

STATE OF INDIANA
INDIANA DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

BULLETIN NO. 24

GROUND-WATER RESOURCES OF
NORTHWESTERN INDIANA

Preliminary Report: Pulaski County



Prepared by the
GEOLOGICAL SURVEY
UNITED STATES DEPARTMENT OF THE INTERIOR
In cooperation with the
DIVISION OF WATER RESOURCES
INDIANA DEPARTMENT OF CONSERVATION

1964

INDIANA DEPARTMENT OF CONSERVATION

Donald E. Foltz, Director

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Charles H. Bechert, Director

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BY

J. S. ROSENSHEIN AND J. D. HUNN

GEOLOGISTS, U. S. GEOLOGICAL SURVEY

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GROUND-WATER RESOURCES OF NORTHWESTERN INDIANA

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By J. S. Rosenshein and J. D. Hunn

ABSTRACT

Pulaski County, in northwestern Indiana, has an area of about 433 square miles. Glaciofluvial sand and gravel of Pleistocene age is the chief source of ground water for domestic, stock, industrial, and some public supplies. Wells that tap this source generally are less than 150 feet deep and yield from 5 to 800 gpm (gallons per minute). The underlying bedrock also is used as a source of ground water. The rocks of Silurian and Devonian age are extensively used in the southwestern and northwestern parts of the county for domestic, stock, and public supplies. Wells that tap these sources generally are less than 300 feet deep and yield as much as 1,000 gpm. Water from the rocks of Silurian, Devonian, and Pleistocene age varies in chemical quality. Field chemical analyses show that the hardness of water from rocks of Pleistocene age is generally greater than 120 and less than 400 ppm (parts per million). The hardness of water from rocks of Silurian and Devonian age is generally greater than 100 and less than 350 ppm. In much of the county the concentration of iron from the rocks of Pleistocene age exceeds the maximum concentration recommended in the U. S. Public Health Service drinking-water standard for iron and manganese together.

This preliminary report contains tabulated records of about 370 wells and test holes giving information about well construction, water level, condition of occurrence, and characteristics of water-bearing material; selected logs for about 90 wells and test holes giving driller's description of material penetrated and authors' interpretation of their geologic age; results of about 275 field chemical analyses giving hardness of water and the bicarbonate, chloride, iron, and sulfate contents; and water levels in 6 observation wells indicating the magnitude of short-term and long-term water-level fluctuations in the consolidated and 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 Pulaski County shows 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 consolidated rocks of Silurian and Devonian age and 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.

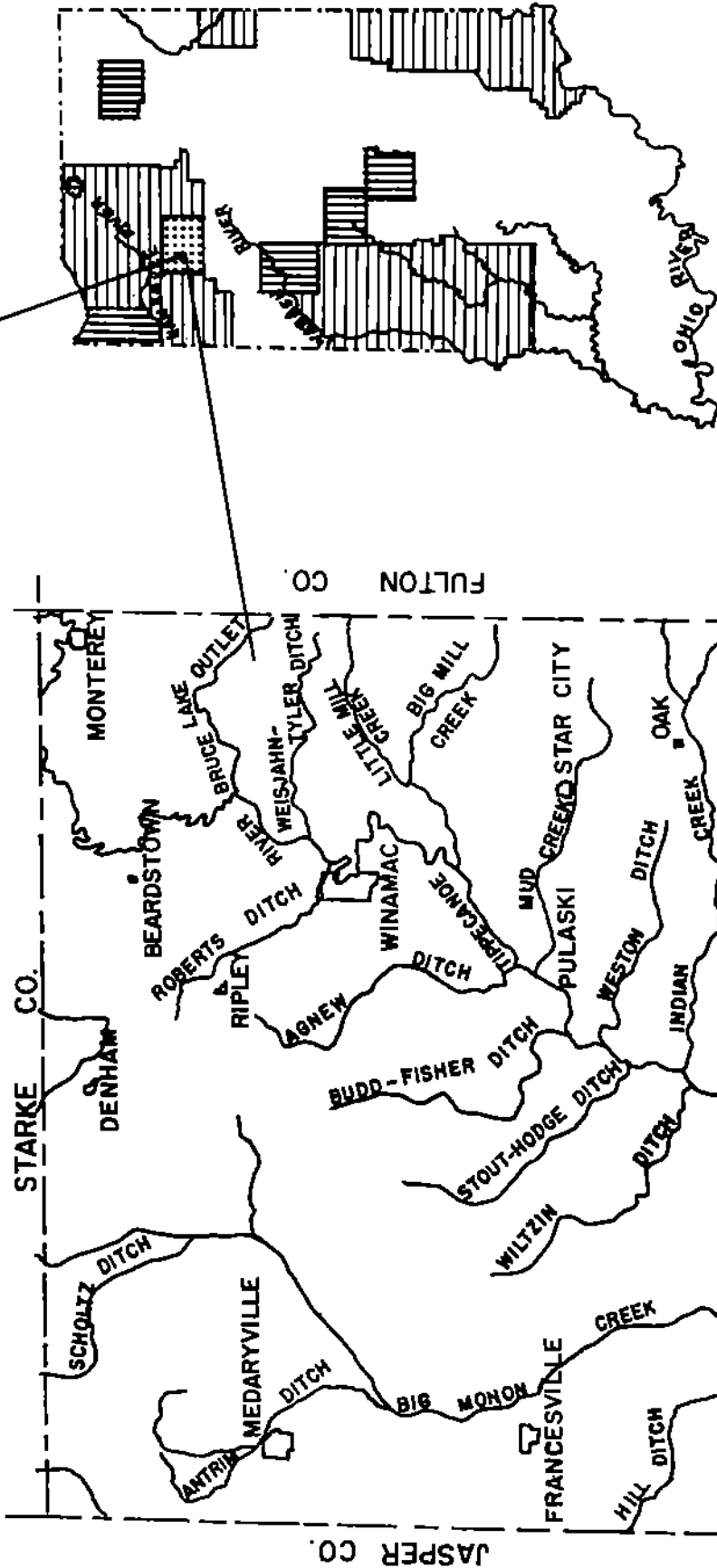
This report is the eighth of a series of preliminary reports to be published on the ground-water resources and geology of northwestern Indiana. The purpose of the report is to make the basic data collected during the investigation available to the public and to provide a preliminary evaluation of the 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

Pulaski County is in the northwestern part of Indiana (fig. 1). The county is rectangular and includes about 433 square miles. It is bounded on the north by Starke County, on the south by Cass and White Counties, on the west by Jasper County, and on the east by Fulton County.

PULASKI CO.



EXPLANATION



AREA COVERED BY THIS REPORT



AREAS UNDER INVESTIGATION



AREAS COVERED BY REPORTS PUBLISHED UNDER THE COOPERATIVE PROGRAM

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

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 30/1W-36E1, the numbers preceding the hyphen indicate that the well is in T. 30 N., R. 1 W. 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 36E1 is the first well listed in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 36, T. 30 N., R. 1 W.

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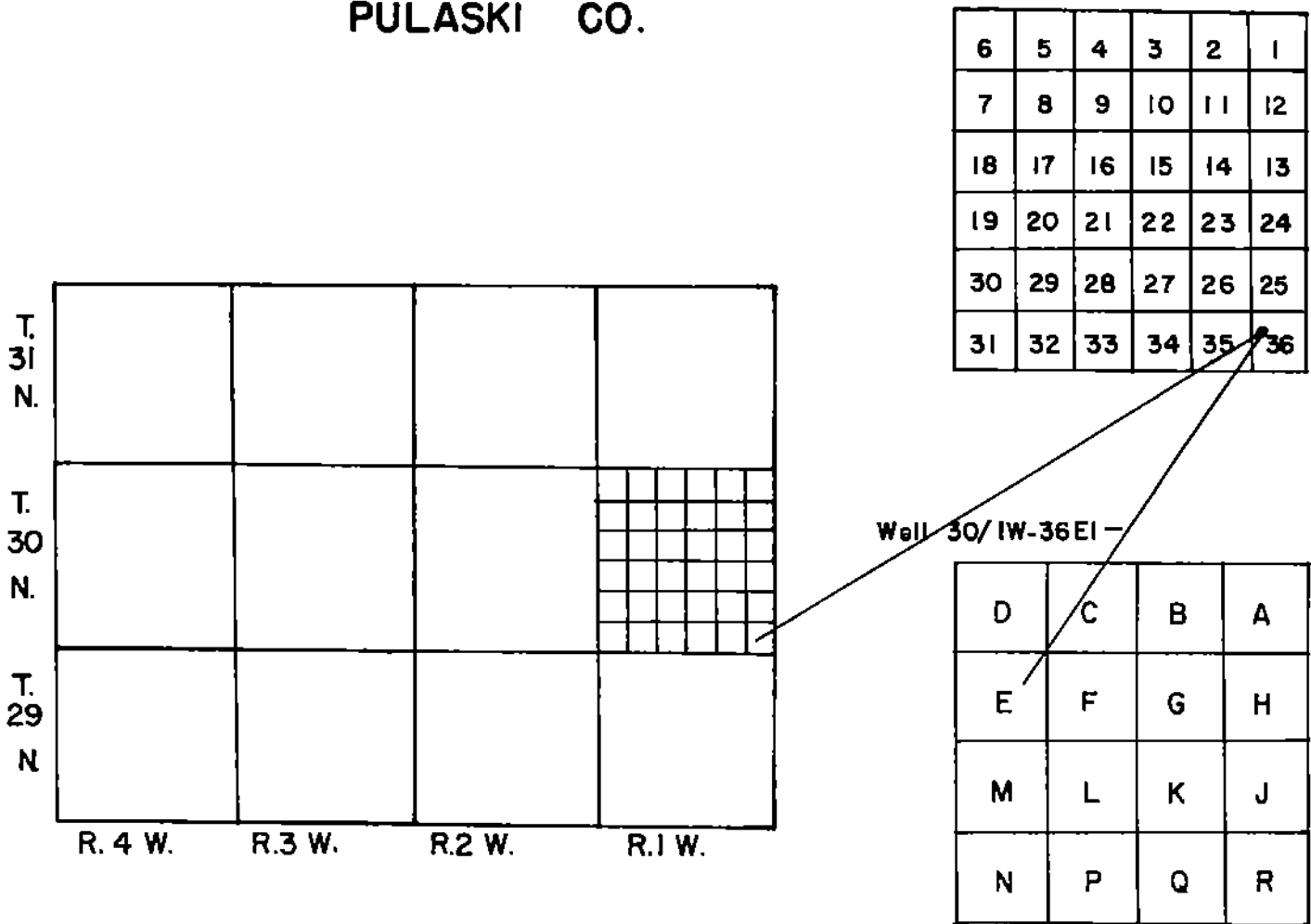


FIGURE 2. - Sketch showing well-numbering system.

Acknowledgments

The authors thank all persons who contributed time, information, and assistance during the collection, tabulation, and processing of data for this report. R. J. Vig, formerly of the Geological Survey, assisted in processing the data in the field. Well drillers, whose names are listed in the table of well records, furnished 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 and Indiana State Board of Health.

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 locations 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.

Planimetric maps were prepared for the areas not covered by standard 7½ minute quadrangle maps of the U. S. Geological Survey so that wells and test holes could be accurately located in the field. These maps were compiled with a vertical sketch-master from aerial photographs using the horizontal control shown on original manuscript copy, scale 1:25,000, of the Army Map Service.

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. 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 Pulaski County are of Ordovician age. These rocks consist of dolomite, dolomitic limestone, and shale. The rocks of Ordovician age are not used as a source of water supply in the county because they generally lie about 550 to 600 feet below the surface and contain water that generally has a dissolved solids content of more than 5,000 ppm (parts per million).

The rocks of Ordovician age are overlain by dolomitic limestone, shale, and dolomite of Middle Silurian age. These rocks are utilized extensively in the southwestern part of the county as a source of water for domestic, stock, and public supplies. Wells that tap this aquifer are generally less than 200 feet deep and yield as much as 150 gpm (gallons per minute). Much of the material of Silurian age listed in table 3 as limestone or limestone (?) is either dolomitic limestone or dolomite.

The rocks of Silurian age are overlain by 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 dolomitic limestone of Middle Devonian age is used extensively in the northwestern part and locally in other parts of the county for domestic, stock, and public supplies. Wells that tap this aquifer are generally less than 300 feet deep and yield as much as 1,000 gpm. The shale of Devonian and Mississippian (?) age is not extensively used as a source of water in Pulaski County and the quantity and quality of water available from this rock is uncertain.

The bedrock is overlain by unconsolidated glacial drift of Pleistocene age. The drift forms several topographic features in the county (Leverett and Taylor, 1915, pl. 6; Wayne, 1958) such as the ground moraine in the southeastern part; the glaciolacustrine plains in the extreme southwestern part; and the sand-covered glaciofluvial plains in the rest of the county.

