	42.1	42.3	42.2	----	----	----	42.5	43.0	43.3	43.6	43.6
11	43.3	42.2	42.4	42.0	41.8	----	----	42.6	42.9	43.3	43.6	43.5
12	43.0	42.7	42.4	42.1	42.6	----	----	42.6	42.9	43.3	43.6	43.6
13	43.0	42.7	42.5	42.2	42.6	41.9	42.0	42.6	42.9	43.2	43.6	43.6
14	42.8	42.7	42.5	42.1	42.2	41.9	42.1	42.6	43.0	43.2	43.5	43.4
15	42.8	42.6	42.3	42.0	42.1	41.9	42.2	42.6	43.0	43.3	43.2	43.4
16	43.0	42.4	42.1	41.9	41.9	41.9	42.2	42.7	43.1	43.3	43.2	43.5
17	42.9	42.4	42.1	41.8	41.9	41.9	42.1	42.7	43.1	43.3	43.5	43.6
18	42.8	42.4	42.2	42.0	42.0	42.1	42.1	42.6	43.0	43.3	43.5	43.7
19	42.8	42.4	42.2	42.1	41.9	42.2	42.1	42.6	42.9	43.3	43.6	43.8
20	43.1	42.6	42.3	41.8	41.8	42.1	42.2	42.6	43.0	43.4	43.6	43.6
21	43.1	42.3	42.3	41.8	41.8	42.0	42.3	42.6	43.1	43.4	43.5	43.6
22	43.1	42.3	42.3	41.9	41.9	42.0	42.3	42.6	43.1	43.2	43.5	43.6
23	43.1	42.4	42.4	41.8	42.0	41.9	42.4	42.7	43.1	43.2	43.6	43.7
24	43.0	42.4	42.4	41.7	42.0	41.9	42.4	42.7	43.1	43.3	43.5	43.8
25	42.9	42.2	42.5	41.7	41.9	42.1	42.4	42.8	43.1	43.4	43.5	43.6
26	42.9	42.2	42.5	41.7	41.9	42.1	42.4	42.8	43.2	43.3	43.4	43.6
27	42.8	----	42.4	41.9	41.9	42.1	42.4	42.8	43.1	43.3	43.4	43.8
28	42.9	----	42.4	41.9	42.0	42.0	42.3	42.8	43.1	43.4	43.3	43.8
29	43.0	----	42.2	41.7	42.0	42.0	42.3	42.8	43.0	43.4	43.4	43.7
30	43.0	----	42.1	41.6	42.0	42.1	42.3	42.8	43.0	43.3	43.5	43.7
31	42.9	----	42.1	----	42.0	----	42.4	42.9	----	43.1	----	43.6

PUBLICATIONS OF COOPERATIVE GROUND-WATER PROGRAM

Report

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Bulletins

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STATE OF INDIANA
INDIANA DEPARTMENT OF CONSERVATION
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PREPARED BY THE
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GEOLOGICAL SURVEY

BULLETIN 19 PLATE I

R.1E. R.2E. ST. JOSEPH CO. R.3E. R.4W.

T. 35 N.

T. 34 N.

T. 33 N.

T. 32 N.

ELKHART CO.

KOSCIUSKO CO.

STARKE CO.

PULASKI CO.

FULTON CO.

TEEGARDEN
LAPAZ
LINKVILLE
TYNER
BREMEN
DONALDSON
PLYMOUTH
INWOOD
BOURBON
BURR OAK
HIBBARD
RUTLAND
ARGOS
CULVER
OLD TIP TOWN
TIPPECANOE
WALNUT

YELLOW BANK CREEK
PETER SARBER DITCH
KOONTZ LAKE
LEMERT DITCH
LAWRENCE PONTIUS DITCH
LEHMAN D.
STOCK DITCH
BUNCH DITCH
BUNCH EAST BRANCH DITCH
LAKE OF THE WOODS
B.F. MATTINGLY DITCH
ELMER
SELTENRIGHT DITCH
YELLOW RIVER
ISAAC SELLS DITCH
BOWSER D.
GEORGE ARMEY DITCH
WISLER DITCH
UNSICKER-CRAIG DITCH
DAUSMAN DITCH
DAUSMAN DITCH
BROCK DITCH
BORDER DITCH
ANDERSON DITCH
GUNNARD
HARRY COOL DITCH
CLIFTON DITCH
WOLF CREEK
CREWS DITCH
DANNER DITCH
LEMER-BERGER DITCH
RIDENHOUR D.
BAIR DITCH
DEEP CREEK
CLARENCE BAKER DITCH
TIPPECANOE RIVER
YELLOW CREEK

EXPLANATION

B1
Water well or test hole

H3
Observation well

C1
Flood-control test boring

F1
Structure boring for bridge

R5
Oil or gas well or test hole

Base from modified General Highway and Transportation Map revised to July, 1953. Drainage and Town boundaries in part from U.S. Geological Survey topographic maps

