

STATE OF INDIANA
INDIANA DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

BULLETIN NO. 21

GROUND-WATER RESOURCES OF
WEST-CENTRAL INDIANA

Preliminary Report: Putnam 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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OF THE

DIVISION OF WATER RESOURCES

Charles H. Bechert, Director

GROUND-WATER RESOURCES OF WEST-CENTRAL INDIANA

Preliminary Report: Putnam County

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GROUND-WATER RESOURCES OF WEST-CENTRAL INDIANA

Preliminary Report: Putnam County

By: F. A. Watkins, Jr., and D. G. Jordan

ABSTRACT

Putnam County, in west-central Indiana, has an area of about 490 square miles. Consolidated rocks of Mississippian and Pennsylvanian age and unconsolidated rocks of Pleistocene age are the sources of ground water for domestic, stock, industrial, and municipal supplies. Wells in Putnam County vary greatly in depth and yield. Wells tapping Mississippian rocks range in depth from about 25 to 500 feet and in yield from less than 1 to about 600 gpm (gallons per minute), while those tapping Pennsylvanian rocks range in depth from about 40 to 120 feet and in yield from less than 1 to about 10 gpm. Some wells tapping the consolidated rocks yield no water. Wells tapping Pleistocene sand and gravel range in depth from about 10 to 170 feet and in yield from about 5 to 1,000 gpm. Field chemical analyses of water from these sources show that the chemical quality differs greatly. A modal grouping was used to find the most frequent values for the sulfate and chloride contents and for the hardness of water in Putnam County. This method yields the following results for water from aquifers of Mississippian age: sulfate, 16 ppm (parts per million); chloride, 9 ppm; and hardness, 325 ppm; for water from aquifers of Pennsylvanian age: sulfate, 14 ppm; chloride, 7 ppm; and hardness, 267 ppm; and for water from aquifers of Pleistocene age: sulfate, 12 ppm; chloride, 9 ppm; and hardness, 308 ppm. Generally the iron content, and locally the chloride content will exceed the recommended standards of the U. S. Public Health Service (1946) for drinking water.

This preliminary report contains tabulated records of about 434 wells and other drilled holes giving information about well construction, water levels, conditions of occurrence, and character of the water-bearing material; selected logs for about 133 wells and other drilled holes giving the drillers' description of the material encountered and a tentative interpretation by the authors of the geologic age; records of 9 springs giving information about geologic source, yield and temperature of the water; results for 219 field chemical analyses of water from wells, 8 from springs, and 24 from streams, giving the iron, bicarbonate, sulfate, and chloride contents and the hardness of water; and water levels in 6 observation wells indicating the magnitude of short 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 map of Putnam County shows the location of all water wells, holes drilled for purposes other than water supply, springs, and stream sampling sites listed in this report. Additional maps show availability of ground water and generalized quality of water conditions with respect to hardness of water and areas of high chloride content.

INTRODUCTION

Purpose and Scope

An investigation of the ground-water resources and geology of nine counties in west-central Indiana has been conducted intermittently since 1950. In 1956 the investigation was placed on a full-time basis and another county was added to the area of study. 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 sixth of a series of preliminary reports to be published on ground-water resources and geology of west-central Indiana. The purpose of this 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 the geology as an aid to the development of the ground-water resources. A more detailed and comprehensive analysis 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 F. H. Klaer and C. M. Roberts, successive district geologists for Indiana.

Location and Areal Extent

Putnam County is in the west-central part of Indiana (fig. 1). The county is roughly rectangular and has an area of about 490 square miles. It is bounded on the north by Montgomery County, on the east by Hendricks and Morgan Counties, on the south by Owen and Clay Counties, and on the west by Clay and Parke Counties.

Well-Numbering System

A numbering system is used to locate and identify the wells, holes drilled for purposes other than water supply, and springs in this report. The number assigned indicates the location according to the official rectangular survey of public lands. For example, in the number for well 15/4W-32H1, the part preceding the hyphen indicates that the well is in T. 15 N., R. 4 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 given a letter symbol as shown on figure 2. Within the quarter-quarter section, wells are numbered serially. Therefore, well 15/4W-32H1 is the first well listed in SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 32, T. 15 N., R. 4 W.

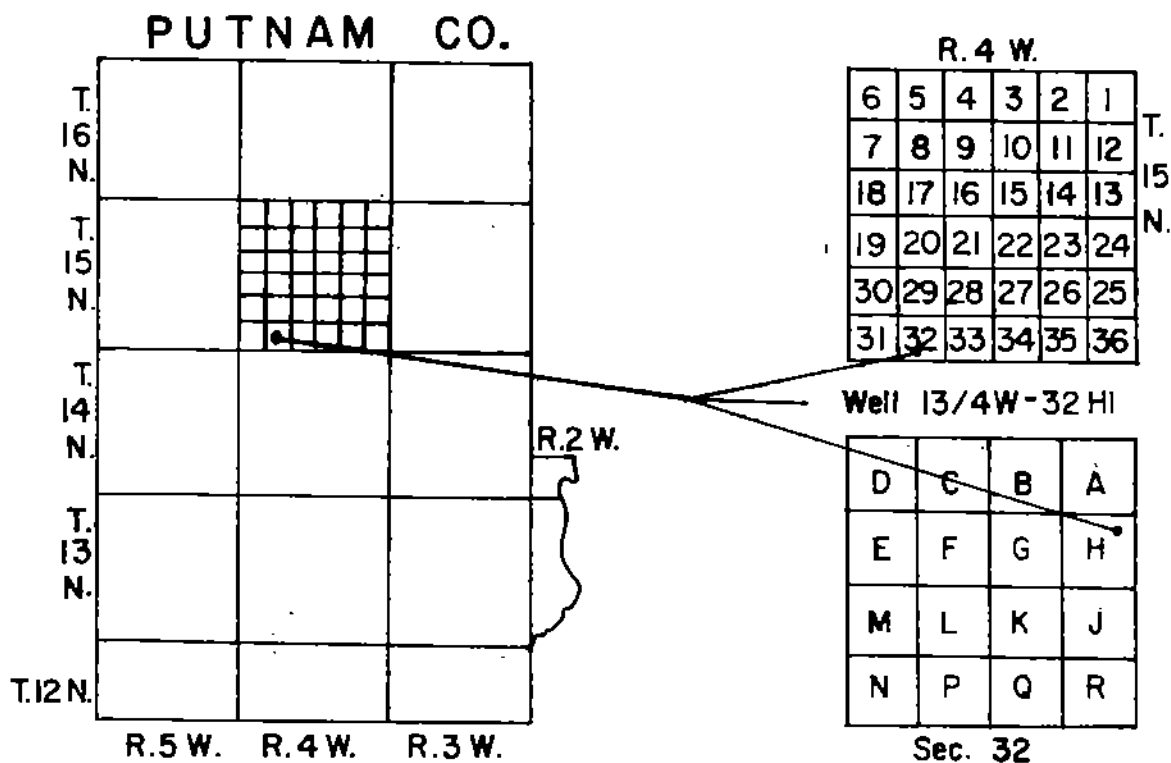


FIGURE 2. -- Sketch showing well-numbering system

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 L. L. Dean of the Indiana Department of Conservation assisted in the processing of data in the field. We especially thank the well drillers listed in the table of well records who 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: the Division of Oil and Gas and Division of Water Resources, both of the Indiana Department of Conservation; and the Indiana State Highway Department.

DATA COLLECTION AND PROCESSING

The well data were collected from drillers, water works superintendents, and others. The well records obtained from drillers were of two types---written records and reports from memory. A tentative driller's location of the well record was obtained at the time of collection and this was 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 well location was then checked in the field and its location plotted on the appropriate U. S. Geological Survey 7½-minute topographic quadrangle map. The locations given on the records of test holes, oil or gas exploration holes, and wells from other reports were accepted without further verification.

Plate 1 shows the location of water wells, oil wells, test holes, or holes drilled for purposes other than water supply, springs, and stream sampling sites. All locations are accurate to the nearest quarter-quarter section and most locations are shown to the nearest 10 acres or quarter-quarter-quarter section. The basic data for these wells and holes drilled for purposes other than water supply are summarized in table 3. Selected drillers' logs of wells and other drilled holes with tentative interpretations by the authors of the geologic age of the materials encountered are given in table 4. Basic data for the springs are summarized in table 6.

Samples of water were collected at the time well and spring sites were visited and from streams during a period of low flow. The samples were analyzed in the field for hardness of water, alkalinity (expressed as bicarbonate), and chloride contents by standard titration methods. Sulfate was determined by a turbidimetric method using a colorimeter where concentrations were below 100 ppm (parts per million) and by a standard titration method where concentrations exceeded 100 ppm. The iron content was determined at the well site by the bipyridine method by comparison with standard color ampules having known iron concentrations. The results of these analyses (tables 5, 6, and 7) were used to select sites for collecting water samples for more comprehensive analyses by the U. S. Geological Survey.

During the investigation observation wells were established to measure the fluctuations of water level. Table 8 contains water-level measurements obtained from these wells. The data from these observation wells show seasonal and longer term variations of the ground-water level.

General Geology and Sources of Ground Water

Consolidated rocks of Early and Late Mississippian age and of Early Pennsylvanian age crop out in Putnam County. Overlying these rocks are unconsolidated glacial deposits of Pleistocene age.

Rocks of Mississippian age that crop out in the eastern three-fourths of the county are extensively used for domestic, stock, industrial, and municipal supplies. The limestones and siltstones of Early Mississippian age and limestones of Late Mississippian age are sources of ground water. Sandstones of Late Mississippian age are minor sources of ground water. Wells tapping aquifers of Mississippian age range in depth from about 25 to 500 feet, the most frequent depth being about 65 feet. Yields from these wells range from less than 1 to about 600 gpm (gallons per minute) with some dry holes reported.