The unconsolidated rocks of Pleistocene age range in thickness from less than 10 to more than 200 feet. The rocks consist chiefly of glaciofluvial sand and gravel, clayey till, some glaciolacustrine clay and silt, and wind-blown sand. The glaciofluvial sand and gravel is locally more than 90 feet thick and is the chief source of ground water in most of the county for domestic and stock, industrial, and some public supplies. Wells that tap this aquifer are generally less than 150 feet deep and yield from 5 to 800 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 generally too thin to be a source of ground water.

Plate 2 shows the availability of ground water in the consolidated and unconsolidated rocks underlying the county. Plate 3 shows the areal distribution of hardness of water from the rocks of Silurian and Devonian age. Table 1 indicates the significance of the various constituents and properties of the water that are listed in table 5.

The water from the rocks of Silurian age is hard to very hard. The hardness is generally greater than 200 and less than 350 ppm. The range in concentration of selected constituents and properties is summarized in the table below.

Constituent or property	Minimum (ppm)	Mode (ppm)	Maximum (ppm)
Iron (Fe)-----	<0.1	---	3
Bicarbonate (HCO ₃)-----	205	267	508
Sulfate (SO ₄)-----	<5	---	170
Chloride (Cl)-----	<4	---	64
Hardness as CaCO ₃ -----	164	217	652

This table shows the minimum, mode, and maximum concentrations of various constituents and properties of water from rocks of Silurian age.

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.

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

Table 1.--Cont.

Constituent or property	Significance
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.

The water from the rocks of Devonian age is moderately hard to very hard. The hardness is generally greater than 100 and less than 200 ppm. The range in concentration is selected constituents and properties from this source is summarized in the table below.

Constituent or property	Minimum (ppm)	Mode (ppm)	Maximum (ppm)
Iron (Fe)-----	<0.1	---	7.5
Bicarbonate (HCO ₃)-----	220	310	893
Sulfate (SO ₄)-----	<5	8	150
Chloride (Cl)-----	<4	6	80
Hardness as CaCO ₃ -----	76	150	332

Plate 4 shows the areal distribution of hardness of water from the rocks of Pleistocene age. The water is soft to very hard. The hardness is generally greater than 120 and less than 400 ppm. In much of the county the iron content from this source exceeds the maximum concentration recommended in the U. S. Public Health Service drinking-water standard for iron and manganese together. The range in concentration of selected constituents and properties is summarized below.

Constituent or property	Minimum (ppm)	Mode (ppm)	Maximum (ppm)
Iron (Fe)-----	<0.1	---	>7.5
Bicarbonate (HCO ₂)-----	73	323	464
Sulfate (SO ₄)-----	<5	40	250
Chloride (Cl)-----	<4	6	156
Hardness as CaCO ₃ -----	36	288	512

CONFINED AND UNCONFINED CONDITIONS

Ground water occurs in the consolidated and unconsolidated rocks of Pulaski 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.

TYPES OF WELLS

Drilled, driven, and jetted wells are the principal types of water wells used in Pulaski County. Most water wells 3-inches or more in diameter are constructed by the cable-tool or percussion method. 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. Where the water-bearing material is consolidated rock, the well casing is generally driven a short distance into the rock, and the well is finished as an open hole.

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.

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 in much of the county for domestic, stock, public, and industrial supplies from sand and gravel of Pleistocene age. The underlying bed-rock also is used as a source of water. The dolomite and dolomitic limestone of Silurian and Devonian age are used extensively in the southwestern and northwestern parts of the county for domestic, stock, and public supplies.

The chemical quality of water from the rocks of Silurian, Devonian, and Pleistocene age varies. The water from the rocks of Silurian and Devonian age is moderately hard to very hard. The water from rocks of Pleistocene age is soft to

very hard. In much of the county the iron content from this source exceeds the U. S. Public Health Service drinking-water standards for iron and manganese together.

RECORDS

The records of about 370 wells and test holes are given in table 3. The table contains information about well construction, water levels, yields and draw-downs, conditions of occurrence, thickness and characteristics of water-bearing materials, type of pump, and other data. The altitude of the land surface at wells and test holes was interpolated from topographic maps.

Table 4 contains the selected logs of about 90 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 about 275 partial chemical analyses of water are given in table 5. The analyses were determined in the field office of the Geological Survey. 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 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 six observation wells of which one was established during the investigation and the rest prior to the investigation. The water levels in the observation wells were obtained 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 highest water levels are given for the observation well equipped with a recording gage, and periodic water levels are given for the observation wells measured manually. Factors affecting the water levels in the observation wells are also indicated. For additional water levels see water supply papers listed under U. S. Geological Survey in selected bibliography. The location of the observation wells is shown on plate 1.

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Well No.	Owner	Location	Date	Dr	64	57	4	3	2	1	44	40	Lm	S	C	D	J	Flow/Notes
29/48-1001	V. Eneuberger		1937	572	64	40	14	3	2	1	44	40	Lm	PI	C	D <td>J</td> <td>Flows: bedrock at 46 ft; Ca.</td>	J	Flows: bedrock at 46 ft; Ca.
1381	S. Eops	Refstetter Bros.	8-1-36	680	40	57	4	4	4	4	47	10	Lm	S	C	D <td>J</td> <td>Yield 20 gpm; bedrock at 47 ft; Ca.</td>	J	Yield 20 gpm; bedrock at 47 ft; Ca.
1441	L. Wikar			671	57													Bedrock at 3 ft; limestone overlain by 3 ft soil; Ca.
1691	P. Albrecht	Franceville Stone Quarry		676	100													Oil test; bedrock at 5 ft; L.
1701	J. Outwein	O. J. Titus		686	40													
1702	do			684	30													
1751	B. Taylor	Indiana-Michigan Oil and Gas Co.	1928	684	935													
2381	O. Stroll			677	547													
2481	C. Stroll		1905	675	58													
2581	E. M. Gunnerson	N. H. Wingate	3-8-84	677	45													
2681	L. Matchon	do	8-2-86	679	32													
3041	L. Nelson			684	90													
3181	J. Wiley			677	22													
3281	L. A. Vischer	E. H. Wingate	9-25-39	680	120													
3681	F. Long	C. Thacker	About 1931	676	65													
30/1E-1A1	L. Mays			727														
181	J. T. Burt	Fisher Bros. Well Drilling Co.	11-11-69	727	79													
192	J. J. Hensler	do	8-18-88	727	78													
191	G. A. Danforth			733														
192	J. O. Field	Fisher Bros. Well Drilling Co.	8-28-80	735	72													
201	E. M. Mastor	do	12-18-49	733	45													
221	H. C. Mastor	Mr. Gottebach	1944	733	57													
231	C. L. Potts	G. Mackley	1938	734	50													
401	D. and J. Glasinger	J. Masters	10-29-80	713	44													
691	M. H. Sell	D. Henderson	8-18-39	705	69													
801	P. Ameyach	E. Brooker, Jr.	1-28-54	720	81													
891	A. Mitchell			707	27													
901	A. Oudas	Fisher Bros. Well Drilling Co.	9-27-89	714	87													
1201	J. M. Logan	M. Zallors	1931	726	102													
1301	P. D. Sloudt		Before 1916	741	907													
1501	R. Smith	Fisher Bros. Well Drilling Co.	1949	721	66													
1601	E. Mitchell	do	1945	710	105													
1801	P. Walter	C. Miller	8-9-48	720	45													
1820	do	G. Miller	1948	720	60													
1881	D. Soudwick	G. Crist	3-30-61	688	48													
1891	P. L. Joyce	D. Henderson and Son	9-23-80	683	45													
1901	R. Carson	Fisher Bros. Well Drilling Co.	6-58	704	101													
2001	E. Lewis	C. Miller	9-17-49	711	138													
2101	R. Fry	G. Mackley	1957	721	80													
2191	J. Trapp		Before 1921	719	30													
2201	J. Panick	D. Henderson	4-27-60	721	70													
2301	M. McClure	G. Crist	8-34	746	25													
2701	J. Kastner	R. Henderson	7-28-39	721	59													
2801	V. Braun			717	16													
3001	A. Wolfe	Fisher Bros. Well Drilling Co.	4-20-80	896	70													
3101	M. Smith	J. Masters	9-15-80	766	42													

Flows: bedrock at 46 ft; Ca.
Yield 20 gpm; bedrock at 47 ft; Ca.
Bedrock at 3 ft; limestone overlain by 3 ft soil; Ca.
Oil test; bedrock at 5 ft; L.
Ca.
Ca.
Bedrock at 15 ft; Ca.
Bedrock at 13 ft; Ca.
Bedrock at 25 ft; Ca.
Formerly observation well
Pulaski 5; water level measured 8.99 ft below led, 10-18-35.
Dd 5 ft after 6 hr pumping 30 gpm; bedrock at 20 ft; limestone overlain by 20 ft red sand; Ca.
Bedrock at 65 ft; Ca.
Flows: discharge measured 12 gpm, 8-18-57; water level measured 2 ft above led, 9-18-57; Ca.
Flows: L.
Flows: see log well 181.
Flows: discharge measured 6 gpm, 9-18-57; water level measured 1.8 ft above led, 9-18-57; Ca.
Yield 12 gpm; L.
Yield 20 gpm; L.
Gravel overlain by clay; Ca.
Ca.
Yield 10 gpm; L.
Yield 18 gpm; L.
Yield 15 gpm; Ca, L.
Yield 14 gpm; Ca, L, L.
Ca.
Ca.
Ca.
Yield 15 gpm; Ca, L.
Yield 15 gpm; Ca, L.
Dd 5 ft after 2 hr basing 13 gpm; sand overlain by 35 ft clay; Ca.
Encounter water-bearing gravel at 46 ft and 56 ft; Ca.
Ca.
Ca.
Ca.
Ca, L.
Sand and gravel overlain by 6 ft blue clay and 8 ft sand; Ca.
Yield 15 gpm; Ca, L.
Ca.
Yield 15 gpm; gravel overlain by 65 ft blue clay.
Yield 10 gpm; Ca, L.
Ca, L.
Yield 10 gpm; Ca, L.