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 MARSHALL COUNTY, INDIANA, SHOWING LOCATION OF WELLS AND TEST HOLES

0 1 2 3 4 5 6 MILES

0 5000 10000 15000 20000 FEET

BY J. S. Rosenshein and J. D. Hunn

1961

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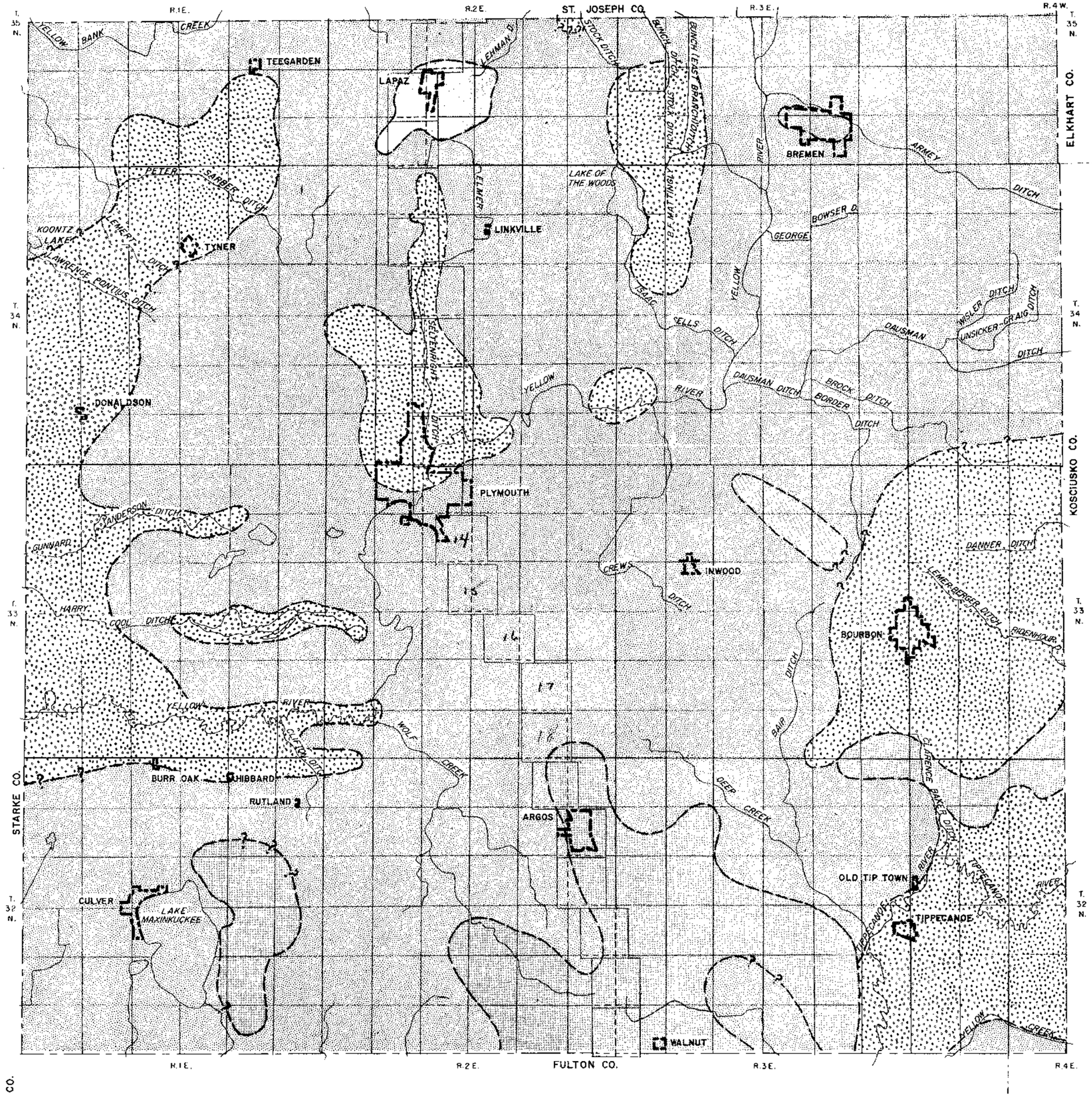
BULLETIN 19 PLATE 2



EXPLANATION

Production from glaciofluvial sand and gravel

Depths of domestic wells generally less than 50 feet. Depths of industrial and public-supply wells generally deeper. Yields adequate to more than adequate for domestic use. Larger yields possible

Well depths generally from 50 to 100 feet. Some shallower production possible locally and in valley of Yellow River. Yields adequate to more than adequate for domestic use. Larger yields possible

Well depths generally from 50 to 150 feet. production from several shallow and deep sand and gravel units. Yields adequate to more than adequate for domestic use. Larger yields possible

Well depths generally from 100 to 150 feet. Shallower production possible locally. Yields adequate to more than adequate for domestic use. Larger yields possible locally