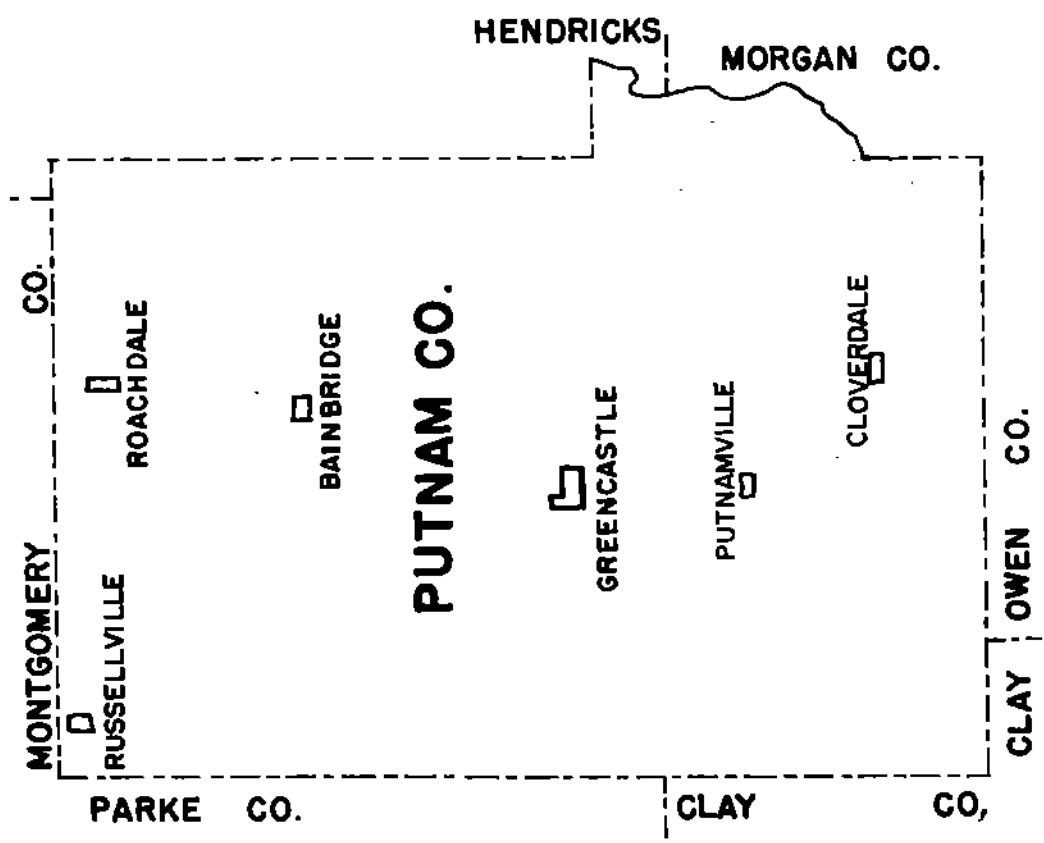
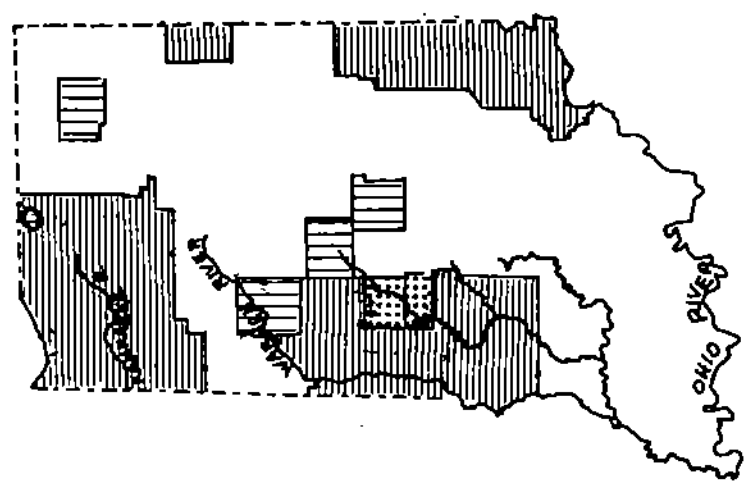





FIGURE 1.-- Map of Indiana, showing area covered by this report, areas under investigation, and areas covered by reports published under the cooperative program.



EXPLANATION

 AREA COVERED BY THIS REPORT
 AREAS UNDER INVESTIGATION
 AREAS COVERED BY REPORTS PUBLISHED UNDER THE COOPERATIVE PROGRAM

Rocks of Early Pennsylvanian age crop out in the western fourth of the county. These rocks consist chiefly of sandstone, sandy shale, shale, and minor amounts of coal. Sandstones are the principal source of ground water for domestic and stock supplies. Well depths range from about 40 to 120 feet, the most frequent depth being about 65 feet. Yields from these wells range from less than 1 to about 10 gpm.

Unconsolidated glacial deposits of Pleistocene age consisting of till, glaciofluvial sand and gravel, and lake sediments overlie the consolidated rocks.

Considerable thicknesses of glaciofluvial sand and gravel were deposited in preglacial valleys whose courses are more or less followed by the present Big Walnut, Little Walnut, and Deer Creeks. Erosion by these streams removed much of the sand and gravel, but enough remains so that these deposits are an important source of ground water for domestic, stock, industrial, and municipal supplies. Well depths range from about 30 to 70 feet, the most frequent depth being about 55 feet. Yields range from about 25 to 1,000 gpm.

Glaciofluvial sand and gravel also was deposited in a large preglacial valley in the northern part of the county. Subsequent glacial action has buried this deposit under as much as 170 feet of till.

A preglacial valley, whose course is more or less followed by the present Mill Creek, may contain large deposits of glaciofluvial sand and gravel beneath lake sediments.

Small amounts of glaciofluvial sand and gravel are associated with clayey and sandy-clay till in the county. The sand and gravel was deposited as lenses or thin stringers either lying on the bedrock surface and overlain by till or interbedded with till. There is a close relationship between the preglacial bedrock channels and the sand and gravel deposits. In many areas these deposits are or with proper development could be additional sources of ground water for domestic and stock supplies. In the preglacial upland areas the glacial deposits consist chiefly of a clayey to sandy-clay till and do not yield water freely.

Wells tapping the sand and gravel aquifers associated with till or overlain by Recent alluvium range in depth from about 20 to 130 feet and have yields ranging from about 5 to 25 gpm. At the present time some of the wells drilled in these areas pass through the sand and gravel deposits and are completed in the bedrock.

Lake sediments are present in Putnam County in the preglacial Mill Creek valley. These sediments were deposited on bedrock or possibly on glaciofluvial sand and gravel. The lacustrine deposits consisting chiefly of silt and clay do not yield water freely but in areas where interbedded sand and gravel lenses are present they are or could be additional sources of ground water for domestic and stock supplies. Wells in these deposits range in depth from about 50 to 120 feet and have yields ranging from about 5 to 35 gpm.

Deposits of Recent age in Putnam County consist mostly of flood plain sediments and wind-blown sand. They are thin and are not important as sources of ground water.

Plate 2 shows availability of ground water in the consolidated and unconsolidated rocks underlying the county. Plate 3 shows generalized hardness of water conditions in the consolidated and unconsolidated rocks and also shows an area

where the chloride content exceeds the limits for this constituent as established by the U. S. Public Health Service (1946).

The chemical content and the hardness of water vary greatly in the aquifers of Mississippian and Pennsylvanian age and to a lesser extent in aquifers of Pleistocene age. The maximum and minimum values and the mode ^{1/} for sulfate and chloride contents and for hardness of water for each group of aquifers is given in table 1.

Table 1.--Comparison of quality of ground water
by source in Putnam County

Pleistocene aquifers			
	Sulfate ppm	Chloride ppm	Hardness ppm
Maximum	135	190	424
Minimum	6	4	164
Mode	12	9	308
Pennsylvanian aquifers			
Maximum	120	44	416
Minimum	11	6	28
Mode	14	7	267
Mississippian aquifers			
Maximum	150	1,080	516
Minimum	6	2	16
Mode	16	9	325

CONFINED AND UNCONFINED CONDITIONS

In Putnam County ground water occurs in the consolidated and unconsolidated rocks chiefly under confined (artesian) conditions, but in some places it occurs under unconfined (water-table) conditions. Under confined conditions, the aquifer water-bearing material is overlain directly by relatively impervious material, and the water, which is under pressure will rise in the well above the bottom of the impervious material. Under unconfined conditions, the aquifer is overlain directly by permeable unsaturated material and the water does not rise above the level at which it is encountered.

TYPE OF WELLS

Drilled wells are the principal type of water wells used in Putnam County. A small number of dug and driven wells are still in use and occasionally one is constructed. Most water wells are 6-inches or more in diameter and are constructed by the cable-tool or percussion method of drilling. A well drilled

^{1/} mode: The item, is a series of statistical data, which occurs oftenest. (Webster)

by the cable-tool method is constructed by a combination of drilling, bailing, and driving casing. Where the water-bearing material is consolidated rock, the well casing generally is driven a few inches to several feet into rock, and the well is finished as an open hole in rock. Where the water-bearing material is sand and gravel, the well casing is driven into the water-bearing zone and is left as an open-end casing, or the lower end of the casing is slotted or perforated, or a well screen is set opposite the water-bearing zone below the end of the casing. A modification of the above type, the gravel-packed well, has a gravel lining between the well screen and the water-bearing material.

In Putnam County, the majority of industrial and municipal supply wells drilled in sand and gravel are equipped with wire-wound well screens--a few are finished with slotted or perforated casing. Most domestic and stock wells that have been completed in sand and gravel do not have a screen but are finished with an open-end casing or the casing is slotted or perforated. The use of wire-wound, gauze-wrapped, or gauze washer well points or screens in domestic and stock wells is becoming more wide-spread. Successful wells can be obtained by the use of screens, in many water-bearing sand and gravel deposits from which it was once considered impossible to obtain water. Table 2 relates the grain-size in inches and millimeters to the slot and gauze size of screens commonly used in water wells.

Table 2.--Grain size and equivalent screen openings

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

In areas where the water level in the unconsolidated material is close to the surface some water wells are constructed by driving or digging. The driven well consists of a small diameter pipe with a drive-point screen on the end which is driven into shallow water-bearing material. The dug well is constructed by digging a hole, usually about 3 feet in diameter into the upper part of the water-bearing material and using concrete pipe, tile, brick, or stone as a casing.

The oil or gas exploration holes, test holes, and holes drilled for purposes other than water supply are drilled by either the cable-tool or rotary method in Putnam County.

SUMMARY

Preliminary evaluation of the basic data shows that adequate quantities of ground water are generally available for domestic and stock use from the rocks of Mississippian and Pennsylvanian age. Industrial and municipal supplies are possible from the sandstone facies of the siltstones of Mississippian age in the northern part of the county. In the sand and gravel of Pleistocene age, in Big Walnut, Little Walnut, and Deer Creek valleys, and possibly in Mill Creek valley, ground water is available in adequate quantities for domestic and stock use and locally for industrial, irrigation, and public supplies. Sand and gravel in the large buried preglacial bedrock channel in the northern part of the county is a possible source of ground water for industrial, irrigation, and public supplies. Another source of domestic and stock supplies are the sand and gravel deposits interbedded and overlain by till in the preglacial bedrock channels and the sand and gravel interbedded with the lake sediments.