Table 3.--Records of wells and test holes in Pulaski 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				Type of pump and horsepower	Remarks	
									Depth to top (feet)	Thickness (feet)	Character	Geologic age			Conditions of occurrence
30/1W-3201	D. Bluo	J. Masters	10-7-60	721	J	57	2	8; 3 1/2 ft., 12 in., dia	53	4	G	Pl	C	---	Yield 12 gpm; Ca, L.
32M1	C. Skillen	---	7-30-59	710	J	24	2	9; 3 1/2 ft., 10 in., dia	12	12	94, G	Pl	C	---	Yield 12 gpm; sand and gravel overlain by 12 ft clay.
32M2	---	---	6-2-58	855	J	51	2 1/2	---	80	10	94, G	Pl	C	---	Yield 12 gpm.
32N1	---	J. Masters	---	708	J	100	2	8; 3 ft., 10 in.	---	---	---	---	---	---	Sand and gravel overlain by 80 ft clay; Ca.
34F1	D. Mitchell	---	About 1951	732	Dn	32	1 1/2	8; 3 ft.	---	---	---	---	---	---	Ca.
36K1	C. Arens	---	3-30-60	742	Dn	18	1 1/2	---	---	---	---	---	---	---	Ca.
30/2W-2A1	K. Gudeman	Fisher Bros. Well Drilling Co.	---	706	J	41	2 1/2	8; 3 ft., 8 in., dia 1 1/2	37	4	94, G	Pl	C	---	Yield 15 gpm; sand and gravel overlain by 37 ft sand and blue clay; Ca.
3M1	L. Thomas	---	About 1951	705	Dn	25	1 1/2	8; 3 ft., 8 in.	---	---	---	---	---	---	Ca.
3M2	---	---	About 1956	705	Dn	15	1 1/2	---	---	---	---	---	---	---	Ca.
5R1	O. Rodell	L. Johnson	6-15-52	702	Dr	400	4	Ob	170	230	La	S, D	C	---	Bedrock at 170 ft; Ca.
7D1	J. Penickro	---	Summer 1960	756	Dn	15	2	---	---	---	---	---	---	---	Ca.
6H1	T. Powers	G. Crist	5-7-54	703	J	39	2	5; 3 ft., 8 in.	---	---	---	---	---	---	Ca.
10P1	R. Seartzel	J. Masters	5-9-59	715	J	38	2	5; 3 1/2 ft., 10 in., dia	30	6	G	Pl	C	---	Yield 10 gpm; Ca, L.
11A1	B. and C. Hatchery	G. Crist	1948	703	Dn	24	2	9; 8 in.	---	---	---	---	---	---	Yield 30 gpm.
12O1	W. Owens	---	7-13-59	700	J	52	2	9; 8 in.	35	17	94, G	Pl	C	---	Yield 11 gpm; Ca, L.
12Q2	R. Fry	D. Henderson	4-4-60	705	Dr	87	4	Ob	89	18	---	---	---	---	Ob 10 ft after 2 hr bailing 15 gpm; L.
12N1	Town of Winamac	J. Hunsely	---	806	Dr	418	10	Ob	178	238	La	S, D	C	---	Ob 37 ft after 8 hr pumping 1250 gpm; flows when not pumping; bedrock at 178 ft. Flows when not pumping; bedrock at 178 ft.
12P2	---	---	---	898	Dr	397	10	Ob	178	219	La	S, D	C	---	Flows when not pumping; bedrock at 178 ft.
12P1	Church of the Nazarenes and F. C. Williams and E. J. Rummell	J. Masters	9-4-59	702	J	50	2	9; 3 1/2 ft., 12 in., dia	35	15	94, G	Pl	C	---	Yield 11 gpm; Ca, L.
13D1	---	E. H. Wingsie	2-20-61	704	Dr	192	4	Ob	91	101	La	D	C	---	Ob 3 ft after 3.5 hr pumping 50 gpm; bedrock at 91 ft; clay; Ca overlain by 81 ft clay; Ca.
13P1	H. Morrison	---	10-3-57	666	Dr	187	4	8; 3 1/2 ft., 8 in.	---	---	---	---	---	---	Flows; yield 30 gpm; Ca.
13P2	E. J. Toyner	D. Henderson and Son	3-8-61	688	J	70	2	8; 3 ft., 10 in., dia 1 1/2	---	---	---	---	---	---	Yield 12 gpm; Ca, L.
14G1	Mr. McKinley	---	3-10-60	725	Dr	178	4	Ob	144	34	La	D	C	---	Ob 10 ft after 2 hr bailing 40 gpm; bedrock at 144 ft; L.
14L1	D. Lowery	J. Masters	---	718	J	85	2	9; 3 1/2 ft., 10 in., dia	---	---	---	---	---	---	Yield 12 gpm; Ca, L.
15A1	F. Knarr	J. Masters	6-20-58	712	J	32	2	8; 3 1/2 ft., 8 in., dia 1 1/2	---	---	---	---	---	---	Yield 10 gpm.
15K1	W. F. Niew	---	---	717	J	63	2	9; 3 ft., 8 in.	---	---	---	---	---	---	Sand and gravel from 50-63 ft; record missing from 0-50 ft; Ca.
16K1	W. Schaeckler	---	---	701	J	45	2	8; 3 1/2 ft., 12 in., dia	---	---	---	---	---	---	Yield 10 gpm; Ca.
16R1	T. Belandor	Fisher Bros. Well Co.	5-58	702	J	78	2	8; 3 ft., 8 in.	---	---	---	---	---	---	Ca.
16N1	C. Ruffo	---	---	701	---	90	---	---	---	---	---	---	---	---	Ca.
16N3	C. Bell	V. Planch	---	711	Dr	95	---	---	---	---	---	---	---	---	Ca.
20R1	R. Deboy	G. Markley	About 1953	703	J	77	2	8; 3 ft.	---	---	---	---	---	---	Ca.
21J1	E. Zellers	G. Crist	About 1953	697	J	40	2	8; 3 ft.	---	---	---	---	---	---	Ca.
24R1	R. Deltz	D. Henderson	6-20-60	711	Dr	124	4	Ob	---	---	---	---	---	---	Yield 15 gpm; Ca, L.
24C1	R. Bohrer	J. Masters	3-8-61	702	J	55	2	8; 3 1/2 ft., 12 in., dia 1 1/2	40	15	94, G	Pl	C	---	Yield 10 gpm; Ca, L.

29/58-251	Mr. Beady	Hofstetter Bros.	Summer 1960	Dr	35	4	Oh	10	25	La	D	U	10	5	-----	Dr 15 ft after 2 hr pumping 15 gpm; bedrock at 6 ft; limestone overlain by 8 ft silt and clay. Dr 10 ft pumping 50 gpm; bedrock at 4 ft; limestone overlain by 4 ft clay. Ca. Bedrock at 2 ft; water has odd taste. Bedrock at 2 ft; water has odor hydrogen sulfide gas; Ca. Bedrock at 8 ft; limestone overlain by 8 ft sand and clay; water has odor hydrogen sulfide gas. Dr 21 ft pumping 820 gpm; L. Oil test; bedrock at 30 ft. Ca. Yield 10 gpm; bedrock at 6 ft; limestone overlain by 6 ft sand and rocky clay; Ca. Bedrock at 8 ft; Ca. Bedrock at 90 ft; water has slight odor hydrogen sulfide gas; Ca. Ca. Dr 12 ft after 4 hr pumping 20 gpm; bedrock at 110 ft; Ca. Dr 10 ft after 5 hr pumping 25 gpm; bedrock at 112 ft; Ca. Water has slight odor hydrogen sulfide gas; Ca. Sand and gravel overlain by 128 ft clay; Ca. Ca. Bedrock at 74 ft. Ca. Bedrock at 104 ft; Ca. Water has slight odor hydrogen sulfide gas; Ca. Bedrock at 83 ft; water has odor hydrogen sulfide gas. Water has odor hydrogen sulfide gas; Ca. Bedrock at 14 ft. Bedrock at 55 ft; penetrated 5 ft crevice at 80 ft; Ca. Ca. Bedrock at 34 ft; L. Dr 9 ft after 2 hr pumping 220 gpm; bedrock at 47 ft; formerly observation well Jasper 5; water level measured 11.10 ft below land, 8-20-55. Bedrock at 42 ft; L. Bedrock at 28 ft; L. Bedrock at 30 ft; see log well 3630.
2691	Talbert Manufacturing Corp.	E. H. Wingate	8-23-47	Dr	40	6	Oh	10	36	La	87	U	10	I	SI 1/2	
2692	Co-op Fertilizer Plant	Mr. Morzok	-----	Dr	150	6	Oh	-----	-----	La	87	U	-----	I	-----	
2693	C. Bricker	C. Coy	-----	Dr	32	3	Oh	-----	-----	Do	8	U	-----	K	-----	
2694	Mr. Keelun	E. Elb	1850	Dr	116	5	Oh	-----	-----	Do, La	8	U	-----	0, S	8	
3081	City of Rounsaville	Layne-Northburn Co., Inc.	1-28-53	Dr	353	16-	Oh	-----	-----	La	8	U	-----	0	-----	
3082	W. Siegrist	-----	1880	Dr	1,275	12	Oh	-----	-----	La	8	U	-----	P	-----	
3411	F. Neplus	Hofstetter Bros.	About 1910	Dr	33	4	Oh	-----	-----	La, G	8	U	-----	5	D, S	
3581	R. Lebe	R. Elb	1945	Dr	30	8	Oh	-----	-----	La	8	U	-----	10	D, S	
3582	W. Zacher	R. Elb	-----	Dr	101	4	Oh	-----	-----	La	8	U	-----	18	D	
861	L. Lano	E. H. Wingate	1911	Dr	112	4	Oh	-----	-----	La	8	U	-----	12	D, S	
881	A. Bransch	-----	8-16-60	Dr	151	4	Oh	-----	-----	La	8	U	-----	38	D	
882	J. Miller	-----	8-24-60	Dr	142	4	Oh	-----	-----	La	8	U	-----	38	D	
11A1	Mrs. Koiper	-----	-----	Dr	100	4	Oh	-----	-----	La	8	U	-----	---	D, S	
12D1	O. Rinsling	Hofstetter Bros.	700	Dr	130	4	Oh	-----	-----	La?	8	U	-----	---	D, S	
13M1	J. Zimmer	-----	8-23-37	Dr	130	4	Oh	-----	-----	La, G	8	U	-----	80	D, S	
14C1	C. Schlemm	-----	About 1912	Dr	120	8	Oh	-----	-----	La	8	U	-----	20	D	
18C1	S. Dargor	A. Potts	1941	Dr	116	4	Oh	-----	-----	La	8	U	-----	---	D	
20B1	Trumpton, Hickman	-----	702	Dr	110	4	Oh	-----	-----	La	8	U	-----	---	D	
20D1	C. T. Askron	Hofstetter Bros.	1954	Dr	121	4	Oh	-----	-----	La	8	U	-----	11	D	
22F1	B. Hickman	-----	-----	Dr	100	4	Oh	-----	-----	La	8	U	-----	---	D	
23Q1	Jasper County Highway Department	O. J. Titus	Spring 1959	Dr	152	6	Oh	-----	-----	La	8	U	-----	---	D	
23R1	Jasper County Home	R. Elb	-----	Dr	183	8	Oh	-----	-----	La	8	U	-----	10	P, S	
26A1	Jasper County Fair Association	-----	-----	Dr	182	6	Oh	-----	-----	La	8	U	-----	---	P, S	
26A2	W. Burwell	Westville Well Co.	7-23-59	Dr	121	4	Oh	-----	-----	La	8	U	-----	16	P, S	
27F1	-----	-----	1854	Dr	85	4	Oh	-----	-----	La	8	U	-----	15	D	
28C1	O. W. Hickman, Jr.	-----	8-5P	Dr	28	1 1/2	S; Jft	-----	-----	94	8	U	-----	---	D	
29P1	Curtis Creek Country Club	-----	-----	Dr	20	1 1/2	S	-----	-----	94	8	U	-----	---	D	
29L1	-----	H. Watson	-----	Dr	100	4	S	-----	-----	94, G	8	U	-----	---	P	
31C1	C. Battleday	A. Potts	1941	Dr	93	4	Oh	-----	-----	La	8	U	-----	---	S	
32C1	Mr. Prier	-----	1940	Dr	152	4	Oh	-----	-----	La	8	U	-----	---	S	
36H1	St. Joseph's College	Layne-Northburn Co., Inc.	9-4-45	Dr	34	6	Oh	-----	-----	G	8	U	-----	---	T	
36J1	-----	-----	8-22-45	Dr	47	18	Op; S; 10ft, dia 10	-----	-----	84, G	8	U	-----	---	T	
36J2	-----	-----	8-18-45	Dr	43	6	Oh	-----	-----	84, G	8	U	-----	---	T	
36J3	-----	-----	8-28-45	Dr	29	8	Oh	-----	-----	84, C	8	U	-----	---	T	
36J4	-----	-----	8-30-45	Dr	30	0	Oh	-----	-----	84, C	8	U	-----	---	T	