Boundary approximate

Boundary uncertain

Base from modified General Highway and Transportation Map revised to July, 1953. Drainage and Town boundaries in part from U.S. Geological Survey topographic maps

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 MARSHALL COUNTY, INDIANA, SHOWING AVAILABILITY OF GROUND WATER

0 1 2 3 4 5 6 MILES

0 5000 10000 15000 20000 FEET

BY J. S. Rosenshein and J. D. Hunn

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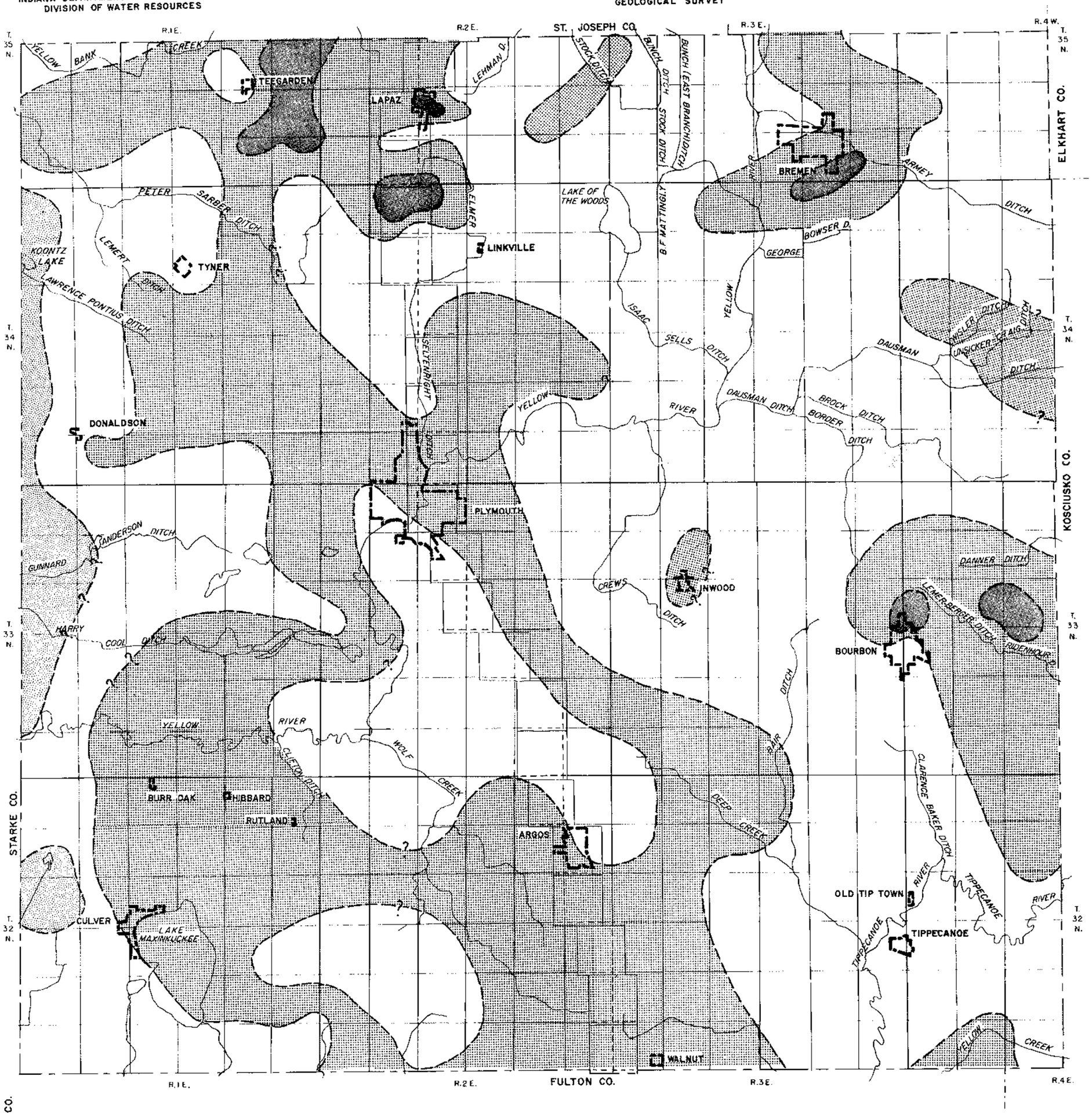

EXPLANATION

Hardness of water, in parts per million

- less than 200
- 200 – 300
- 300 – 400
- more than 400

Boundary approximate

Boundary uncertain

Base from modified General Highway and Transportation Map revised to July, 1953. Drainage and town boundaries in part from U.S. Geological Survey topographic maps

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 MARSHALL COUNTY, INDIANA, SHOWING HARDNESS OF WATER IN SAND AND GRAVEL OF PLEISTOCENE AGE

0 1 2 3 4 5 6 MILES

0 5000 10000 15000 20000 FEET

BY J. S. Rosenshein and J. D. Hunn

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