The quality of the water from the rocks of Mississippian, Pennsylvanian, and Pleistocene ages varies greatly. Generally water from these sources exceeds the U. S. Public Health Service (1946) drinking-water standards for iron content and locally for chloride content. The water is generally hard to very hard.

RECORDS

The records of about 434 water wells and holes drilled for purposes other than water supply are given in table 3. The table gives information about well construction, water levels, yields, and drawdowns, thickness and character of the water-bearing material, conditions of occurrence, use, and other pertinent data. The altitude of the land surface at all wells, except oil or gas exploration holes, was determined from topographic maps. Altitudes of oil or gas exploration holes were on the records when received and were checked against the topographic maps.

Table 4 contains the selected logs of about 133 wells and other drilled holes. This table gives the drillers' description of the material encountered, pertinent remarks with regard to the material, and tentative interpretation by the authors of the geologic age of the material. The logs contain local terms used by drillers in describing the material penetrated. A glossary of drillers' terms is on page 9.

The results of 219 analyses of well waters are given in table 5. These chemical analyses were determined in the field by the U. S. Geological Survey. The table gives information about geologic source, temperature, concentration in parts per million of iron, alkalinity (expressed as bicarbonate), sulfate, and chloride contents, and hardness of water. The U. S. Public Health Service (1946) drinking-water standards state that the chemical constituents should not exceed the following concentrations: iron and manganese (together), 0.3 ppm; sulfate, 250 ppm; chloride, 250 ppm. Although no official standards have been established for hardness of water, the following classification (Lamar, 1942, p. 25, 26) is in general use: 0-60 ppm, soft; 61-120 ppm, moderately hard; 121-200 ppm, hard; more than 200 ppm, very hard.

Records of 9 springs are given in table 6. This table gives geologic source, yield, use, temperature of the water, and the results of field chemical analyses.

Table 7 gives the results of 24 field chemical analyses of water from streams in Putnam County with other data.

Water levels in 6 observation wells in Putnam County are given in table 8. The water levels in three wells were measured with an engineers steel tape and in the other three by recording gages. Daily high water levels are given for observation wells equipped with recording gages and periodic water levels are given for the observation wells that were measured manually. The locations of these observation wells are shown on plate 1.

GLOSSARY OF DRILLERS' TERMS

Bluestone.--Blue-gray siltstone, sandy shale, or shaly sandstone.

Drift.--Any rock material, such as boulders, till, gravel, sand, or clay, transported by a glacier and deposited by or from ice or by or in water derived from the melting of the ice.

Grit.--Coarse sand or fine gravel usually associated with clay.

Gumbo.--Sticky clay.

Hardpan.--A hard impervious layer, composed chiefly of clay, cemented by relative insoluble materials, does not become plastic when mixed with water.

Shelly.--Thin and usually hard layers of rock; rock which splits in thin pieces paralleled with the bedding surface; a fossiliferous rock.

Softpan.--Hard impervious layer, composed chiefly of clay, partially cemented by relative insoluble materials, becomes plastic when mixed with water.

Wash.--Water laid glacial material consisting of sand, silt, and clay with a high percentage of twigs, leaves, and other organic material.

White top.--White shale or fire clay.

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Table 3.--Record of wells, Putnam County, Indiana--Continued

Well No.	Owner	Driller	Date completed	Altitude (feet)	Type of well	Depth of well below land surface (feet)	Diameter (inches)	Depth of casing (feet)	Plumb	Water-bearing zone				Water level (feet)	Yield (gpm)	Use	Remarks
										Depth to top (feet)	Thickness (feet)	Material	Geologic age				
12/57- 241	D. L. Gageway	Ringo & Son	11-24-47	730	Dr	188	6	58	Oh	102	58	La	M	119	0.8	D	L, A
301	R. Montgomery	Ruark & Toney	1949	610	Dr	90	6	39	Oh	28	52	La	M	2	2	D	L, A
781	K. McCullough	Ringo & Son	6-50	595	Dr	50	6	49	Oh	36	52	Sl, G	Pl	4	6	D	L, A
981	H. McCullough	C. Ringo	5-12-10	610	Dr	102	6	18	Oh	150	47	La	M	3	3	P	L, A
1271	M. E. Huest	Campbell Bros.	---	780	Dr	206	6	22	Oh	---	---	La	M	---	---	D	L, A
1441	C. T. Harris	M. O. Schrader	5-12-54	610	Dr	115	6	5	Oh	30	60	La	M	22	3	D	L, A; Water at 78 ft
1442	H. Stout	F. Toney & Sons	7-5-60	650	Dr	96	6	11	Oh	30	11	Sl, Sh	M	---	---	D	L, A
1581	M. Chow	L. Smith	1842	720	Dr	41	---	30	Oh	---	---	La	M	---	---	D	L, A
13/24- 7J1	A. Mallico	---do---	1945	760	Dr	150	---	47	Oh	46	104	La	M	---	---	D	L, A
13/34- 2D1	E. R. Nichols	Ruark & Toney	1946	870	Dr	98	6	28	Oh	45	53	La, Sl	M	---	---	D, S	L, A
2H1	C. Nichols	---do---	1945	840	Dr	53	6	28	Oh	27	28	La	M	---	---	D, S	L, A
5H1	R. Dennis	F. Toney & Sons	11-15-60	880	Dr	48	6	35	Oh	25	20	La?	M	30	30	D	L, A
6H1	V. Ogie	A. Smith	1943	880	Dr	81	6	35	Oh	34	27	La	M	---	---	D, S	L, A
10M1	L. Perry	Ruark & Toney	1946	845	Dr	87	6	66	Oh	42	19	La	M	---	---	D, S	L, A
12G1	M. McCannack	---do---	1946	810	Dr	81	6	43	Oh	42	19	La	M	2.5	2.5	D	L, A
12M1	M. C. Cartwater	---do---	1950	815	Dr	115	6	67	Oh	68	55	Sl, G	Pl	10	25	D	L, A; Dd 30 ft after 3 hr balling at 25 gpm
12N1	K. Larkin	Ruark Well Drilling	8-30-80	800	Dr	88	6	68	Oh	29	29	La, Sl	M	14	8	D	L, A
12Q1	S. Allen	---do---	5-10-60	800	Dr	57	6	28	Oh	45	53	La, Sl	M	7	25	D	L, A
13D1	G. Goodpasture	F. Toney & Sons	1854	790	Dr	52	5	42	Oh	46	35	Sl	M	---	---	D	L, A
13D2	G. Ogie	Ruark & Toney	1945	790	Dr	81	5	51	Oh	34	41	La	M	---	---	D	L, A
14L1	D. Salsman	A. Smith	1942	830	Dr	75	---	35	Oh	30	34	La	M	---	---	D, S	L, A
18A1	F. Dobson	L. Smith	---	830	Dr	84	---	31	Oh	31	51	La	M	---	---	D, S	L, A
18A1	Rev. Hartaw	Ashworth & Von Tress	10-12-60	810	Dr	82	6	30	Oh	30	32	La	M	---	---	D	L, A
20D1	C. Allen	---do---	8-28-60	835	Dr	62	6	30	Oh	15	79	La	M	---	---	D, S	L, A; Water at 82 ft
20D1	H. Mreade	J. B. Whitaker & Sons	1-2-60	845	Dr	84	6	16	Oh	42	53	G	Pl	---	---	N	L, A
22P1	B. O'Neil	L. Smith	1945	800	Dr	47	6	43	Oh	42	53	La	M	7	7	S	L, A; Water level 1.1 ft above land, 8-2-58
23C1	W. Harbert	A. Smith	1940	785	Dr	92	4	45	Oh	45	53	Sl	M	---	---	N	L, A; Water at 72 ft
24E1	U. Elmoro	Ruark & Toney	1946	785	Dr	98	4	45	Oh	41	74	Sl	M	---	---	I	L, A; Water level 1.1 ft above land, 8-2-58
24L1	L. P. Buis	F. Toney & Sons	12-21-58	785	Dr	105	6	42	Oh	19	31	Sl	M	---	---	D	L, A
25K1	P. Buis	---do---	1954	770	Dr	48	6	24	Oh	19	60	La	M	---	---	D	L, A
25P1	S. Dorsett	A. Smith	1959	810	Dr	78	6	20	Oh	19	60	La	M	---	---	D	L, A; Well deepened, record from owner
26A1	F. L. Christaunson	Ruark & Toney	1946	820	Dr	82	6	63	Oh	58	24	Sl	M	---	---	D	L, A
26B1	Mr. Hoskins	---do---	1945	820	Dr	72	6	50	Oh	50	22	La	M	---	---	D, S	L, A
27H1	R. A. Sandy	Ruark Well Drilling	2-25-61	815	Dr	133	6	19	Oh	120	13	La	M	16	1.5	D	L, A
28N1	O. Guthridge	A. Smith	1942	825	Dr	93	6	87	Oh	86	9	La	M	---	---	N	L, A
31G1	R. A. Sandy	L. Smith	1942	785	Dr	44	---	18	Oh	18	26	La	M	---	---	N	L, A
31J1	R. A. Sault	Ruark Well Drilling	8-16-60	783	Dr	85	6	53	Oh	75	10	La	M	---	---	D	L, A
31L2	D. Allen	L. Sparks	1-31-61	780	Dr	180	6	40	Oh	150	10	La	M	35	---	D	L, A
31P1	Mr. Brockamp	L. Smith	1945	820	Dr	120	---	17	Oh	16	104	La	M	---	---	P	L, A
31P2	G. Vickroy	M. O. Schrader	6-5-52	820	Dr	73	6	41	Oh	40	33	La	M	---	---	D, S	L, A; Reported sand on top of rock
32C1	G. Sutherland	A. Smith	1942	870	Dr	117	6	117	Oh	81	5	La	M	---	---	D, S	L, A
33L1	D. Hood	L. Smith	1942	780	Dr	86	6	83	Oh	---	---	G	Pl	---	---	D	L, A
34D1	A. Smith	L. Smith	1942	760	Dr	84	6	84	Oh	---	---	G	Pl	---	---	D	L, A
34P1	R. L. Job	L. Smith	1942	760	Dr	74	---	74	Oh	---	---	G	Pl	---	---	D, S	L, A
35M1	O. Snyder	---do---	1943	605	Dr	84	---	84	Oh	---	---	G	Pl	---	---	D, S	L, A
13/44- 1Q1	E. Scobee	Ashworth & Von Tress	1-25-61	795	Dr	90	7	40	Oh	75	15	La	M	35	5	D	L, A; Water at 73 ft
2E1	J. O'Neal	---do---	5-8-60	740	Dr	85	6	74	Oh	70	15	La	M	30	30	N	L, A; Dd 11 ft after 3 hr balling
2Q1	B. Jones	F. Toney & Sons	9-15-59	710	Dr	90	6	21	Oh	85	25	La	M	23	80	N	L, A; Dd 11 ft after 3 hr balling at 80 gpm
781	R. Hoocko	Ruark & Toney	1948	735	Dr	133	6	30	Oh	28	104	La	M	30	---	D, S	L, A
8H1	E. J. Jackson	Ashworth & Von Tress	9-27-59	670	Dr	49	6	21	Oh	19	30	La	M	12	---	D	L, A