Table 2.---Records of wells and test holes in Pulaski 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			Factor level (feet)	Use	Type of pump and horsepower	Remarks
									Depth to top (feet)	Thickness (feet)	Character				
31/W-181	C. Giddio	Fisher Bros. Well Drilling Co., Layne-Northolt Co., Inc.	7-0-60	717	J	88	2	S; 3ft, 60g, dia 1 1/4	54,G	Pl	C	1	D	---	Yield 16 gpm; L.
181	Buckeye Food and Supply	Fisher Bros. Well Drilling Co., Layne-Northolt Co., Inc.	6-1-48	718	Dr	80	8	S	30	Pl	C	---	X	T	---
381	A. Halmer	G. Crist	4-7-55	737	J	70	2	S; 3ft, 60g	6	Pl	C	31	D,S	L1/3	Gravel overlain by 58 ft blue clay and 6 ft sand; Ca.
381	J. Becker	Fisher Bros. Well Drilling Co.	10-30-53	748	J	68	2 1/2	S; 3ft, 60g, dia 1 1/4	9	Pl	C	34	D	J	Yield 20 gpm; Ca, L.
481	C. Ezia	Fisher Bros. Well Drilling Co.	1-30-60	748	J	89	2 1/2	S; 3ft, 60g, dia 1 1/4	19	Pl	C	37	D,S	---	Yield 15 gpm; L.
581	F. J. Lang	---	---	715	Dn	20	1 1/2	S	41	Pl	C	---	D	J	Ca.
681	E. Stapp	---	---	711	Dr	51	4	---	41	Pl	C	3	D	---	Yield 30 gpm; Ca, L.
881	E. Stapp	---	---	725	Dn	40	1 1/2	S	---	Pl	C	---	D,S	L	Ca.
1081	R. Sawyer	---	1958	721	Dn	27	1 1/2	S	---	Pl	C	---	D,S	J	Ca.
1081	R. Sawyer	---	---	721	Dn	27	1 1/2	S	---	Pl	C	---	D,S	J	Ca.
1181	L. Pahlitich	---	Spring	721	Dn	24	1 1/2	S; 4ft	---	Pl	C	5	D,S	J	Ca.
1281	Mr. Lightfoot	Fisher Bros. Well Drilling Co.	1081	740	J	45	2	S; 3ft, 60g	5	Pl	C	10	D	---	Gravel overlain by 40 ft sand and blue clay; blue clay at 45 ft.
1381	E. Woolfran	---	1058	759	J	155	2	S	---	Pl	C	---	D,S	J	Ca.
1781	P. Van Damo	---	---	718	Dn	25	1 1/2	S	---	Pl	C	---	D	L1/3	Ca.
1881	E. Walters	---	1921	728	Dn	13	1 1/2	S	---	Pl	C	---	D	J	Ca.
2181	T. Reinholdt	Fisher Bros. Well Drilling Co.	11-21-60	728	J	134	4 1/2	S; 6 ft, 14st, dia 3 1/2	---	Pl	C	32	D,S	J	Yield 40 gpm; Ca, L.
2381	B. Smith	---	---	729	Dn	25	1 1/2	S; 3ft, 50g	---	Pl	C	---	D	J	Ca.
2381	H. Jolly	---	Spring	727	Dn	48	1 1/2	S; 3ft, 50g	---	Pl	C	0	S	L1/3	Wells at house and milk house 90 ft deep; Ca.
2481	R. Dault	E. Incocker	About 1900	778	J	85	2	S; 6ft	---	Pl	C	---	D,R	J	Ca.
2581	V. Peterson	Fisher Bros. Well Drilling Co.	10-5-60	740	J	75	2 1/2	S; 3ft, 60g, dia 1 1/4	11	Pl	C	20	D,S	---	Yield 18 gpm; Ca, L.
2881	R. S. Coleman	---	---	714	Dr	22	2	S; 100g	---	Pl	C	---	D	L	Ca.
2881	J. E. Hinderlinder	---	---	717	Dr	30	1 1/2	S	---	Pl	C	---	D,S	J1/3	Ca.
2981	H. Hall	---	1958	768	Dn	28	1 1/2	S	---	Pl	C	---	D	L	Ca.
3181	W. A. Mankey	Fisher Bros. Well Drilling Co.	6-28-60	764	J	40	2	S; 3ft, 60g, dia 1 1/4	22	Pl	C	12	S	L1/3	Well at house about 18 ft deep. Yield 14 gpm; L.
3281	C. Brucker	---	---	765	J	101	2 1/2	---	---	Pl	C	11	D	---	Yield 19 gpm; Ca, L.
3081	---	---	---	756	J	43	2 1/2	---	---	Pl	C	1	D,S	---	Yield 11 gpm; Ca, L.
31/W-181	G. and W. Malott	G. Crist	11-22-60	756	J	39	1 1/2	S; 3ft	10	Pl	C	1	D	J	Ca.
31/W-181	G. and W. Malott	G. Crist	11-17-60	756	Dn	39	1 1/2	S; 3ft	9	Pl	V	16	D,S	---	Yield 10 gpm; Gravel overlain by 25 ft white and yellow sand; Ca.
31/W-181	G. and W. Malott	G. Crist	8-2-59	718	J	25	2 1/2	S; 3 1/2 ft, 60g, dia 1 1/4	---	Pl	V	16	D,S	---	Yield 10 gpm; Gravel overlain by 25 ft white and yellow sand; Ca.
281	L. H. Stoidel	---	About 1953	722	Dn	28	1 1/2	S; 3ft	8	Pl	V	20	D	J	Ca.
481	P. Fuchner	---	1950	711	Dn	15	1 1/2	---	0	Pl	V	9	S	J	Ca.
681	C. Pfoell	---	1900	710	Dn	23	1 1/2	S; 3ft	---	Pl	V	---	D	J	Well at barn 15 ft deep; Ca.
781	R. Guaz	L. Johnson	11-5-45	711	Dr	300	4	Oh	---	Pl	V	---	T3	---	Bedrock at 140 ft; for mint still.
981	A. Krauer	---	About 1942	710	Dn	21	1 1/2	S; 3ft	---	Pl	V	8	D	J1/2	Ca.
1181	J. S. Mulbert	---	1945	713	Dn	30	1 1/2	S; 3 1/2 ft, 100g	---	Pl	V	0	D	L1/4	Ca.
1281	State of Indiana	---	1930	734	Dr	304	6	Oh	140	Pl	V	---	P	T3	Bedrock at 104 ft; Ca, L.
1381	---	Layne-Northolt Co., Inc.	6-22-50	713	Dr	284	6	Oh	143	Pl	V	---	P	T5	Bedrock at 151 ft; for swimming pool; L.
1381	---	---	---	713	Dr	284	6	Oh	---	Pl	V	---	P	T5	Bedrock at 151 ft; for swimming pool; L.
1381	---	---	1949	707	Dr	249	6	Oh	99	Pl	V	4	P	T5	Dr 46 ft after 2 hr pumping 80 gpm; Bedrock at 160 ft; L.
1381	H. Schlemmer	Rechner Well and Pump Co.	4-24-52	710	J	42	2	S; 3ft	---	Pl	V	---	D	---	---

31/28-15PI	State of Indiana	D. Denton	11-0-59	714	Dr	78	4	5: 3ft, 259ft, dia 1 1/2	59	26	8d,G	Pl	C	17	D	J	Detailed description
17R1	A. Schostka		About 1951	711	Dn	25	1 1/2	S: 3ft			Sd	Pl			D	J	Dr 4 ft after 2 hr pumping 15 rpm; Ca, L.
18N1	C. A. Rose			700	Dn	30	1 1/2	S: 3ft			Sd	Pl			D,S	J	
19Q1	G. W. Brown			711	Dn	14	1 1/2	do			Sd	Pl			D,S	J	
21Q1	S. P. McManus		About	721	Dn	18	1 1/2	S: 2 1/2 ft	0	13	Sd	Pl		5	D	P	
25G1	C. DeGroot		1933	712	Dn	32	1 1/2	S: 3 1/2 ft	12	6	Sd	Pl		1	D	J	
28B1	H. Hart		Before	705	Dn	18	1 1/2	S: 2 1/2 ft			Sd	Pl		12	D, L	J	
30K1	J. Wachtel Corp.	Mr. Myers	1951	711	J	100	2	S	20	6	Sd	Pl		20	D	L	
32A1	Mr. Baykins		1947	718	Dn	20	1 1/2	S: 2 1/2 ft, 60g			Sd	Pl		11	D	L	
32H1	G. Ditton			705	J	98	2	S: 3ft, 60g	71	27	Sd,G	Pl		11	D	L	Yield 14 rpm; Ca, L.
33H1	F. Hancock	E. Brooker, Jr.	2-8-50	723	J	98	2	S: 3ft, 60g			Sd	Pl		12	D, S	L	Yield 12 rpm; Ca, L.
36J1	E. Vanaman	J. Hanters	4-13-61	711	J	60	2	S: 3 1/2 ft, 12nd, dia			Sd	Pl		10	S	J	
31/28-15PI	A. Redlin		1950	709	Dn	22	1 1/2	S: 3ft, 80g			Sd	Pl		10	S	J	
39I	F. Guaz		1955	711	Dn	25	1 1/2	S			Sd,G	Pl		10	S	F	
39J	A. Tomaszewski			711	Dn	30	1 1/2	S			Sd	Pl		5	D	J	
39K	R. Ksu	J. P. Miller Artesian Well Co.	7-10-48	702	Dr	418	10	Oh	155	263	Lm	S, D		14	T		Dr 115 ft after 1 hr pumping 150 rpm; bedrock at 155 ft; crevices in limestone at 308 ft; L.
40I	E. Marshall		3-60	717	Dn	15	1 1/2	S			Sd	Pl			D	J	
58I	V. Fields			698	Dn	20	1 1/2	S			Sd	Pl		12	D	P	
78I	F. Back			698	Dn	10	1 1/2	S			Sd	Pl		2	I	T	
88I	A. Guaz	J. P. Miller Artesian Well Co.	12-10-47	685	Dr	265	12	Oh	109	157	Lm	D		2	I	T	
98I	H. Ksiazinski		11-26-47	692	Dr	200	16	Oh	147	113	Lm	D		2	N	J	
130I	B. Ksiazinski		About	709	Dn	18	1 1/2	S: 3ft, 80g, dia 1 1/2			Sd	Pl			D	J	
140I	B. Ksiazinski			709	Dn	22	1 1/2	do			Sd	Pl			D	J	
140I	B. Ksiazinski			707	Dn	16	1 1/2	S: 3 1/2 ft, 60g			Sd	Pl			D	J	
158I	D. Storzputowski	L. Stanky	About 1951	697	Dr		2				Sd	Pl			D, S	J	
16C1	A. Guaz	J. P. Miller Artesian Well Co.	2-3-48	690	Dr	310	12	Oh	139	135	Lm	D		2	N	J	
19C1	R. Grigor	Myers and Nichols	1943	694	J	86	2	Oh			Lm	D			D, S	J	
19K1	R. Guaz	L. Johnson	2-9-53	714	Dr	185					Lm	D			D	J	
19P1	M. O'Connor	J. Nichols	4-41	709	Dr	55	2	Oh			G	Pl			S	J	
20A1	L. Lange	L. Stanky	Summer 1937	692	J						Lm	D			D, S	J	
21R1	A. Klaape		1951	692	Dr	92	2				Sd	Pl			D	J	
220I	F. Redlin		About	691	J	122	4	S			Lm	D			D, S	J	
230I	A. Rhode	M. Zollern		696	J	92	2	S			Sd,G	Pl			D	J	
23P1	D. Lambert	Fisher Bros. Well Drilling Co.	4-56	699	Dr	95		S			Sd,G	Pl		10	D	J	
240I	L. Ksiazinski		About 1923	713	Dn	20	1 1/2	S: 2 1/2 ft			Sd	Pl			D	P	
25C1	A. T. Stoenking	Fisher Bros. Well Drilling Co.	9-4-59	702	J	99	2 1/2	S: 3ft, 60g, dia 1 1/2	0	90	Sd,G	Pl		9	S	J	
25N1	C. Lottin		6-13-60	696	J	89	2	do			G	Pl		0	D, S	J	
30A1	A. Schaur		Before 1911	704		100	2	Oh			Sd,P	Pl		15	D, S	J	
32C1	D. Phillips		1940	702	Dn	22	1 1/2	S: 3 1/2 ft	10	12	Sd	Pl		10	D	J	
32P1	Mr. Weaver			698							Sd	Pl			N	J	
34A1	Murray Bros.	Oldfield Irrigation Well Co.	Spring 1950	692	Dr	118	18	S: 50ft, dia 18	76	42	G	Pl			T	J	
34D1	D. Storzputowski		1948	702	Dn	25	1 1/2	S: 3ft	21	4	Sd	Pl			D	J	
34N1	F. C. Moore			688							Sd,G	Pl			L/A	J	

Table 3.--Records of wells and test holes in Pulaski 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				
31/3W-26D1	P. Altman	L. Johnson	7-2-49	696	Dr	147	6	Oh	112	L ₄	D	C	I	N	---	M 6 ft pumping 20 gpm; bed-rock at 35 ft.
36K1	T. Knoebel	Mr. Shaw	About 1918	698	Dr	85	4	---	---	L ₄	D	C	---	D, S	J	---
31/4W-22E	E. Stonkowski	---	9-30	702	Dn	18	1 1/2	S	15	S ₄	U	U	J	D	J1/3	Ca.
431	H. Sator	Wentville Well Co.	Spring	711	J	65	---	5	---	S ₄	U	U	---	D, S	J1	Ca.
5A1	C. Alfording	---	1953	700	Dr	98	6	---	---	Sh ₇	D, N	C	---	---	---	Formerly observation well (N1-S1); water level measured 6.17 ft below lnd. 12-1-35.
5J1	---	---	1927	707	Dn	15	1 1/2	S, 3ft., 80g	---	S ₄	U	U	---	D	C1/3	Ca.
5C1	State of Indiana	---	---	700	Dr	160	6	Oh	---	L ₄	D	C	---	---	---	Formerly observation well (N1-S1); water level measured 6.75 ft below lnd. 12-1-35.
BR1	---	---	Summer	707	Dr	96	4	Oh	20	Sh	D, N	C	D	N	---	L.
5M1	D. Moyer	---	1925	707	Dn	13	1 1/2	S, 2 1/2 ft.	---	S ₄	U	U	---	D	L1/4	Ca.
10P1	C. Jureka	O. J. Titus	9-5-55	702	Dr	140	4	Oh	---	L ₄	D	C	---	D, S	---	Water contains hydrogen sulfide gas; Ca.
11C1	R. Eckert	---	1938	701	Dn	21	1 1/2	S, 3ft.	---	S ₄	U	U	---	D	J1/3	Ca.
12D1	R. C. Nelson	---	1936	698	Dn	13	4	---	---	S ₄	U	U	---	D	J1/4	Ca.
16M1	T. M. Moyer	---	1956	708	Dn	13	1 1/2	S, 3ft., 80g	---	S ₄	U	U	---	D, S	J	Ca.
16N1	T. M. Moyer	---	1952	756	Dn	18	1 1/2	S	---	S ₄	U	U	---	D	L1/4	Ca.
17K1	F. Row	---	1958	722	Dn	36	1 1/2	S, 3ft., 60g	7	S ₄	U	U	19	D	J1/3	Ca.
18G1	State of Indiana	---	---	708	Dr	148	4	---	---	L ₄	D	C	---	D	---	Observation well (N1-S1); water level measured 12.13 ft below lnd. 12-1-35; water contains hydrogen sulfide gas.
18G2	---	---	---	785	Dn	9	1 1/2	S, 0 1/2 ft.	---	S ₄	U	U	---	---	---	Formerly observation well (N1-S1); water level measured 2.03 ft below lnd. 12-1-35.
18C1	L. Adams	---	1950	702	Dn	12	1 1/2	S, 4ft.	4	S ₄	U	U	8	D	P	Ca.
21M1	L. Stump	---	About 1910	710	Dn	16	1 1/2	S, 3ft., 60g	---	S ₄	U	U	---	D	P	Ca.
23R1	A. Carlting	J. Nicholas	8-30-43	712	Dr	128	3	Oh	---	L ₄	D	C	B	D	---	Water contains hydrogen sulfide gas; Ca.
24C1	M. Lilly	Woffelator Bros.	1950	707	Dr	33	6	S	---	S ₄	U	U	---	D, S	J1/3	Ca.
26R1	E. Tomko	---	About 1911	712	Dr	200	3	Oh	---	L ₄	D	C	---	---	---	Water contains hydrogen sulfide gas; Ca.
27E1	M. Wircaso	---	1951	710	Dn	10	1 1/2	S, 3ft.	---	S ₄	U	U	---	D, S	J	Ca.
29R1	O. G. Darby	---	1940	686	Dn	120	---	Oh	---	S ₄	U	U	7	D	J	Ca.
30J1	E. T. Mudge	---	1922	682	Dr	109	---	Oh	9	L ₄	D	C	---	---	---	Oil test; flowed 40 gpm; bed-rock at 70 ft.; limestone overlain by 25 ft. shale.
30L1	D. L. Brown	E. H. Wingate	1-14-60	680	Dr	98	4 1/2	S, 2 1/2 ft., 6m1, dia 3 1/2	4	S ₄ , G	U	C	4	D, S	J	D1 20 ft. after 18 hr pumping 10 gpm; sand and gravel overlain by 94 ft. clay; Ca.
31P1	C. E. Tuzioff	J. Nichols	1940	710	Dr	130	4	Oh	---	L ₄	D	C	27	D, S	J1/3	Ca.
34P1	Mr. Traff	---	1940	711	Dr	126	3	---	---	L ₄	D	C	---	D, S	L	Bedrock at about 65 ft.; limestone overlain by about 35 ft. shale; water contains hydrogen sulfide gas; Ca.