13/4W- 9M1	Punamville Grado	10-49	670	Dr	250	6	Oh	155	95	Sls	M	C	28	2	P	L, A
8N2	School	1841	655	Dr	25	6	5	4	21	Ls	M					L, A
10M1	A. Smith	1948	700	Dr	68	6	25	24	44	Ls	M					A
10M2	R. Tonoy & Sons	1957	670	Dr	126	8	24	8	71	Ls	M					A
11A1	R. Tonoy & Sons	1949	765	Dr	85	8	24	14	74	Ls	M					A
11B1	F. Tonoy & Sons	7-28-59	800	Dr	450	8		118	192	Ls	M					A
11E1	---do---	7-27-60	765	Dr	70	6	24	192	258	Sls	M					D, S, P
11F1	Ruark & Tonoy	7-27-60	790	Dr	500	6	15	30	305	Ls	M					L, A; Water at 39 ft
11F2	F. Tonoy & Sons	1957	800	Dr	90	6	40	195	305	Sh?	M					L; Reported salt water
12B1	Ashworth & Von Tress	2-15-61	785	Dr	80	7	40	75	5	Ls	M					L, A; Water from gravel
12D1	F. Henderson	9-30-58	780	Dr	62	6	32	32	30	Ls	M					L; filled gravel at 58 to 62 ft; Dd 10 ft after 3 hr balling at 3 gpm
14H1	J. P. Hughes	1845	820	Dr	78		15	63	63	Ls	M					L, A
14J1	---do---	4-16-60	740	Dr	72	6	17	40	33	Ls	M					L, A; Water at 40 and 65 ft
20C1	State of Indiana	1860	630	Dr	30			6	18	S, G	P1					L
20C2	---do---	1880	827	Dr	28			6	15	S, G	P1					L
20C3	---do---	1880	825	Dr	23			6	12	S, G	P1					L
20C4	---do---	1858	828	Dr	30			6	15	S, G	P1					L
20D1	---do---	1880	827	Dr	33			10	17	S, G	P1					L
20D2	---do---	1860	827	Dr	33			9	17	S, G	P1					L
20D3	---do---	1880	827	Dr	31			35	81	Ls	M					L
20D4	Ashworth & Von Tress	8-14-60	725	Dr	116	6	35	35	79	Ls	M					L
21C1	R. Jones	12-10-60	735	Dr	94	6	15	36	24	Ls	M					L
21L1	Z. Berry	1947	745	Dr	100	6	47	17	43	Ss, Sh	P					A; Reported sulfur water
24D1	F. Tonoy & Sons	1957	760	Dr	60	6	18	17	43	Ss, Sh	P					L, A; Dd 30 ft after 3 hr balling at 5 gpm
27A1	K. Phelps	1842	890	Dr	60	6	28	26	45	Ss, Sh	P					L, A; Water at 46 ft; Dd 16 ft after 1 hr balling at 30 gpm
27N1	C. Monahan	1842	890	Dr	71	6	28	26	45	Ss, Sh	P					L, A; Water at 66 ft
27N2	---do---	1842	890	Dr	73	6	24	20	51	Ls	M					L
34J1	C. Wyatt	3-13-53	740	Dr	87	4		80	82	Ls	M					L, A; Dd 40 ft balling at 12 gpm
34R1	H. Fox & Sons	3-13-53	740	Dr	87	4		20	7	Ls	M					L, A; Dd 30 ft after 3 hr balling at 5 gpm
36H1	M. O. Schrader	9-16-53	780	Dr	67	6	15	14	53	Ls	M					L, A; Water at 30 ft; Dd 14 ft after 30 hr pumping at 8 gpm
36J1	Ruark Well Drilling	7-59	770	Dr	48	6	27	22	26	Sls, Ls	M					L, A; Water from gravel at 22 ft
36J2	Ashworth & Von Tress	10-9-59	780	Dr	70	6	58	55	15	Ls	M					L
36J3	F. Tonoy & Sons	7-8-60	770	Dr	40	6	8	24	18	Ls	M					L, A
36J4	Campbell Bros.	7-51	785	Dr	38	8	11	38	29	Ls	M					L
36J5	F. Tonoy & Sons	7-18-60	775	Dr	98	8	18	58	49	Ls	M					L, A
36J6	Ashworth & Von Tress	11-6-60	780	Dr	54	6	17	17	99	Ls	M					L, A
36J7	J. D. Whitaker & Sons	7-11-60	780	Dr	77	6	38	38	13	Ls	M					L, A
36J8	F. Tonoy & Sons	8-13-60	770	Dr	71	6	12	68	39	Ls	M					L, A
36J9	---do---	11-28-60	770	Dr	107	6	14	80	44	Ls	M					L, A
36J10	---do---	1-13-61	780	Dr	104	6	14	80	44	Ls	M					L, A
13/4W- 1A1	F. Tonoy & Sons	3-18-60	780	Dr	70	6	18	60	10	Ls	M					L; Water at 62 ft
1P1	Ruark & Tonoy	1948	725	Dr	57	6	25	24	24	Ls	M					L, A; Water at 46 ft; Dd 16 ft after 1 hr balling at 30 gpm
1G1	F. Tonoy & Sons	3-18-60	780	Dr	53	6	16	31	23	Ls	M					L, A
1H1	Mr. Ruxford	1948	780	Dr	154	6	43	42	112	Ls	M					L; Well dry 2-11-60
1H2	C. H. McDonaltt	8-5-60	780	Dr	50	6	18	47	3	Cr, L?	M?					L; Driller reported gravel; Dd 2 ft after balling at 5 gpm
1H3	---do---	8-12-60	780	Dr	60	6	22	45	15	Sb	M?					L, A; Driller reported gravel; Dd 3 ft after balling at 8 gpm
1H4	---do---	9-30-60	790	Dr	33	6	32	32	1	Cr, L?	M?					L, A; Driller reported gravel; Dd 3 ft after balling at 8 gpm
1L1	W. McElroy	1954	680	Dr	251	6	31			Ls	M					L, A; Water from mud filled crevice
2G1	F. Tonoy & Sons	1941	760	Dr	99	6	23	20	20	Ss, Sh	P					L
16A1	L. Smith	9-16-60	630	Dr	100	6	49	61	39	Ls, Ss	M					L
18J1	Mr. Posey	3-53	815	Dr	60	6	16	40	20	Ls	M					L
20H1	Pennsylvania Railroad	1945	610	Dr	55		31	31	23	Ls	M					L, A
20H2	Oak Hill Park	3-53	605	Dr	30		36	24	12	S, G	P1					L, A; Dd 9 ft pumping at 20 gpm
20J1	Pennsylvania Railroad	1954	605	Dr	30											L
20K1	City of Brazil	1954	810	Dr	25											L
20K2	---do---	1954	605	Dr	20											L
20K3	---do---	1954	605	Dr	20											L
20P1	Layno-Northern Co., Inc	7-22-55	605	Dr	85	26	55	19	48	S, G	P1					L; Screen, 10 ft of 14-in diameter, no. 3 shuffler; Dd 11 ft pumping at 710 gpm
20P2	Blago & Son	1954	605	Dr	47	12	80	20	27	G	P1					L, A; Dd 6 ft after 25 hr pumping at 440 gpm; Observation well Putnam 4; W
20Q1	---do---	8-23-54	612	Dr	60	14	65	15	44	G	P1					L, A