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

Well 29/1W-3M1

Type of record: Driller's log.

Altitude: 726 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	17	17	
Sand-----	1	18	
Clay, blue-----	3	21	
Sand-----	4	25	
Gravel-----	25	50	

Well 29/1W-8F2

Type of record: Driller's log.

Altitude: 718 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	11	11	
Clay, blue-----	4	15	
Sand-----	3	18	
Clay, blue-----	28	46	
Gravel-----	11	57	

Well 29/1W-8F3

Type of record: Driller's log.

Altitude: 718 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow, and sand-----	13	13	
Clay, blue-----	9	22	
Sand, fine-----	2	24	
Clay-----	18	42	
Sand-----	34	76	

Well 29/1W-8L1

Type of record: Driller's log from memory.

Altitude: 716 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	78	78	
Sand-----	7	85	
Clay, blue-----	7	92	
Gravel-----	8	100	

Well 29/1W-8L3

Type of record: Driller's log from memory.

Altitude: 719 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue-----	27	27	
Gravel-----	8	35	
Clay, blue-----	7	42	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 29/1W-8L3--Continued

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	2	44	
Gravel-----	20	64	

Well 29/1W-8L5

Type of record: Driller's log. Altitude: 719 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	36	36	
Gravel, sandy-----	9	45	
Clay-----	1	46	
Gravel-----	14	60	

Well 29/1W-8L6

Type of record: Driller's log. Altitude: 719 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	22	22	
Gravel, sandy-----	16	38	
Clay-----	2	40	
Gravel-----	5	45	
Clay-----	8	53	
Sand-----	2	55	
Gravel-----	7	62	

Well 29/1W-8L7

Type of record: Driller's log. Altitude: 719 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	12	12	
Gravel and sand-----	30	42	
Clay, blue-----	11	53	
Gravel-----	7	60	

Well 29/1W-8P2

Type of record: Driller's log. Altitude: 715 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	24	24	
Gravel-----	5	29	
Clay, blue-----	9	38	
Gravel-----	12	50	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 29/1W-8P4

Type of record: Driller's log. Altitude: 713 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	18	18	
Sand-----	1	19	
Clay-----	2	21	
Sand-----	15	36	
Clay, blue, with streaks of gravel-----	70	106	
Sand-----	4	110	
Gravel, yellow-----	25	135	
Gravel, yellow, with sand-----	5	140	
Gravel-----	8	148	

Well 29/1W-8P5

Type of record: Driller's log. Altitude: 713 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	3	3	
Clay-----	9	12	
Sand-----	6	18	
Clay-----	69	87	
Gravel-----	8	95	

Well 29/1W-8R1

Type of record: Driller's log. Altitude: 713 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow, and sand-----	13	13	
Gravel-----	1	14	
Clay, white, and stone-----	9	23	
Sand-----	4	27	
Clay, white-----	32	59	
Sand-----	17	76	

Well 29/1W-11H1

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

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	10	10	
Clay, yellow-----	6	16	
Clay, blue-----	17	33	
Sand-----	3	36	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 29/1W-19M1

Type of record: Driller's log.

Altitude: 711 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	20	20	
Clay-----	5	25	
Sand-----	20	45	
Sand and gravel-----	17	62	

Well 29/1W-28G1

Type of record: Driller's log.

Altitude: 750 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	12	12	
Gravel, yellow-----	5	17	
Sand, yellow-----	18	35	
Clay, blue-----	2	37	
Sand-----	13	50	
Sand, coarse-----	8	58	

Well 29/1W-28R1

Type of record: Driller's log.

Altitude: 726 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	13	13	
Clay-----	5	18	
Sand-----	6	24	
Clay-----	5	29	
Sand-----	4	33	
Clay-----	42	75	
Sand-----	5	80	
Gravel-----	6	86	

Well 29/1W-33D1

Type of record: Driller's log.

Altitude: 724 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	12	12	
Sand-----	6	18	
Clay, blue-----	60	78	
Sand-----	30	108	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 29/1W-33J1

Type of record: Driller's log. Altitude: 722 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	4	4	
Sand and clay; mixed-----	76	80	
Clay, gray-----	5	85	
Sand, fine-----	8	93	
Silurian System:			
Middle Silurian Series:			
Limestone, broken, with gravel----	4	97	Dolomitic lime- stone or dolomite.
Limestone-----	10	107	Do.

Well 29/1W-36C1

Type of record: Driller's log. Altitude: 739 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	26	26	
Sand-----	10	36	
Clay-----	27	63	
Sand-----	2	65	
Gravel-----	7	72	

Well 29/2W-3C1

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

Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	4	4	
Hardpan-----	6	10	
Clay, blue-----	17	27	
Sand, white-----	3	30	
Gravel, blue-----	4	34	

Well 29/2W-3F1

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

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	6	6	
Clay and rocks-----	4	10	
Gravel-----	3	13	
Clay, blue-----	6	19	
Gravel-----	2	21	
Clay-----	30	51	
Gravel and sand-----	67	118	
Clay, white-----	15	133	
Gravel-----	2	135	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 29/2W-3M1

Type of record: Driller's log. Altitude: 672 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	8	8	
Sand, medium-----	4	12	
Clay, blue-----	33	45	
Sand, fine-----	2	47	
Clay, blue-----	18	65	
Sand, medium to coarse-----	7	72	

Well 29/2W-4Q1

Type of record: Driller's log. Altitude: 676 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	12	12	
Clay, yellow-----	3	15	
Sand, yellow-----	6	21	
Clay, blue, and broken gravel-----	15	36	
Clay, hard, white-----	14	50	
Gravel-----	3	53	

Well 29/2W-9M1

Type of record: Driller's log. Altitude: 692 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	2	2	
Clay, yellow-----	14	16	
Gravel, reddish-----	6	22	
Clay, soft, blue-----	38	60	
Clay, hard, gray-----	20	80	
Clay, soft, blue-----	7	87	
Gravel, blue-----	4	91	

Well 29/2W-11E1

Type of record: Driller's log. Altitude: 696 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay and gravel-----	13	13	
Sand-----	52	65	
Gravel-----	3	68	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 29/2W-18B1

Type of record: Driller's log from memory. Altitude: 688 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	22	22	
Clay, blue-----	3	25	
Sand, fine, grading into gravel---	4	29	

Well 29/2W-23F1

Type of record: Driller's log. Altitude: 709 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	59	59	
Clay-----	1	60	
Sand-----	35	95	
Gravel-----	3	98	

Well 29/2W-30D2

Type of record: Driller's log. Altitude: 687 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	12	12	
Clay, yellow-----	19	31	
Clay, blue-----	4	35	
Gravel-----	7	42	

Well 29/3W-9B1

Type of record: Driller's log. Altitude: 705 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	38	38	
Clay-----	4	42	
Gravel-----	1	43	
Clay-----	2	45	
Sand-----	5	50	
Clay-----	2	52	
Sand-----	5	57	
Clay-----	1	58	
Sand-----	2	60	
Clay-----	20	80	
Sand-----	10	90	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 29/3W-9R1

Type of record: Driller's log. Altitude: 700 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	12	12	
Sand, blue-----	31	43	
Clay, blue-----	15	58	
Gravel-----	4	62	

Well 29/4W-1N1

Type of record: Driller's log from memory. Altitude: 682 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	20	20	
Clay, blue-----	22	42	
Hardpan; clay, sand, gravel and rock-----	7	49	
Gravel and clay; mixed-----	6	55	
Gravel, coarse-----	6	61	

Well 29/4W-4K1

Type of record: Driller's log. Altitude: 674 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil and clay-----	9	9	
Silurian System:			
Middle Silurian Series:			
Limestone, weathered-----	1	10	Dolomitic limestone or Dolomite.
Limestone, hard-----	190	200	Do.

Well 29/4W-4P1

Type of record: Driller's log. Altitude: 681 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Soil-----	10		
Silurian System:			
Middle Silurian Series:			
Lime, gray-----	35	45	Dolomitic lime- stone or Dolomite.
Lime, green-----	539	584	Do.
Lime, brown-----	11	595	Do.
Ordovician System:			
Upper Ordovician Series:			
Shale-----	40	635	
Lime-----	28	663	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 29/4W-5R1

Type of record: Driller's log. Altitude: 681 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel-----	20	20	
Clay-----	6	26	
Clay and Limestone-----	19	45	
Silurian System:			
Middle Silurian Series:			
Dolomite-----	105	150	
Shale-----	8	158	
Dolomite-----	416	574	
Ordovician System:			
Upper Ordovician Series:			
Clay-----	10	584	Weathered shale?
Shale-----	20	604	
Dolomite-----	27	631	

Well 29/4W-8D1

Type of record: Driller's log. Altitude: 683 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Drift-----	14	14	
Silurian System:			
Middle Silurian Series:			
Limestone-----	576	590	Dolomitic lime- stone or Dolomite.
Ordovician System:			
Upper Ordovician Series:			
Shale-----	20	610	
Limestone-----	3	613	
Shale-----	16	629	
Lime-----	26	655	
Shale-----	4	659	
Limestone-----	29	688	
Shale-----	210	898	
Middle Ordovician Series:			
Limestone-----	14	912	

Well 29/4W-9C1

Type of record: Driller's log. Altitude: 681 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Soil and clay-----	9	9	
Silurian System:			
Middle Silurian Series:			
Limerock, gray-----	39	48	Dolomitic lime- stone or dolomite.

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 29/4W-9C1--Continued

Material	Thick- ness (feet)	Depth (feet)	Remarks
Silurian System:			
Middle Silurian Series:			
Limerock, white-----	49	97	Dolomitic limestone or Dolomite.
Limerock, broken-----	4	101	Do.
Limerock, white-----	26	127	Do.
Record missing-----	18	145	

Well 29/4W-14A1

Type of record: Driller's log.

Altitude: 671 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	38	38	
Sand and gravel-----	2	40	
Clay, sandy-----	7	47	
Silurian System:			
Middle Silurian Series:			
Limestone-----	10	57	Dolomitic limestone or Dolomite.

Well 29/4W-17J1

Type of record: Driller's log.

Altitude: 684 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Soil-----	5	5	
Silurian System:			
Middle Silurian Series:			
Dolomite-----	395	400	
Limestone-----	150	550	
Ordovician System:			
Upper Ordovician Series:			
Shale-----	70	620	
Limestone-----	20	640	
Shale-----	10	650	
Limestone-----	30	680	
Shale-----	20	700	
Limestone-----	75	775	
Shale-----	120	895	
Middle Ordovician Series:			
Dolomite-----	15	910	
Shale-----	10	920	
Dolomite-----	15	935	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 30/1W-1H1

Type of record: Driller's log.

Altitude: 727 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue-----	60	60	
Clay, blue, and sand-----	10	70	
Sand-----	5	75	
Gravel-----	4	79	

Well 30/1W-1J2

Type of record: Driller's log.

Altitude: 735 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue-----	36	36	
Sand and gravel-----	14	50	
Sand and blue clay-----	17	67	
Sand and gravel-----	5	72	

Well 30/1W-2A1

Type of record: Driller's log.

Altitude: 728 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	16	16	
Clay, blue-----	15	31	
Sand-----	9	40	
Gravel-----	5	45	

Well 30/1W-4Q1

Type of record: Driller's log.

Altitude: 713 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	12	12	
Sand-----	2	14	
Clay-----	14	28	
Sand-----	2	30	
Clay-----	9	39	
Gravel-----	5	44	

Well 30/1W-6N1

Type of record: Driller's log.

Altitude: 705 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	12	12	
Clay, blue-----	18	30	
Sand-----	18	48	
Clay-----	11	59	
Sand-----	10	69	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 30/1W-8C1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	18	18	
Clay, blue-----	17	35	
Clay, stoney, blue-----	31	66	
Sand-----	12	78	
Gravel, pea-sized and larger-----	3	81	

Well 30/1W-9D1

Type of record: Driller's log. Altitude: 714 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue-----	30	30	
Sand-----	10	40	
Sand and clay, blue-----	35	75	
Sand and gravel-----	12	87	

Well 30/1W-18M1

Type of record: Driller's log. Altitude: 698 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, red-----	15	15	
Sand, yellow-----	16	31	
Clay, blue-----	11	42	
Sand-----	4	46	

Well 30/1W-22C1

Type of record: Driller's log. Altitude: 721 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow and sand-----	16	16	
Clay, blue-----	8	24	
Sand-----	2	26	
Clay, blue-----	26	52	
Sand and gravel-----	18	70	

Well 30/1W-27F1

Type of record: Driller's log. Altitude: 721 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	18	18	
Clay, blue-----	18	36	
Gravel-----	23	59	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 30/1W-31H1

Type of record: Driller's log. Altitude: 706 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	35	35	
Sand-----	1	36	
Gravel-----	6	42	

Well 30/1W-32B1

Type of record: Driller's log. Altitude: 721 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	18	18	
Sand-----	5	23	
Clay-----	30	53	
Gravel-----	4	57	

Well 30/2W-10P1

Type of record: Driller's log. Altitude: 715 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	15	15	
Clay-----	15	30	
Gravel-----	6	36	

Well 30/2W-12G1

Type of record: Driller's log. Altitude: 700 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	5	5	
Clay, blue-----	30	35	
Sand, fine-----	5	40	
Sand, coarse-----	8	48	
Gravel, coarse, blue-----	4	52	

Well 30/2W-12G2

Type of record: Driller's log. Altitude: 700 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	30	30	
Clay, blue-----	26	56	
Hardpan, gray-----	13	69	
Gravel-----	18	87	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 30/2W-12P1

Type of record: Driller's log. Altitude: 702 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	10	10	
Clay-----	10	20	
Sand-----	5	25	
Clay-----	2	27	
Sand-----	3	30	
Clay-----	5	35	
Sand and gravel-----	15	50	

Well 30/2W-13F2

Type of record: Driller's log. Altitude: 688 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	5	5	
Clay, yellow-----	10	15	
Sand, gray-----	25	40	
Clay, blue-----	10	50	
Clay, hard, gray-----	17	67	
Sand-----	3	70	

Well 30/2W-14G1

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

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	12	12	
Clay, blue-----	36	48	
Sand, blue-----	4	52	
Clay, gray and sand-----	22	74	
Clay, sticky, light-brown-----	14	88	
Sand-----	2	90	
Clay, sticky, light-brown-----	23	113	
Sand and gravel-----	3	116	
Clay, sticky, light-brown-----	28	144	
Devonian System:			
Middle Devonian Series:			
Limestone-----	34	178	

Well 30/2W-14L1

Type of record: Driller's log. Altitude: 718 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	10	10	
Clay, yellow-----	7	17	
Gravel-----	16	33	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 30/2W-14L1--Continued

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	2	35	
Gravel-----	5	40	
Clay, gray-----	9	49	
Clay, blue-----	26	75	
Gravel-----	10	85	

Well 30/2W-24B1

Type of record: Driller's log. Altitude: 711 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	18	18	
Clay-----	18	36	
Sand-----	44	80	
Clay-----	7	87	
Sand-----	14	101	
Clay-----	7	108	
Sand-----	10	118	
Clay-----	2	120	
Gravel-----	4	124	

Well 30/2W-24C1

Type of record: Driller's log. Altitude: 702 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	25	25	
Clay-----	15	40	
Sand-----	8	48	
Gravel-----	7	55	

Well 30/2W-24F1

Type of record: Driller's log. Altitude: 708 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	22	22	
Clay-----	13	35	
Sand-----	1	36	
Clay-----	18	54	
Sand-----	2	56	
Clay-----	14	70	
Gravel-----	6	76	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 30/2W-24F2

Type of record: Driller's log.

Altitude: 708 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	18	18	
Gravel and rock-----	17	35	
Clay, blue-----	17	52	
Clay, blue, and sand-----	13	65	
Sand-----	10	75	

Well 30/2W-25A1

Type of record: Driller's log.

Altitude: 697 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	4	4	
Hardpan-----	10	14	
Sand, white-----	1	15	
Clay, blue-----	14	29	
Gravel, blue-----	4	33	

Well 30/2W-26A1

Type of record: Driller's log.

Altitude: 697 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	18	18	
Sand and gravel-----	5	23	
Clay and sand; mixed-----	205	228	
Devonian System:			
Middle Devonian Series:			
Limestone-----	12	240	

Well 30/2W-27A1

Type of record: Driller's log.

Altitude: 707 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	10	10	
Clay, yellow-----	6	16	
Clay, blue-----	14	30	
Sand-----	1	31	
Clay-----	10	41	
Sand-----	3	44	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 30/2W-27E1

Type of record: Driller's log.

Altitude: 697 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	2	2	
Clay, yellow, and sand-----	12	14	
Clay, blue-----	8	22	
Sand, dirty, gray-----	16	38	
Hardpan, yellow-----	10	48	
Sand, dirty, and gravel-----	10	58	
Clay, blue-----	12	70	
Sand, yellow-----	6	76	
Sand, gray, and gravel-----	19	95	

Well 30/2W-29L1

Type of record: Driller's log.

Altitude: 698 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	22	22	
Clay, soft, blue-----	19	41	
Sand, white-----	5	46	
Clay, soft, blue-----	14	60	
Gravel, bluish-gray-----	1	61	
Clay, hard, gray-----	7	68	
Gravel-----	6	74	

Well 30/2W-35L1

Type of record: Driller's log.

Altitude: 675 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	50	50	
Sand, very fine-----	2	52	
Clay-----	98	150	
Gravel-----	5	155	

Well 30/4W-16H1

Type of record: Driller's log.

Altitude: 683 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow, and sand-----	12	12	
Clay, gray-----	60	72	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series:			
Shale-----	12	84	
Devonian System:			
Middle Devonian Series:			
Limestone-----	6	90	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 31/1W-1E1

Type of record: Driller's log.

Altitude: 717 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Gravel and sand-----	29	29	
Clay, blue-----	5	34	
Gravel-----	16	50	
Clay, blue, and sand-----	22	72	
Sand-----	13	85	
Gravel-----	3	88	

Well 31/1W-1N1

Type of record: Driller's log.

Altitude: 719 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	1	1	
Sand, red-----	9	10	
Sand, red, and gravel-----	8	18	
Gravel, red, and sand-----	9	27	
Sand, coarse, gray, and fine gravel-----	6	33	
Clay, blue, with boulders-----	2	35	
Clay, gravelly, with boulders-----	5	40	
Clay, sandy, with gravel-----	7	47	
Gravel, coarse, gray, and medium sand; not clean-----	6	53	
Gravel, medium, and sand-----	7	60	
Gravel, coarse, and boulders with some sand-----	5	65	
Gravel, medium, with some sand---	9	74	
Sand, medium, gray-----	6	80	Clay and muddy sand at 80 feet.

Well 31/1W-3D1

Type of record: Driller's log.

Altitude: 748 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand and yellow clay-----	18	18	
Clay, stony, blue-----	39	57	
Sand-----	6	63	
Gravel, pea-sized-----	3	66	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 31/1W-4R1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, blue-----	38	38	
Gravel-----	2	40	
Clay, blue-----	30	70	
Sand-----	16	86	
Gravel-----	3	89	

Well 31/1W-7B1

Type of record: Driller's log. Altitude: 711 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	10	10	
Sand-----	32	42	
Gravel-----	9	51	

Well 31/1W-21A1

Type of record: Driller's log. Altitude: 726 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	28	28	
Gravel-----	20	48	
Clay, blue, and gravel-----	75	123	
Gravel-----	11	134	

Well 31/1W-25M1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	25	25	
Clay, yellow-----	25	50	
Clay, blue, and gravel-----	14	64	
Sand-----	8	72	
Gravel-----	3	75	

Well 31/1W-31P1

Type of record: Driller's log. Altitude: 704 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	18	18	
Sand-----	18	36	
Gravel-----	4	40	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 31/1W-32F1

Type of record: Driller's log. Altitude: 706 feet.

Material.	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	20	20	
Clay, blue, and rocks-----	34	54	
Sand-----	11	65	
Clay, blue-----	25	90	
Sand and gravel-----	8	98	
Gravel-----	3	101	

Well 31/1W-36E1

Type of record: Driller's log. Altitude: 726 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	16	16	
Clay and gravel-----	8	24	
Sand and gravel-----	14	38	
Gravel-----	5	43	

Well 31/2W-12P1

Type of record: Driller's log. Altitude: 734 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow to gray-brown-----	80	80	
Clay, whitish-blue and yellow-----	84	164	
Devonian System:			
Middle Devonian Series:			
Limestone, white and brown-----	140	304	

Well 31/2W-13C1

Type of record: Driller's log. Altitude: 713 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	28	82	
Clay-----	2	30	
Sand, muddy-----	18	48	
Clay-----	22	70	
Sand, not clean-----	2	72	
Clay-----	23	95	
Sand, muddy-----	5	100	
Clay-----	33	133	
Sand and gravel-----	1	134	
Clay, hard-----	7	141	
Clay and muddy sand-----	8	149	
Sand and gravel-----	2	151	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 31/2W-13C1--Continued

Material	Thick- ness (feet)	Depth (feet)	Remarks
Devonian System:			
Middle Devonian Series:			
Limestone, hard-----	20	171	
Limestone, muddy-----	94	265	
Limestone-----	15	280	
Limestone, muddy-----	14	294	

Well 31/2W-13F1

Type of record: Driller's log. Altitude: 707 feet.

Quaternary System:			
Recent and Pleistocene Series;			
Sand, yellow-----	18	18	
Gravel-----	2	20	
Sand, gray-----	15	35	
Sand-----	6	41	
Clay, grayish-----	19	60	
Hardpan-----	5	65	
Clay, gray-----	5	70	
Hardpan, gray-----	12	82	
Sand, fine, gray-----	10	92	
Clay, white-----	12	104	
Clay, red-----	56	160	
Devonian System:			
Middle Devonian Series:			
Limestone, blue-----	3	163	
Limestone, brown-----	14	177	
Limestone, blue-----	3	180	
Limestone, white-----	10	190	
Limestone, gray-----	10	200	
Limestone, white-----	5	205	
Sandstone-----	4	209	
Limestone, white-----	6	215	
Limestone, blue-----	44	259	

Well 31/2W-15P1

Type of record: Driller's log. Altitude: 714 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	21	21	
Sand and gravel; gray-----	9	30	
Clay, blue, and hardpan-----	2	32	
Sand, black-----	10	42	
Clay, sandy, blue-----	10	52	
Sand, fine, gray-----	18	70	
Sand and gravel-----	8	78	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 31/2W-33H1

Type of record: Driller's log.

Altitude: 705 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	38	38	
Sand, gravel, and blue clay-----	4	42	
Sand and stone-----	11	53	
Clay, stoney, and blue soft clay--	18	71	
Sand, fine-----	17	88	
Sand with particles of wood-----	7	95	
Gravel-----	3	98	

Well 31/2W-36J1

Type of record: Driller's log.

Altitude: 711 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	21	21	
Clay-----	4	25	
Sand-----	14	39	
Clay-----	4	43	
Sand-----	4	47	
Clay-----	2	49	
Gravel, sandy-----	2	51	
Clay-----	10	61	
Gravel-----	5	66	

Well 31/3W-4A1

Type of record: Driller's log.