14/3W-2021	Mr. Phillips	Ruark & Toney	1947	740	Dr	40	4	44	Oh	22	18	91s	M	C	4	P	La, A	
2011	C. Cash	do	1947	740	Dr	54	0	44	Oh	44	10	La	M	C	12	D	La, A	
2481	H. Robinson	do	1946	810	Dr	73	4	55	Oh	16	23	91s	M	C	9	D	La, A	
2901	F. Cash	do	1947	840	Dr	39	4	27	Oh	16	23	91s	M	C	9	D	La, A	
3211	K. Harvey	F. Toney & Sons	9-23-59	730	Dr	55	6	23	Oh	11	32	La	M	C	17	D	La; Water at 21 and 34 ft	
3281	A. Burdick	A. Smith	1942	775	Dr	43	6	12	Oh	6	52	La	M	C	9	D	La, A	
3401	C. Burdick	F. Toney & Sons	1954	830	Dr	80	6	66	Oh	8	15	La	M	C	30	D	La, A; Water at 65 ft; Dd 40 ft after 2 hr bailing at 10 gpm	
3461	F. Skinner	do	9-10-59	830	Dr	73	4	83	Oh	62	11	La	M	C	21	D	La, A; Water at 65 ft; Dd 40 ft after 2 hr bailing at 10 gpm	
3481	Mr. Dugan	Ruark & Toney	1950	830	Dr	60	6	48	Oh	46	14	La	M	C	14	P	A	
3501	E. Miller	F. Toney & Sons	1954	870	Dr	45	5	21	Oh	10	30	La, Sh	M	C	10	P	A	
3521	do	do	1954	870	Dr	54	6	19	Oh	10	30	La, Sh	M	C	10	P	A	
3581	D. Bais	Ruark Well Drilling	8-21-58	850	Dr	74	8	18	Oh	10	64	La	M	C	24	D	La, A; Water at 89 ft	
3591	J. Gaston	Ashworth & Von Treas	11-15-60	815	Dr	83	6	27	Oh	35	28	La	M	C	24	D	La, A; Dd 2 ft bailing at 10 gpm	
14/4W-3M1	E. Cantowino	R. L. Scobee & Sons	1946	770	Dr	155	6	155	Oh	155	---	G	PI	---	---	D, S	A; Reported gravel on top of rock	
5H1	S. Mullin	Ashworth & Von Treas	9-10-58	855	Dr	80	6	22	Oh	22	58	La	M	C	22	D	La; Dd 50 ft after 4 hr bailing at 12 gpm	
5H2	D. Gooch	do	6-15-60	855	Dr	59	6	18	Oh	18	41	La	M	C	25	D	La, A; Dd 20 ft bailing at 3 gpm	
7Q1	B. Talbot	D. Chavis	---	820	Dr	85	6	---	Oh	30	54	La	M	---	---	D, S	A; Water at 45 ft	
7Q2	J. Wells	do	---	820	Dr	285	6	25	Oh	28	260	La	M	---	---	T, S	---	
9F1	City of Greencastle	Layne-Northern Co., Inc.	3-12-57	870	Dr	45	6	---	Oh	8	46	S, G	PI	U	8	P	---	
9F2	do	do	---	870	Dr	32	---	---	Oh	---	---	G	PI	U	8	P	---	
9M1	do	do	---	880	Dr	42	---	---	Oh	---	---	G	PI	U	12	P	---	
9M2	do	Layne-Northern Co., Inc.	3-20-54	880	Dr	54	26	38	Gp	12	42	S, G	PI	U	12	P	L; Screen, 10 ft of 28-in dia, no. 5 shaker; Dd 8 ft pumping at 1,000 gpm	
9M3	do	do	---	875	Dr	44	---	---	Oh	32	12	G	PI	---	---	P	---	
9M4	do	do	---	885	Dr	38	---	---	Oh	17	41	G	PI	---	---	N	---	
9M5	do	do	---	885	Dr	54	---	---	S	---	---	G	PI	---	---	N	---	
9M6	do	Layne-Northern Co., Inc.	3-23-54	860	Dr	54	42	37	Gp	12	42	G	PI	U	12	P	L; Screen, 17 ft of 28-in dia, no. 80 shaker; Dd 8 ft after 10 hr pumping at 600 gpm	
11E1	Mr. Eittlejorge	Ruark & Toney	1947	760	Dr	268	---	---	Oh	135	133	91s	M	---	---	D	La (partial); Well deepened by Ruark & Toney	
11P1	J. Eannott	F. Toney & Sons	5-23-60	760	Dr	87	8	23	Oh	21	65	La	M	C	17	D	La, A; Water at 34 and 79 ft	
12B1	R. L. Scobee & Sons	do	1947	800	Dr	70	8	21	Oh	20	50	La	M	C	10	S	---	
12P1	A. Jones	do	1942	790	Dr	53	6	48	Oh	44	31	La	M	C	16	D	---	
12P1	D. Arnold	Ruark Well Drilling	7-59	795	Dr	70	6	26	Oh	24	28	La	M	C	16	D	---	
14D1	H. Ewaton	do	6-17-60	780	Dr	57	8	48	Oh	48	11	La, Sh	M	C	10	D	L; Dd 27 ft after 1 hr bailing at 36 gpm	
14J1	F. J. Harold	R. L. Scobee & Sons	1938	840	Dr	85	6	15	Oh	9	76	La	M	---	---	D	---	
15E1	A. Stanley	do	10-38	740	Dr	82	6	82	Oh	---	---	G	PI	---	---	D	---	
15E2	M. J. Kloor	Ruark Well Drilling	9-24-60	740	Dr	50	6	38	Oh	34	16	La	M	C	19	D	L; Dd 20 ft after 4 hr bailing at 20 gpm	
17A1	W. D. James	do	6-7-52	675	Dr	1,997	---	---	---	---	---	---	---	---	---	Og	J. H. Walker I; L (partial)	
17L1	W. F. Kocher	do	10-27-52	730	Dr	1,014	---	---	---	---	---	---	---	---	---	Og	J. H. Walker I; L (partial)	
19C1	W. W. Thomas	M. O. Schrader	6-6-51	745	Dr	72	6	71	Oh	71	1	La	M	---	---	D	---	
19C2	I. Moore	Ruark & Toney	1947	740	Dr	96	6	30	Oh	35	81	La	M	C	90	N	L; Water at 90 ft	
21A1	Purmas Co. Food Locker	Ruark Well Drilling	1948	865	Dr	400	6	---	Oh	45	130	La	M	C	90	N	L; Record from owner	
21C1	Hess Laundry & Cleaners	do	1910?	840	Dr	65	6	---	Oh	---	---	---	---	---	---	T	---	
21D1	Indiana Well Telephone Co.	M. O. Schrader	2-4-57	820	Dr	7	---	---	---	---	---	---	---	---	---	T	---	
21R1	Gardner Bros. Ice Plant	C. Ringo	1920	840	Dr	1,128	6	261	Oh	---	---	---	---	---	---	Do	L (partial)	
22A1	E. White	Ruark & Toney	1946	840	Dr	46	6	16	Oh	18	30	La	M	---	---	Do	L (partial)	
24R1	C. Wells	F. Toney & Sons	8-15-57	810	Dr	128	6	76	Oh	84	42	La	M	C	20	A	---	
25Q1	J. Woodall	do	1941	770	Dr	61	---	---	Oh	47	14	La	M	C	4	S	---	
25Q2	Y. Stout	Ashworth & Von Treas	J-11-61	760	Dr	98	6	72	Oh	72	26	91s	M	C	40	D	---	
27C1	L. Buchait	L. Smith	1941	880	Dr	100	---	---	Oh	22	78	La	M	C	---	---	D, L	---
27Z1	I. McWaters	Ruark & Toney	1947	830	Dr	85	6	82	Oh	35	50	La	M	---	---	Ir	---	
27L1	E. Wells	Ruark Well Drilling	1-5-61	820	Dr	84	6	43	Oh	40	24	La	M	C	17	D, S	La, A; Water from mud filled crevices	
27P1	E. Elmore	F. Toney & Sons	4-23-60	820	Dr	40	6	22	Oh	20	20	La	M	C	7	D	L; Dd 23 ft after 1 hr pumping at 25 gpm	
29H1	C. Hammond	Ruark & Toney	1947	780	Dr	91	6	40	Oh	38	53	La	M	C	23	N	La, A; Water at 32 ft	
29P1	J. Gibson	do	1947	780	Dr	150	6	18	Oh	17	133	La	M	C	34	N	La, A; Water at 32 ft	
30Q1	D. Henck	do	1948	730	Dr	71	6	71	Oh	71	---	---	---	---	---	N	La; Reported water on top of limestone	
30R1	X. Teu	Ruark Well Drilling	12-18-60	735	Dr	50	6	40	Oh	32	18	La	M	C	17	D	L; Dd 28 ft after 1 hr pumping at 40 gpm	

Table 3.---Record of wells, Putnam County, Indiana---Continued

Well No.	Owner	Driller	Data completed	Altitude (feet)	Type of well	Depth of well below land surface (feet)	Diameter (inches)	Depth of casing (feet)	Fishes	Motor-bearing zone				Remarks			
										Depth to top (feet)	Thickness (feet)	Material	Geologic age		Ground-water occurrence	Water level (feet)	Yield (gpm)
14/AR-31K1	R. W. Baldwin	Ruark & Tonoy	1048	790	Dr	150	6	32	Oh	31	119	La	M	C	1	La, A	Record from plant engineer
32P1	Lono Star Cement Corp.	Layne-Northern Co., Inc.	1825	730	Dr	153	8	30	Oh	30	120	La	M	C	20	La	
32K1	---do---	---	11-23-53	720	Dr	153	8	58	Oh	12	---	La	M	C	---	La	
34B1	Cesar Bakery	Ruark & Tonoy	8-40	788	Dr	175	8	78	Oh	78	72	La	M	C	20	La	
34D2	F. McMahon	---	1948	800	Dr	83	8	46	Oh	45	38	La	M	C	20	La	
34H1	J. Hirt	---	1948	810	Dr	88	8	72	Oh	71	17	La	M	C	40	La	
34J1	R. Gould	---	1948	820	Dr	61	6	27	Oh	25	38	La	M	C	15	La, A	La; Dd 25 ft. bailing at 5 gpm
34H1	Dr. Kruppig	Ashworth & Von Tross	5-16-60	775	Dr	82	6	20	Oh	25	37	La	M	C	14	La	La; Dd 20 ft bailing at 5 gpm
34R2	---	---	3-28-60	775	Dr	56	6	45	Oh	42	14	La	M	C	20	La	La; A; Dd 2 ft after 3 hr bailing at 7 gpm
35G1	W. Ailo	A. R. Scobee	4-27-60	755	Dr	35	7	25	Oh	25	10	La	M	C	7	La	
35M1	A. W. Smith	F. Tonoy & Sons	1954	780	Dr	135	8	34	Oh	---	---	La	M	C	45	La	
14/5W-2D1	J. McAlinden	L. Smith	---	715	Dr	65	6	52	Oh	51	30	La	M	C	---	La	
2K1	T. W. Sutherland	Ruark & Tonoy	1948	740	Dr	123	8	72	Oh	72	51	La	M	C	---	La	
4M1	F. Williams	Scobee Bros.	---	740	Dr	122	8	31	Oh	28	54	La	M	C	---	La	
6J1	F. Holden	---	---	800	Dr	124	8	124	Oh	---	---	La	M	C	---	La	
7P1	C. Davidson	D. Chavis	7-1-60	810	Dr	58	6	14	Oh	14	44	La	M	C	3	La	
9P1	G. Evans	Ashworth & Von Tross	---	860	Dr	40	6	22	Oh	15	25	La	M	C	9	La	
10D1	R. B. Henry	Ruark & Tonoy	1948	880	Dr	62	6	47	Oh	40	22	La	M	C	15	La	
10J1	J. E. Littlejohn	---	---	800	Dr	82	6	50	Oh	50	12	La	M	C	15	La	La; Dd 15 ft bailing at 4.5 gpm
12D1	R. Cox	Ashworth & Von Tross	6-23-60	800	Dr	82	6	50	Oh	50	12	La	M	C	15	La	
12H1	C. Johnson	Ruark & Tonoy	1948	870	Dr	300	8	50	Oh	50	125	La	M	C	110	La	
14Q1	P. McMahon	---	---	665	Dr	19	35	---	---	---	---	G	P1	C	2	S, O	Observation well Putnam 1; W Stanoline Oil & Gas Co. 1; La
15D1	R. P. Wells	---	2-2-40	770	Dr	2,829	---	---	---	---	---	---	---	---	---	---	---
20K1	O. Erwin	Ruark & Tonoy	1946	780	Dr	63	6	22	Oh	46	17	La	M	C	---	La	
20H1	C. H. Watts	R. L. Scobee & Sons	1946	800	Dr	115	6	43	Oh	38	77	La	M	C	---	La	
23P1	I. Ruark	Ruark & Tonoy	1946	630	Dr	90	6	72	Oh	71	19	La	M	C	25	La	
25P1	J. Torr	L. Smith	1941	700	Dr	71	8	62	Oh	61	10	La	M	C	30	La	
31B1	E. Kirkan	D. Chavis	3-18-55	800	Dr	120	8	21	Oh	---	---	---	---	---	---	---	---
31G1	C. Richards	M. O. Schrader	4-2-58	770	Dr	87	6	13	Oh	---	---	---	---	---	---	---	---
31G2	D. Richwino	---	1-13-58	785	Dr	101	6	20	Oh	78	13	La	M	C	---	La	
31G3	W. H. Messick	---	4-11-53	765	Dr	91	6	18	Oh	---	---	---	---	---	---	---	---
31H1	Dr. McClung	F. Tonoy & Sons	1957	770	Dr	152	6	93	Oh	90	43	La	M	C	38	La	
31H2	H. D. Toothman	M. O. Schrader	10-27-51	770	Dr	139	6	22	Oh	---	---	---	---	---	---	---	---
31H3	E. Hollis	---	4-18-58	780	Dr	75	6	38	Oh	42	25	La	M	C	---	La	
31H4	G. Bowman	---	1-8-56	765	Dr	65	6	55	Oh	42	25	La	M	C	---	La	
31H5	C. Garrett	---	4-18-52	770	Dr	60	6	40	Oh	42	25	La	M	C	---	La	
33A1	C. Ellis	Ruark & Tonoy	1946	680	Dr	121	6	100	Oh	92	50	La	M	C	35	La	
34C1	H. O'Neill	---	1947	890	Dr	150	6	84	Oh	100	74	La	M	C	40	La	
34M1	O. Roovers	M. O. Schrader	2-27-52	690	Dr	134	6	32	Oh	70	51	La	M	C	67	La	
34M2	G. Roopak	Ruark Well Drilling	9-4-60	705	Dr	125	6	76	Oh	74	51	La	M	C	62	La	
35R1	E. Reardon	Ruark & Tonoy	1946	720	Dr	224	6	30	Oh	50	174	La	M	C	30	La	
36A1	J. Torr	---	1946	725	Dr	110	6	44	Oh	43	67	La	M	C	---	La	
15/3W-2A1	A. D. Wilms	F. Tonoy & Sons	1954	905	Dr	90	6	64	Oh	---	---	---	---	---	---	---	---
21A	K. Kariett	Ruark & Tonoy	1947	883	Dr	170	6	130	Oh	140	30	La	M	C	20	La	
2P1	Y. Heuser	F. Tonoy & Sons	12-28-60	875	Dr	180	6	148	Oh	138	22	La	M	C	4	La	La; A; Water at 160 ft
9M1	H. Osborn	Ruark Well Drilling	10-9-59	840	Dr	185	6	182	Oh	178	17	La	M	C	75	La	
10N1	H. Hillis	Scobee Bros.	---	860	Dr	40	6	---	---	---	---	---	---	---	---	---	---
10N2	---	---	---	860	Dr	56	6	---	---	---	---	---	---	---	---	---	---
10N3	---	---	---	885	Dr	36	6	---	---	---	---	---	---	---	---	---	---
10N4	---	---	---	885	Dr	12	8	12	Oh	---	---	---	---	---	---	---	---
13N1	---	---	---	880	Dr	64	6	36	Oh	35	28	La	M	C	23	La	
13Q1	G. Ader	Ruark & Tonoy	1948	850	Dr	86	6	65	Oh	57	28	La	M	C	3	La	
16P1	R. Henderson	---	---	830	Dr	86	6	47	Oh	42	44	La	M	C	3	La	La; A; Dd 4 ft after 2 hr bailing at 30 gpm
22B1	C. Ader	Ruark Well Drilling	2-6-61	855	Dr	65	6	42	Oh	37	28	La	M	C	14	La	

15/3*-28E1	G. Rhaek	Ruark & Tonoy	1948	760	Dr	100	6	84	Oh	60	20	M	C	10	9	La, A
28H1	A. Zeiner	-----do-----	1948	810	Dr	166	6	137	Oh	172	34	M	C	50	D, S	La, A
29M1	M. Bryan	Ruark Well Drilling	6-7-50	730	Dr	22	4	22	Oh	21	1	Pl	C	0	S	La, A; Dd 5 ft after 1 hr bailing at 24 gpm
30A1	W. Boggs	-----do-----	8-30-60	760	Dr	51	6	51	Oh	---	---	Pl	C	17	D	Dd 10 ft after 1 hr bailing at 15 gpm
31J1	E. Sanders	-----do-----	9-30-60	760	Dr	150	6	118	Oh	113	37	M	C	80	D	L; Dd 20 ft after 3 hr bailing at 12 gpm
33P1	O. A. Day	Ruark & Tonoy	1948	910	Dr	144	6	10	Oh	80	84	M	C	35	D	La, A
33P2	-----do-----	Ruark Well Drilling	6-8-60	910	Dr	415	6	13	Oh	75	5	M	C	---	D	La, A
33Q1	W. Craft	Ruark & Tonoy	1948	910	Dr	82	6	12	Oh	10	72	M	C	---	D, S	La, A
15/4*-1M1	G. Priest	-----do-----	1947	925	Dr	58	6	44	Oh	43	15	M	C	10	N	La
1P1	G. Hoops	-----do-----	1946	925	Dr	83	6	59	Oh	58	25	M	C	16	N	La
2J1	J. Summers	Ruark Well Drilling	4-25-60	950	Dr	85	6	63	Oh	74	11	M	C	5	D, S	La, A
2Q1	H. Hostetter	Scobee Bros.	1918	940	Dr	101	6	58	Oh	58	43	M	C	---	---	---
2R1	Bainbridge High School	-----do-----	-----	940	Dr	124	6	98	Oh	---	---	M	C	---	---	---
3B1	F. Smith	D. Chavis	-----	895	Dr	225	6	150	Oh	---	---	M	C	4	S	La, A
10K1	L. McFarland	Ruark & Tonoy	1948	970	Dr	163	6	148	Oh	148	17	M	C	8	S	La, A
10N1	R. Clodfelter	-----do-----	1948	950	Dr	60	---	23	Oh	40	20	M	C	---	N, N	La, A
11A1	Mr. Maston	L. Smith	9-41	920	Dr	68	---	54	Oh	---	---	M	C	---	N, N	La, A
11A2	C. Maston	Ruark & Tonoy	1946	910	Dr	186	6	98	Oh	98	88	M	C	---	P	La
11A3	Town of Bainbridge	R. L. Scobee & Sons	4-50	930	Dr	184	---	---	Oh	110	74	M	C	7	P	La
11A4	-----do-----	Ruark Well Drilling	8-10-60	930	Dr	200	---	83	Oh	98	3	M	C	87	P	La; Dd 78 ft after 8 hr pumping at 32 gpm
11A5	-----do-----	Layne-Northon Co., Inc.	5-24-60	930	Dr	290	12	---	Oh	---	---	M	C	---	T	La
11H1	-----do-----	R. L. Scobee & Sons	5-50	920	Dr	146	6	83	Oh	80	30	M	C	---	P	La; Dd 46 ft after 24 hr pump- ing at 30 gpm
12A1	R. L. Veach	Ruark Well Drilling	7-15-60	900	Dr	82	4	82	S	80	2	Pl	C	25	D	La, A; Screen, 2 1/2 ft of 3-1/2 dia, no. 18 slot; Dd 15 ft after 1 hr bailing at 18 gpm
12C1	J. Wright	-----do-----	1-17-61	905	Dr	42	6	35	Oh	32	10	M	C	12	N	La, A
12D1	J. Coftman	Ruark & Tonoy	-----	920	Dr	110	6	60	Oh	55	55	M	C	10	N	La, A
17H1	Y. Leno	-----do-----	1947	910	Dr	130	6	112	Oh	112	18	M	C	25	N	La, A
17J1	Y. O'Hair	R. L. Scobee & Sons	1937	800	Dr	144	---	49	Oh	47	97	M	C	---	S	La, A
18P1	F. Leno	Ruark & Tonoy	1946	885	Dr	62	6	31	Oh	30	32	M	C	---	S	La, A
18Q1	F. Howlett	-----do-----	1946	900	Dr	95	6	---	Oh	20	75	M	C	6	D, S	La, A
19C1	Y. Leno	D. Chavis	7-25-57	890	Dr	52	6	28	Oh	23	29	M	C	10	S	La, A; Dd 55 ft after 4 hr bailing at 10 gpm
20J1	A. Southerlin	Ruark Well Drilling	3-24-60	870	Dr	110	6	87	Oh	95	15	M	C	19	D	La, A; Dd 55 ft after 4 hr bailing at 10 gpm
20M1	-----do-----	Ruark & Tonoy	1947	880	Dr	37	6	37	Oh	---	---	Pl	C	---	S	La; Dd 46 ft after 24 hr pump- ing at 30 gpm
21H1	J. South	R. L. Scobee & Sons	1932	900	Dr	86	6	84	Oh	---	---	M	C	---	D, S	La, A; Water from gravel filled crawlico, 84 to 86 ft
22R1	W. O'Neil	Scobee Bros.	1918	870	Dr	50	6	38	Oh	---	---	M	C	15	D	La, A
23N1	Locust Grove School	-----do-----	1916	860	Dr	200	6	74	Oh	---	---	M	C	---	D	La, A
23N2	George Estes	R. L. Scobee & Sons	9-1-60	870	Dr	80	7	60	Oh	60	20	M	C	---	D, S	La, A
24M1	W. Adler	L. Smith	1941	865	Dr	57	---	16	Oh	15	42	M	C	---	D, S	La, A
26J1	G. Proctor	Ruark Well Drilling	2-4-61	810	Dr	84	6	64	Oh	82	2	Pl	C	35	D, S	La, A; Dd 15 ft after 2 hr bailing at 24 gpm
26H1	Mr. Clodfelter	R. L. Scobee & Sons	1938	870	Dr	115	6	70	Oh	---	---	M	C	---	S	La; Dd 78 ft after 8 hr pumping at 32 gpm
32H1	M. Ferrand	Ruark & Tonoy	1950	838	Dr	123	6	70	Oh	69	41	M	C	30	S	La; Dd 46 ft after 24 hr pump- ing at 30 gpm
34G1	-----do-----	R. L. Scobee & Sons	1940	840	Dr	118	6	35	Oh	31	85	M	C	---	D, S	La, A
34E1	R. L. Scobee	Scobee Bros.	1918	800	Dr	160	6	80	Oh	80	80	M	C	80	D	La, A
15/5*-11D1	R. Call	Ruark & Tonoy	1948	865	Dr	85	4	67	Oh	67	18	M	C	35	D	La, A
11D2	J. Martin	R. L. Scobee & Sons	10-21-60	870	Dr	105	7	46	Oh	45	60	M	C	---	D, S	La, A
15J1	F. Leno	L. Smith	1941	820	Dr	115	---	113	Oh	---	---	Pl	C	---	D, S	La, A
17C1	D. Stultz	Ruark Well Drilling	10-24-59	810	Dr	51	6	18	Oh	18	15	M	C	5	D	La, A
17P1	J. McGill	-----do-----	-----	890	Dr	63	---	---	Oh	45	18	M	C	---	D	La, A; Ashley (1899)
19P1	H. James	R. L. Scobee & Sons	1944	820	Dr	68	6	53	Oh	42	26	M	C	---	D	La; Ashley (1899)
19H1	T. Brother	-----do-----	-----	815	Dr	104	---	---	Oh	---	---	M	C	---	D	La, A
24B1	L. Thomas	Ruark & Tonoy	1947	880	Dr	61	6	41	Oh	40	21	M	C	---	D	La, A
26L1	L. Flitt	-----do-----	-----	815	Dr	97	6	80	Oh	60	17	M	C	---	D	La, A
27G1	D. Kiltorran	F. Tonoy & Sons	1954	780	Dr	165	6	150	Oh	---	---	M	C	70	S	La; Screen, 4 ft slot at 58 to 62 ft; Dd 10 ft after 1 hr bailing at 24 gpm
34K1	J. Vorwillon	Ruark Well Drilling	2-18-61	735	Dr	160	6	62	S, Oh	58	4	Pl	C	40	S	La; Screen, 4 ft slot at 58 to 62 ft; Dd 10 ft after 1 hr bailing at 24 gpm
35R1	L. Williams	Ruark & Tonoy	1950	800	Dr	105	6	---	Oh	35	70	M	C	25	D	La, A
16/3*-1H1	L. Pigo	Molt Bros.	1948	910	Dr	115	4	115	S	---	---	Pl	C	35	D	La, A; Screen, no. 60 slot
2P1	L. Pigo	Scobee Bros.	1918	905	Dr	148	6	110	Oh	---	---	M	C	27	D	La, A
3P1	M. Hanna	Molt Bros.	1958	890	Dr	105	4	105	S	---	---	Pl	C	25	D	La; Screen, no. 40 slot
4Q1	R. Jeffries	-----do-----	-----	890	Dr	218	4	100	Oh	100	118	M	C	25	D	Dd 120 ft pumping at 4 gpm
5C1	Z. D. Brockmire	-----do-----	1956	860	Dr	133	4	133	Oh	---	---	Pl	C	30	D	La