Altitude: 702 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	35	35	
Clay, blue-----	30	65	
Clay, sandy, blue-----	20	85	
Sand, fine, blue-----	15	100	
Clay-----	5	105	
Sand, clayey-----	10	115	
Sand and small gravel-----	8	123	
Clay, stiff, blue-----	32	155	
Devonian and Silurian Systems:			
Undifferentiated:			
Lime-----	3	158	
Lime, hard, gray-----	27	185	
Lime, gray-----	25	210	
Lime, blue-----	50	260	
Lime, hard, gray-----	25	285	
Lime, gray-----	20	305	
Lime, hard, gray-----	65	370	
Lime, gray-----	20	390	
Lime, hard, gray-----	28	418	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 31/3W-8R1

Type of record: Driller's log.

Altitude: 685 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay and sand-----	25	25	
Sand, heaving-----	25	50	
Clay-----	10	60	
Clay and sand-----	20	80	
Gravel and clay-----	7	87	
Sand and gravel-----	17	104	
Clay, blue-----	4	108	
Devonian System:			
Middle Devonian Series:			
Lime, brown-----	32	140	
Lime, hard, gray-----	17	157	
Lime, broken, blue-----	18	175	
Lime, blue and gray-----	20	195	
Lime, blue-----	45	240	
Lime, brown-----	25	265	

Well 31/3W-9R1

Type of record: Driller's log.

Altitude: 692 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand and clay-----	25	25	
Clay, blue, and sand-----	25	50	
Sand and clay-----	20	70	
Clay-----	5	75	
Sand, gravelly-----	11	86	
Sand and gravel-----	19	105	
Clay and shale-----	15	120	
Lime and shale-----	12	132	Boulders or gravel.
Record missing-----	6	138	
Clay and sand-----	7	145	
Sand and gravel-----	2	147	
Devonian System:			
Middle Devonian Series:			
Lime, hard, brown-----	23	170	
Lime, blue-----	70	240	
Lime, blue, and shale-----	20	260	

Well 31/3W-16G1

Type of record: Driller's log.

Altitude: 690 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand, gray-----	22	22	
Clay, sandy-----	13	35	
Sand, heaving-----	20	55	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 31/3W-16C1--Continued

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand and clay-----	5	60	
Clay and sand-----	25	85	
Clay and gravel-----	15	100	
Gravel-----	10	110	
Sand and gravel; with clay-----	32	142	
Clay and gravel-----	13	155	
Devonian System:			
Middle Devonian Series:			
Lime, brown-----	25	180	
Lime, hard, gray-----	20	200	
Lime, blue-----	60	260	
Lime, brown-----	50	310	

Well 31/3W-25C1

Type of record: Driller's log. Altitude: 702 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, yellow-----	13	13	
Sand and gravel-----	7	20	
Sand-----	76	96	
Gravel-----	3	99	

Well 31/3W-25M1

Type of record: Driller's log. Altitude: 696 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel-----	23	23	
Clay and sand-----	41	64	
Gravel-----	5	69	

Well 31/3W-34A1

Type of record: Driller's log. Altitude: 692 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand, black-----	4	4	
Sand and gravel-----	2	6	
Sand, fine, gray-----	3	9	
Clay, blue, and fine gravel-----	3	12	
Clay, blue, and some gravel-----	13	25	
Clay, blue-----	44	69	
Clay, blue, and gravel-----	7	76	
Gravel-----	42	118	

Table 4.--Selected logs of wells and test holes in Pulaski County--Cont.

Well 31/4W-8R1

Type of record: Driller's log.

Altitude: 707 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	37	37	
Clay, blue-----	39	76	
Mississippian and Devonian Systems:			
Lower Mississippian and Upper Devonian Series:			
Rock-----	20	96	Shale.

Table 5.--Field chemical analyses of water from wells in Pulaski County, Indiana
(Results in parts per million. Analyses by U. S. Geological Survey, except where otherwise noted.)

Well	Ma- teri- al	Geo- logic Age	Date of Collec- tion	Temper- ature (°F)	Iron (Fe)	Bicar- bonate (HCO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Hardness as CaCO ₃ (Calcium, magnesium)
29/LW-1F1	G	P1	6-21-61	--	0.1	337	55	4	272
3M1	G,Sd	P1	6-13-61	59	1.0	259	60	4	216
4F1	Sd	P1	6-13-61	57	1.0	278	40	4	192
8C1	Sd,G	P1	5-22-59	56	3.0	327	60	16	328
8F1	Sd,G	P1	5-22-59	55	1.2	390	105	24	364
8F2	G	P1	6-9-61	58	2.0	249	100	20	272
8K1	Sd,G	P1	6-18-59	59	2.0	268	<5	8	220
8L1	G	P1	5-22-59	59	4.0	342	55	12	316
8L2	Sd,G	P1	6-18-59	58	1.5	307	60	12	312
8L3	G,Sd	P1	5-22-59	56	1.3	337	80	16	352
8L5	G,Sd	P1	6-9-61	--	1.5	342	55	8	272
8L6	Sd,G	P1	6-9-61	--	5.0	293	75	12	272
8L7	G	P1	6-9-61	59	1.0	317	65	8	296
8P2	G	P1	6-9-61	--	.3	366	57	20	316
8P4	G,Sd	P1	6-9-61	--	.1	405	10	4	248
10H1	Sd	P1	6-21-61	--	2.0	410	10	<4	280
11H1	Sd	P1	6-13-61	--	3.0	425	185	60	452
12H1	G	P1	6-21-61	--	3.0	366	35	4	280
12H2	G	P1	6-21-61	--	.5	176	45	8	144
13J1	G	P1	6-21-61	--	1.5	312	60	4	264
14P1	G	P1	6-21-61	--	4.0	356	65	24	296

Well: See text for description of well-numbering system. U. S. Public Health Service drinking-water standards:
Material: G, gravel; Ls, limestone; Sd, sand; Sh, shale. Iron (Fe) - 0.3 ppm for iron and manganese together;
Geologic Age: D, Devonian; M, Mississippian; P1, Pleistocene; S, Silurian. Sulfate (SO₄) - 250 ppm; Chloride (Cl) - 250 ppm.

29/1W-15D1	P1	6-21-61	--	.5	264	35	4	196
15Q1	D	6-21-61	55	2.0	371	5	<4	256
15Q2	P1	6-20-61	56	3.0	337	55	12	284
17J1	P1	6-21-61	56	1.5	288	50	12	224
19M1	P1	6-13-61	--	3.0	288	50	16	240
22Q1	P1	6-21-61	--	2.0	400	55	8	316
24Q1	P1	6-21-61	55	.1	327	75	12	308
26B1	P1	6-21-61	--	1.0	303	50	8	252
28R1	P1	6-13-61	--	.5	425	10	4	280
29B1	P1	6-21-61	--	1.5	293	70	8	260
30R1	P1	6-20-61	--	1.5	249	40	4	184
32P1	P1	6-21-61	--	1.0	361	5	4	212
33D1	P1	5-22-59	57	1.0	366	<5	8	296
33J1	S	5-26-58	53	2.2	278	--	20	216
33R1	P1	6-13-61	54	1.5	307	40	4	232
34A1	S	6-21-61	--	5.0	386	125	<4	368
34M1	P1	6-13-61	--	3.0	317	50	4	236
35H1	D?	6-21-61	--	4.0	371	70	16	332
36B1	P1	6-21-61	--	2.0	439	5	4	284
36C1	P1	6-16-61	--	2.5	317	5	4	200
29/2W- 2C1	S	6-18-59	54	.3	312	5	20	204
3F1	P1	6-12-61	55	.8	371	10	8	240
3G1	P1	6-18-59	58	1.7	244	<5	8	188
3M1	P1	6-12-61	--	.1	356	10	20	236
3M2	P1	6-18-59	58	1.3	307	25	12	260
5M1	P1	6-19-61	--	2.0	351	100	28	356
9B1	S	6-19-59	55	1.2	298	<5	12	220
9M1	P1	6-12-61	--	1.5	351	<5	4	216
10G1	P1	6-20-61	--	.5	303	125	16	324
11E1	P1	6-12-61	56	2.5	322	40	8	240
12A1	P1	6-20-61	--	1.0	322	95	4	292
14J1	P1	6-20-61	--	1.0	429	85	16	380
16J1	P1	6-20-61	--	4.0	434	90	20	400
17F1	P1	6-20-61	--	3.0	361	160	12	408
18B1	P1	6-18-59	57	.2	137	30	12	148

Table 5.--Field chemical analyses of water from wells in Pulaski County--Cont.

Well	Ma- teri- al	Geo- logic Age	Date of Collec- tion	Temper- ature (°F)	Iron (Fe)	Bicar- bonate (HCO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Hardness as CaCO ₃ (Calcium, magnesium)
29/2W-19R1	Sd	P1	6-20-61	57	<.1	317	140	32	396
21D1	Sd	P1	6-20-61	--	.1	322	85	12	352
22M1	G	P1	6-20-61	--	2.0	346	85	4	292
23F1	Sd,G	P1	6-12-61	--	1.0	298	85	8	288
24J1	Sd,G	P1	6-12-61	58	1.0	346	60	4	292
25J1	G	P1	6-20-61	56	1.5	268	40	4	200
25N1	Sd	P1	6-20-61	52	.1	381	50	12	292
26D1	Sd,G	P1	6-20-61	--	3.0	356	65	4	312
28N1	Sd	P1	6-20-61	54	.7	390	<5	<4	260
29C1	Sd	P1	6-20-61	--	1.0	322	10	<4	212
30D1	Sd,G	P1	6-12-61	--	.1	288	10	<4	168
31E1	Ls	S	6-20-61	--	.1	351	<5	8	296
33R1	Sd	P1	6-20-61	--	2.0	234	40	4	176
34H1	Ls	S	6-20-61	--	1.0	322	15	<4	216
35R1	Sd,G	P1	6-22-61	--	1.0	283	50	4	236
29/3W-4M1	Sd	P1	6-15-61	--	<.1	249	125	24	280
6A1	G	P1	6-14-61	--	1.0	342	<5	<4	208
7D1	Sd	P1	6-15-61	57	.1	142	30	<4	120
9B1	Sd	P1	6- 8-61	--	.3	273	10	<4	152
10H1	Sd	P1	6-19-61	59	4.0	317	35	4	236
11A1	G,Sd	P1	6-19-61	--	.5	244	64	32	260
14A1	G?	P1?	6-19-61	56	1.5	303	5	<4	180
15H1	Ls	S	6-20-61	--	.7	415	10	<4	268
16A1	Sd,G	P1	6-18-59	57	.2	137	<5	<4	116
17R1	Sd	P1	6-20-61	52	.7	303	85	24	296
18Q1	Sd	P1	6-15-61	--	<.1	293	55	24	304
19J1	Sd	P1	6-15-61	55	.1	337	120	68	512

29/3W-21M1	G	P1	6-20-61	--	3.0	439	5	<4	240
23E1	G	P1	6-20-61	--	3.0	268	65	8	232
24F1	Sd	P1	6-20-61	--	2.0	293	85	16	264
27N1	Sd	P1	6-20-61	58	2.0	317	10	<4	212
29Q1	Ls?	S?	6-15-61	--	.7	215	25	<4	164
30M1	Ls	S	6-15-61	52	.2	312	15	8	224
32L1	Sd,G	P1	6- 8-61	54	1.0	390	10	<4	260
33P1	Sd	P1	6-20-61	--	.5	224	10	4	120
34R1	Sd	P1	6-20-61	52	.3	249	70	12	228
35J1	G	P1	6-20-61	59	2.0	317	45	4	248
29/4W- 4K1	Ls	S	3-18-57	--	.3	205	--	8	---
6P1	Sd	P1	6-13-61	57	3.0	312	120	36	356
10B1	Sd	P1	7-16-58	--	<.1	342	--	24	368
10G1	Ls	S	6-15-61	--	.1	346	15	4	228
13R1	G	P1	6-15-61	--	1.5	356	5	<4	236
14A1	Ls	S	5-21-59	58	.4	278	<5	12	200
16P1	Ls	S	5-21-59	54	.1	400	130	20	472
17C2	Sd	P1	6-13-61	--	.1	346	165	48	444
23R1	Ls?	S?	6-15-61	56	1.0	322	45	20	276
25R1	Ls?	S?	6-15-61	58	.5	288	5	4	172
27N1	Ls	S	5-21-59	56	<.1	508	170	64	652
28D1	Ls	S	5-21-59	55	.1	249	75	24	276
30A1	Ls	S	6-13-61	--	.5	488	20	4	348
32B1	Ls	S	6- 7-61	56	3.0	264	125	32	312
36R1	G	P1	6-15-61	--	1.0	322	10	4	196
30/1W- 1A1	Sd,G	P1	9-18-57	55	2.0	283	--	24	256
2P1	G	P1	6-22-61	58	1.0	415	15	<4	284
3D1	G	P1	6-22-61	57	.5	205	35	4	164
8C1	Sd,G	P1	6-16-59	58	.2	205	<5	8	140
8P1	G	P1	6-22-61	55	1.0	298	40	4	232
9D1	Sd,G	P1	6-14-61	58	1.0	278	50	4	208
13P1	Sd	P1	6-21-61	--	1.5	337	30	4	248
15A1	G	P1	6-22-61	--	.5	449	15	4	308
16H2	G	P1	6-15-59	58	2.0	390	5	12	316
18M1	Sd	P1	6-15-61	--	1.5	342	10	<4	212

Table 5.--Field chemical analyses of water from wells in Pulaski County--Cont.