Table 3.--Record of wells, Putnam County, Indiana--Continued

Well No.	Owner	Driller	Date completed	Altitude (feet)	Type of well	Depth of well below land surface (feet)	Diameter (inches)	Depth of casing (feet)	Pump	Water-bearing zone					Water level (feet)	Yield (gpm)	Use	Remarks
										Depth to top (feet)	Thickness (feet)	Material	Geologic age	Ground-water occurrence				
16/37- 981	L. Page	Holt Bros.	1956	900	Dr	107	4	105	Oh		105	2	Sls?	M				
1071	H. Allen	Ruark & Toney	1948	900	Dr	67	4	45	Oh		37	30	Sls	M				
10K1	B. Asher	R. L. Scobee & Sons	6-21-60	900	Dr	88	4	59	Oh		50	32	Ss	M				
10Q1	M. Asher	do	10-26-59	905	Dr	152	7	112	Oh		108	44	Ss	M				
12D1	Mt. Olivet Church	Holt Bros.	1956	900	Dr	148	4	135	Oh		135	33	Sh	M				
13N1	D. Crosby	W. English & Son	10- 9-59	920	Dr	218	4	160	Oh		174	44	Ss	M				
14A1	Indiana State Highway Department	do	7-30-56	820	Dr	40												
14A2	do	do	7-30-56	820	Dr	40												
14A3	do	do	7-30-56	820	Dr	35												
14A4	do	do	7-30-56	820	Dr	40												
15B1	C. Harvey	R. L. Scobee & Sons	11-18-59	905	Dr	145	7	55	Oh		53	92	Ss	M				
16M1	G. L. Tompman	W. English & Son	8-11-59	885	Dr	141	4	141	S		130	11	S	Pl				
20F1	J. Jones	F. Toney & Sons	10-16-60	880	Dr	140	6	62	Oh		62	78	Sls, Ss	M				
20G1	E. Beck	Ruark & Toney	7-49	880	Dr	75	6	48	Oh		40	35	Sls	M				
20N1	F. L. Jones	do	1946	820	Dr	190	4	130	Oh		120	70	Sls	M				
23K1	J. Clay	Scobee Bros.	do	920	Dr	154	6	62	Oh		80	94	Sls	M				
27R1	M. Soats	K. Haffner	8- 6-59	910	Dr	86	4	41	Oh		40	20	Sls	M				
28P1	W. Rayfield	Ruark & Toney	1949	915	Dr	75	6	52	Oh		45	30	Sls	M				
34A1	N. Storm	F. Toney & Sons	1- 8-61	920	Dr	62	6	28	Oh		28	34	Sls, Ss	M				
34B1	S. Dove	do	1- 3-61	920	Dr	57	6	24	Oh		24	33	Sls, Ss	M				
35A1	Mr. Downs	Scobee Bros.	1918	830	Dr	89	6	39	Oh		35	54	Sls	M				
35U1	do	do	do	940	Dr	80			Oh		23	37	Sls	M				
16/47- 1P1	Town of Ranchdale	R. L. Scobee & Sons	1926	840	Dr	142	8	42	Oh		45	97	Ss	M				
1P2	do	Layno-Northern Co., Inc.	7-20-50	840	Dr	183	12	42	Oh		47	116	Sd-rh	M				
4G1	H. Dixon	Ruark & Toney	9-47	775	Dr	190	4	182	Oh		175	15	Sls	M				
5N1	H. Shannon	Scobee Bros.	1916	770	Dr	264	6	173	Oh		162	89	Ss	M				
8Q1	Ohio Oil Co.	C. Korsey	do	800	Dr	172	6	172	Oh		45	3	S, G	Pl				
10E1	H. Rusk	Holt Bros.	1952	830	Dr	43	4	45	S		60	49	Ss	M				
11C1	J. H. Blyden	R. L. Scobee & Sons	7- 1-60	835	Dr	109	7	63	Oh		140	60	Sh	M				
14A1	Ohio Oil Co.	Holt Bros.	1956	840	Dr	200	6	140	Oh		123	80	Sls?	M				
14C1	D. Harbison	R. L. Scobee & Sons	do	835	Dr	205	6		Oh					M				
14M1	R. Anderson	Holt Bros.	1955	820	Dr	43	4	43	S					Pl				
16K1	E. Beck	do	1950	820	Dr	93	4	93	S					Pl				
16N1	O. Hutchins	R. L. Scobee & Sons	1947	810	Dr	141	6	141	Oh		184	187	Sls	M				
18B1	J. Coaljin	Scobee Bros.	1018	760	Dr	371	6	188	Oh		77	9		Pl				
19A1	Mr. Bratton	Holt Bros.	1954	800	Dr	77	4	77	S					Pl				
19G1	J. Williams	do	1910	800	Dr	72	6	72	Oh					Pl				
19Q1	P. Grider	Holt Bros.	1956	825	Dr	92	4	92	S					Pl				
20R1	F. Wilson	R. L. Scobee & Sons	1947	830	Dr	220	6	189	Oh		182	58	Ss	M				
20S1	T. W. Carver	do	1947	920	Dr	188	6	188	Oh		152	48	Ss	M				
24C1	A. Madlin	Ruark & Toney	10-47	850	Dr	215	4	147	Oh		186	71	Sls	M				
25C1	R. Watson	R. L. Scobee & Sons	1941	880	Dr	215	4	147	Oh		140	97	Ss	M				
25D1	D. A. Pickel	Ruark & Toney	9-49	885	Dr	190	6	100	Oh		83	97	Sls	M				
28K1	H. Gough	R. L. Scobee & Sons	1947	920	Dr	105	6	75	Oh		88	37	Ss	M				
28P1	C. and K. Coffman	Ruark & Toney	1947	915	Dr	57	4	53	Oh		46	11	Sls	M				
33G1	S. Henderson	Ruark Well Drilling	6-28-60	820	Dr	35	6	25	Oh		20	15	Sls	M				

16/4W-33RL	F. Tate	Swisher & Swank	1956	845	Dr	80	4	60	Oh	60	5	Ls	M	C	---	N	La, A	
33K1	D. Hyton	Ruark & Toney	1946	850	Dr	185	6	156	Oh	156	15	Se	M	C	---	D	La	
34J1	E. Toney, Jr.	---do---	1947	880	Dr	241	9	150	Oh	150	35	S1B	M	C	---	D	L	
34L2	E. Coffman	Scobee Bros.	1919	900	Dr	209	6	109	Oh	153	88	S1B	Pl	C	30	D	L	
34M1	A. Shupe	Ruark & Toney	1947	840	Dr	213	8	140	Oh	120	83	S1B	M	C	7	S	L, A	
35G1	R. Young	---do---	8-47	800	Dr	65	4	65	Oh	65	---	S1B	M	C	P	---	L, A	
																		A; Well finished on top of rock (crovices?)
16/5W-	J. Goslin	Holt Bros.	1954	820	Dr	141	4	141	S	141	---	C	Pl	C	48	D	A; Screen, no. 25 slot	
1HL	C. Davies	R. L. Scobee & Sons	1944	760	Dr	49	6	11	Oh	11	39	S6	K	C	16	D	L, A; Screen, 2 ft of 3-3/4-10 dia, no. 40 slot; Dd 8 ft after 2 hr bailing at 7 gpm	
2HL	D. K. Sheets	Holt Bros.	4-11-50	820	Dr	122	4	122	S	122	2	G	Pl	C	73	D	La, A	
5P1	Mr. Jackson	R. L. Scobee & Sons	1949	820	Dr	45	6	45	Oh	45	---	G	Pl	C	15	D	La, A	
5G1	W. Stuart	Ruark & Toney	1947	820	Dr	82	6	44	Oh	44	38	La	M	---	---	D	La, A	
5K1	E. White	R. L. Scobee & Sons	1949	830	Dr	78	6	---	Oh	---	---	La	M	---	---	D	La, A	
5K2	O. Rivers	---do---	1949	820	Dr	80	6	38	Oh	38	24	La	M	---	---	D	La, A	
5K3	A. Gibson	Scobee Bros.	1915	830	Dr	53	6	38	Oh	37	16	La	M	C	20	De	La, A	
5L1	Marathon Oil Co.	Swisher & Swank	1956	825	Dr	47	4	39	Oh	39	8	La	M	---	---	D	La, A	
5M1	C. Keeney	---do---	---	825	Dr	42	4	40	Oh	40	10	La	M	C	30	D	Sulfur water	
5P1	Mr. Perry	---do---	1955	825	Dr	50	4	40	Oh	40	10	La	M	C	38	P	L; Dd 28 ft after 18 hr pumping at 150 gpm	
5Q1	Town of Russellville	Holt Bros.	8-57	825	Dr	150	10	67	Oh	67	---	---	M	C	150	P	La, A	
																		L, A; Dd 15 ft after 8 hr pumping at 5 gpm
5R1	E. Corran	Swisher & Swank	---	840	Dr	120	8	90	Oh	90	---	La	M	C	50	P	La, A	
5T1	---do---	Ruark & Toney	1948	840	Dr	135	6	58	Oh	58	17	La	M	C	20	I	L, A; Dd 15 ft after 8 hr pumping at 5 gpm	
7P1	J. Jordan	Holt Bros.	6-6-50	780	Dr	100	4	100	Oh	99	1	G	Pl	C	40	D, S	La, A	
																		A; Screen, 2 ft, no. 40 slot
11M1	L. Meyers	---do---	1957	780	Dr	72	4	72	S	72	---	S, G	Pl	C	38	D	A; Screen, no. 40 slot	
13M1	C. Borden	---do---	1956	770	Dr	60	4	60	S	49	---	S, G	Pl	C	48	D	A; Screen, no. 40 slot	
14Q1	C. Johnson	---do---	---	755	Dr	48	4	49	S	---	---	G	Pl	C	25	S	Screen, no. 60 slot	
17P1	R. Wilson	---do---	3-57	840	Dr	200	4	---	Oh	---	90	La	M	C	60	A	La, A	
19E1	F. Goff	---do---	3-57	795	Dr	142	4	---	Oh	---	110	La	M	C	60	A	La, A	
22E1	H. L. Gardner	Swisher & Toney	1947	710	Dr	161	4	132	Oh	132	38	Sh	M	C	30	D, S	La, A	