Well	Ma- teri- al	Geo- logic Age	Date of Collec- tion	Temper- ature (°F)	Iron (Fe)	Bicar- bonate (HCO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Hardness as CaCO ₃ (Calcium, magnesium)
30/1W-18R1	Sd	P1	6-15-61	--	0.5	346	20	4	232
19Q1	G	P1	6-16-59	59	1.5	298	15	8	256
20M1	G	P1	6-16-59	59	1.5	366	<5	8	276
21M1	G	P1	6-21-61	--	1.0	342	110	8	336
22C1	Sd,G	P1	6-14-61	--	1.0	337	40	4	260
23R1	Sd,G	P1	6-15-59	53	.8	268	65	8	288
27F1	G	P1	6-15-61	59	1.0	312	90	8	300
28M1	Sd	P1	6-21-61	56	.7	434	160	28	476
31H1	G,Sd	P1	6-15-61	55	1.0	317	55	8	252
32B1	G	P1	6-15-61	57	1.0	312	45	4	248
32N1	Sd,G	P1	6-15-59	57	1.5	322	30	8	292
34F1	Sd,G	P1	6-21-61	53	<.1	288	85	12	284
36E1	G	P1	6-21-61	57	.1	293	100	12	256
30/2W-2A1	Sd,G	P1	6-14-61	--	5.0	342	115	24	340
3M2	Sd	P1	6-16-61	55	.1	239	85	156	372
5R1	Ls	S,D	6-8-61	59	.1	293	215	92	152
7D1	Sd	P1	6-16-61	--	.2	210	60	44	284
8N1	G	P1	6-17-59	58	6.0	376	120	24	440
10P1	G	P1	6-14-61	--	4.0	239	130	40	336
12G1	Sd,G	P1	6-14-61	--	2.0	264	60	8	228
12P1	Sd,G	P1	6-1-61	--	1.5	332	75	8	304
13D1	Ls	D	6-1-61	59	.1	307	10	32	200
13F1	Sd,G	P1	6-17-59	59	1.0	298	5	48	264
13F2	Sd	P1	6-15-61	--	.1	317	10	20	172
14L1	G	P1	6-14-61	--	.3	215	15	<4	160
15K1	G,Sd	P1	6-14-61	--	1.0	283	75	8	248
16M1	Sd	P1	6-14-61	--	5.0	278	75	4	240
18B1	G	P1	6-17-61	55	1.5	146	<5	8	180

30/2W-19A1	Sd	P1	6-19-61	59	4.0	337	10	4	232
19N1	Sd	P1	6-19-61	--	.1	146	30	<4	104
20H1	G	P1	6-19-61	55	2.0	268	55	<4	232
21J1	G,Sd	P1	6-19-61	52	2.5	327	45	8	260
24B1	G	P1	6-1-61	--	.8	254	10	4	144
24C1	Sd,G	P1	6-1-61	--	1.0	356	45	4	280
24F2	Sd	P1	6-1-61	--	.5	278	50	12	232
26A1	Ls	D	6-16-59	58	.5	395	<5	16	208
27A1	Sd	P1	6-14-61	--	.1	171	40	4	128
31F1	Sd	P1	6-19-61	--	1.0	298	80	20	280
34E1	G?	P1	6-17-59	58	2.5	322	<5	16	260
35A1	G	P1	6-14-61	--	1.0	327	50	4	272
35E1	Sd	P1	6-14-61	52	3.0	317	20	8	204
30/3W- 3R1	Sd,G	P1	6-15-61	--	.1	195	70	16	200
6H1	G	P1	6-14-61	55	.1	190	45	4	124
6P1	Sd	P1	7-10-58	--	.7	224	--	24	296
8C1	Sd,G	P1	6-17-59	56	1.0	215	<5	8	148
9A1	Sd	P1	6-14-61	56	1.0	249	70	4	208
13J1	Sd	P1	6-19-61	--	.5	195	40	4	148
14A1	Sd	P1	6-15-61	--	1.0	283	5	<4	172
14A2	Sd	P1	6-15-61	--	1.5	464	95	156	504
16A1	Sd	P1	6-14-61	--	1.0	264	80	52	280
16Q1	Sd	P1	6-14-61	--	.2	332	70	8	312
17M1	Sd	P1	6-14-61	55	.3	268	5	<4	156
22C1	G	P1	6- 8-61	--	>7.5	371	<5	<4	236
23R1	G	P1	6-15-61	55	1.5	337	<5	<4	224
25L2	G	P1	6-14-61	59	.1	229	90	12	---
28F1	Sd	P1	6-14-61	--	.2	264	80	12	252
31D1	Sd	P1	6-14-61	--	1.5	371	5	4	204
32H1	Sd	P1	6-15-61	--	.5	234	65	8	196
34R1	Sd	P1	6-15-61	--	3.0	332	110	16	284
35B1	Sd	P1	6-15-61	--	.1	249	75	12	212
30/4W- 1B1	Sd	P1	6-14-61	--	.1	102	65	4	96
3F1	Sd	P1	6-14-61	--	<.1	112	45	4	116

Table 5.--Field chemical analyses of water from wells in Pulaski County--Cont.

Well	Ma- teri- al	Geo- logic Age	Date of Collec- tion	Temper- ature (°F)	Iron (Fe)	Bicar- bonate (HCO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Hardness as CaCO ₃ (Calcium, magnesium)
30/4W-	3H1	Sh?	7-11-58	--	2.2	317	--	12	160
	3H1	Sh?	6- 7-61	--	1.0	307	5	4	136
	3H2	Ls	7-11-58	55	1.7	893	--	76	168
	3H2	Ls	6- 7-61	53	7.5	644	150	8	156
	6K1	G	6-13-61	--	.1	342	<5	4	156
	7P1	Sd	6-13-61	--	.1	137	135	8	172
	11M1	Sd	6-14-61	57	.7	254	80	16	256
	16E1	Sd	6-13-61	--	1.0	278	5	<4	164
	16H1	Ls	6- 7-61	58	.3	395	5	4	244
	22Q1	Sd	6-14-61	--	2.0	386	5	8	212
	24E1	G	6-14-61	--	.7	429	5	8	236
	28D1	Sd	6-13-61	--	2.0	317	35	8	240
30B1	Ls?	D?	6-13-61	54	.5	259	.5	4	136
31R1	Sd	P1	6-13-61	52	.1	239	125	40	292
32R1	Ls	S	6-13-61	--	.2	293	75	8	276
34A1	Ls	S	6-17-59	55	.5	273	<5	12	184
35Q1	Sd,G	P1	6-17-59	59	1.0	264	<5	8	192
31/1W-	3B1	G	6-15-59	54	1.0	386	15	20	340
	3D1	Sd,G	6-15-59	59	1.2	288	<5	8	236
	5M1	G	6-22-61	59	.7	254	50	4	208
	7B1	Sd,G	6-13-61	--	.3	298	15	4	192
	9R1	G	6-22-61	54	5.0	337	60	8	296
	10R1	Sd	6-22-61	56	.1	249	85	8	264
	11D1	G	6-22-61	--	.2	264	55	4	224
	13L1	G	6-22-61	--	.5	381	40	<4	292
	17R1	Sd	6-22-61	--	.5	190	45	4	156
	18F1	Sd	6-22-61	--	.5	190	45	<4	148
	21A1	G	6-13-61	--	1.0	420	10	4	276

31/1W-23C1	Sd,G	P1	6-22-61	--	0.1	205	50	8	188
23N1	Sd	P1	6-22-61	--	2.0	283	45	4	216
24H1	G	P1	6-22-61	--	1.0	449	70	12	368
25M1	Sd,G	P1	6-13-61	58	2.0	356	30	4	268
28D1	Sd	P1	6-22-61	55	.2	190	110	12	244
28J1	Sd,G	P1	6-22-61	59	4.0	307	115	8	316
32F1	G,Sd	P1	6-13-61	58	.5	332	10	4	196
36E1	G,Sd	P1	6-13-61	--	1.5	298	35	4	232
31/2W- 1D1	G	P1	6-22-61	--	.1	244	90	28	232
1E1	G,Sd	P1	6- 1-61	59	<.1	137	35	20	120
2M1	Sd	P1	6-23-61	--	.1	151	25	8	108
4P1	Sd	P1	6-23-61	--	5.0	215	250	68	424
6R1	Sd	P1	6-23-61	--	<.1	298	80	8	268
9N1	Sd	P1	6-23-61	55	.3	215	170	24	340
11C1	Sd,G	P1	6-22-61	--	1.5	215	115	16	268
12P1	Ls	D	5-17-60	52	1.0	293	10	4	196
15P1	Sd,G	P1	6-23-61	59	1.0	166	45	<4	144
17R1	Sd	P1	6-23-61	--	.2	176	50	4	136
19N1	Sd	P1	6-16-61	57	1.0	185	45	4	136
20Q1	Sd	P1	6-16-61	--	.1	224	65	20	180
21Q1	Sd	P1	6-16-61	58	.1	146	35	12	104
26G1	Sd	P1	6-22-61	53	.1	166	60	12	140
30K1	Sd	P1	6-16-61	--	1.0	185	40	<4	140
32A1	Sd	P1	6-13-61	54	<.1	73	25	4	36
33H1	Sd,G	P1	6-16-59	54	1.5	234	<5	8	188
36J1	G	P1	6-13-61	--	.5	210	25	4	132
31/3W- 1R1	Sd	P1	6-23-61	54	.1	171	55	24	204
2H1	Sd,G	P1	6- 8-61	58	.1	190	5	<4	104
3Q2	Sd	P1	6-12-61	--	.1	181	45	4	132
4R1	Sd	P1	6-12-61	--	.3	93	20	12	72
7N1	Sd	P1	6-12-61	--	.7	342	135	108	360
8R1	Ls	D	6- 8-61	54	<.1	220	15	12	124
13D2	Sd	P1	6-12-61	--	1.0	161	95	24	224
14D1	Sd	P1	6-12-61	58	3.0	249	105	12	276
15R1	Sd	P1	6-12-61	59	1.0	264	15	<4	172

Table 5.--Field chemical analyses of water from wells in Pulaski County--Cont.

Well	Ma- teri- al	Geo- logic Age	Date of Collec- tion	Temper- ature (°F)	Iron (Fe)	Bicar- bonate (HCO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Hardness as CaCO ₃ (Calcium, magnesium)	
31/3W-19C1	Ls	D	6-13-61	--	0.2	307	10	<4	128	
	Ls	D	6-13-61	--	<.1	381	20	80	164	
	Sd	P1	6-12-61	--	1.0	307	10	8	172	
	Ls	D	6-13-61	57	1.0	303	5	12	168	
	Sd,G	P1	6-12-61	--	.3	185	15	<4	124	
	Sd,G	P1	6-12-61	--	3.5	317	5	4	256	
	Sd	P1	6-12-61	53	<.1	122	55	20	140	
	Sd,G	P1	6- 8-61	--	>7.5	395	5	<4	256	
	G	P1	6- 8-61	--	5.0	429	10	<4	296	
	Sd?	P1	6-14-61	--	.3	298	5	<4	160	
	Sd	P1	6-14-61	--	1.0	181	45	8	156	
	Sd	P1	6-14-61	--	.2	264	85	12	252	
	Ls	D	6-15-61	--	1.0	259	5	<4	152	
	31/4W- 2E1	Sd	P1	6-12-61	--	<.1	146	55	8	128
		Sd	P1	6-12-61	57	1.0	205	25	4	156
		Sd	P1	6-13-61	--	.1	88	35	4	84
Sd		P1	6-13-61	59	.2	185	50	52	88	
Ls		D	6-12-61	--	.1	303	20	4	156	
Sd		P1	6-12-61	--	<.1	93	30	<4	60	
Sd		P1	6-12-61	--	.1	293	205	56	448	
Sd		P1	6-13-61	59	.1	117	40	16	100	
Sd		P1	6-13-61	--	<.1	137	35	8	116	
Sd		P1	6-13-61	53	.1	54	55	8	100	
31/4W- 2E1	Sd	P1	6-13-61	52	<.1	151	50	12	160	
	Ls	D	6-16-59	59	.1	224	<5	8	112	
	Sd	P1	6-13-61	51	1.0	161	55	20	152	
	Ls	D	6-14-61	54	.1	327	45	4	140	
	Sd	P1	6-14-61	59	.1	132	35	12	140	

31/4W-29R1	Sd	Pl	6-13-61	--	0.2	234	85	12	228
30L1	Sd,G	Pl	6-7-61	58	<.1	454	30	12	152
31P1	Ls	D	6-13-61	--	.3	366	85	4	192
34F1	Ls	D	6-16-59	56	.4	268	<5	8	76