Table 4.--Selected well logs, Putnam County, Indiana

Remarks: T. D., total depth in feet, complete log
or sample log not given; W. B., water bearing

Well 12/3W-4N1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Drift-----	83	83	
Mississippian System:			
Meramec Series:			
Bluestone-----	2	85	
Limestone-----	12	97	W. B.

Well 12/3W-5A2

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	10	10	
Sand, muddy-----	10	20	
Shale, sandy-----	21	41	Sandy clay?
Mississippian System:			
Meramec Series:			
Limestone, creviced, white-----	2	43	W. B.
Limestone, brown-----	2	45	
Limestone, hard, brown-----	9	54	

Well 12/3W-5B1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay and sand-----	15	15	
Mississippian System:			
Meramec Series:			
Limestone, gray-----	20	35	W. B. at 34 to 35 ft
Limestone, brown-----	55	90	W. B. at 46 to 47 ft and 56 to 58 ft
Limestone, broken-----	5	95	
Limestone, gray-----	7	102	
Limestone, soft, white-----	2	104	W. B.

Well 12/3W-6A1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay and sand-----	12	12	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 12/3W-14R1

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

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Soil and mud-----	60	60	
Log-----	1.5	61.5	
Gravel, blue-----	1.5	63	W. B.

Well 12/4W-1A1

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

Quaternary System:			
Recent and Pleistocene Series:			
Soil and clay-----	14	14	
Clay, tough-----	21	35	
Clay, hard, gritty-----	28	63	W. B.
Mississippian System:			
Meramec Series:			
Limestone-----	27	90	W. B.
Limestone, white-----	58	148	
Limestone, gray-----	20	168	
Limestone, white-----	28	196	
Osage? Series:			
Limestone, soft, white-----	6	202	
Limestone, white-----	21	223	
Shale, blue-----	87	310	W. B.
Shale, very-hard, and siltstone--	100	410	

Well 12/4W-1H1

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

Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	15	15	
Pan-----	44	59	
Mississippian System:			
Meramec Series:			
Limestone-----	41	100	W. B.

Well 12/4W-5M1

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

Quaternary System:			
Recent and Pleistocene Series:			
Loam, sandy-----	6	6	
Clay, red-----	4	10	
Hardpan, gray-----	16	26	
Mississippian System:			
Meramec Series:			
Limestone, soft, blue-----	57	83	W. B. at 38 and 75 ft

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 12/4W-7K2

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, red-----	6	6	
Sand, dirty, red-----	24	30	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone, soft, crumbly, brown--	38	68	
Sandstone, gray-----	60	128	
Sandstone, trace of coal-----	2	130	
Mississippian System:			
Chester Series:			
Sandstone and soft limestone----	23	153	W. B. between soft limestone and sandstone at approximately 145 ft.

Well 12/4W-7R1

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

Fill dirt-----	5	5	
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	20	25	
Clay, gray, and grit-----	25	50	
Sand, hard-packed, red-----	20	70	
Clay, blue-----	15	85	
Gumbo, brown-----	35	120	
Gumbo, blue-----	26	146	
Mississippian? System:			
Chester? Series:			
Sandstone-----	8	154	W. B.

Well 12/4W-16A1

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

Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	35	35	
Mississippian System:			
Chester? Series:			
Shale-----	10	45	
Rock and dirt-----	10	55	Solution zone?
Meramec? Series:			
Limestone-----	43	98	W. B.
Stone, sandy, brown-----	1	99	Sandstone?

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 12/5W-3A1

Type of record: Driller's log.

Altitude: About 730 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	19	19	
Softpan-----	16	35	
Pennsylvanian System:			
Lower? Pennsylvanian Series:			
Shale, soft, blue-----	15	50	
Mississippian System:			
Chester? Series:			
Clay, yellow-----	1	51	
Sandstone, brown-----	7	58	Dry
Sandstone, gray-----	7	65	Dry
Shale, gray-----	6	71	
Limestone-----	6	77	
Meramec? Series:			
Shale, limy, gray-----	25	102	
Limestone-----	66	168	W. B.

Well 12/5W-7R1

Type of record: Driller's log.

Altitude: About 595 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	14	14	
Wash-----	34	48	
Sand, gravel, and yellow wash----	2	50	W. B.

Well 12/5W-9L1

Type of record: Driller's log.

Altitude: About 610 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	20	20	
Hardpan-----	16	36	
Mississippian System:			
Chester? Series:			
Shale, soft, blue-----	5	41	
Shale, limy, soft, light-----	17	58	
Meramec Series:			
Limestone-----	44.5	102.5	

Well 12/5W-13P1

Type of record: Driller's log.

Altitude: About 780 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Surface and pan-----	15	15	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 12/5W-13P1--Continued

Material	Thick- ness (feet)	Depth (feet)	Remarks
Pennsylvanian System:			
Lower? Pennsylvanian Series:			
Sandstone, brown-----	50	65	
Mississippian System:			
Chester? Series:			
Shale, sandy, gray-----	94	159	
Meramec Series:			
Limestone-----	47	206	W. B.

Well 12/5W-14A2

Type of record: Driller's log.		Altitude: About 650 feet.	
Quaternary System:			
Recent and Pleistocene Series:			
Clay, red-----	6	6	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone, shelly, broken-----	4	10	
Mississippian System:			
Chester? Series:			
Limestone, white-----	26	36	
Meramec Series:			
Limestone, white and blue-----	60	96	W. B. at 78 ft in blue limestone.

Well 13/3W-8H1

Type of record: Driller's log.		Altitude: About 880 feet.	
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	2	2	
Clay, red-----	6	8	
Hardpan, sandy, gray-----	20	28	
Mississippian System:			
Meramec Series:			
Stone, soft, blue-gray-----	20	48	W. B.; limestone?

Well 13/3W-12N1

Type of record: Driller's log.		Altitude: About 800 feet.	
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	22	22	
Clay, gray-----	21	43	
Sand, fine, dirty-----	2	45	W. B.
Clay, gray, and hardpan-----	23	68	
Gravel-----	--	68	W. B.

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 13/3W-12Q1

Type of record: Driller's log.

Altitude: About 800 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	25	25	
Mississippian System:			
Meramec? Series:			
Limestone, gray-----	3	28	
Osage Series:			
Limestone and bluestone-----	29	57	W. B.

Well 13/3W-24L1

Type of record: Driller's log.

Altitude: About 785 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, red-----	8	8	
Silt, sandy-----	22	30	W. B.
Hardpan-----	11	41	Dry
Mississippian System:			
Osage Series:			
Bluestone, soft, with sand content-----	64	105	W. B. at 72 ft

Well 13/3W-27H1

Type of record: Driller's log.

Altitude: About 815 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	11	11	
Mississippian System:			
Meramec Series:			
Limestone, gray-----	109	120	
Limestone, blue-----	13	133	W. B.

Well 13/3W-31L2

Type of record: Driller's log.

Altitude: About 780 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	37	37	
Mississippian System:			
Chester? Series:			
Stone, yellow to brown-----	8	45	
Meramec Series:			
Stone, white and blue-----	35	80	
Limestone, dark-----	10	90	W. B.
Limestone, dark-----	60	150	
Limestone, black-----	10	160	W. B.; oil in last 10 ft; smells gassy, water tastes alright.

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 13/4W-1Q1

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

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Dirt-----	30	30	
Sand and gravel-----	10	40	
Mississippian System:			
Meramec Series:			
Limestone, white-----	25	65	
Bluestone-----	10	75	
Limestone, white-----	15	90	W. B.

Well 13/4W-2E1

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

Quaternary System:			
Recent and Pleistocene Series:			
Dirt-----	40	40	
Sand and gravel-----	15	55	
Mud, red-----	15	70	
Mississippian System:			
Meramec Series:			
Limestone-----	15	85	W. B. at 73 ft

Well 13/4W-9N1

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

Quaternary System:			
Recent and Pleistocene Series:			
Drift-----	14	14	
Mississippian System:			
Meramec Series:			
Limestone-----	141	155	
Osage Series:			
Bluestone-----	95	250	W. B.

Well 13/4W-11B1

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

Record missing-----	20	20	
Mississippian System:			
Meramec Series:			
Limestone, white-----	98	118	W. B. at 118 ft
Osage(?) Series:			
Limestone, gray-----	74	192	
Stone, bluish-gray-----	258	450	W. B. at 352 ft

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 13/4W-11E1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	5	5	
Hardpan-----	15	20	
Mississippian System:			
Meramec Series:			
Limestone, white-----	10	30	
Limestone, gray-----	40	70	W. B. at 38 ft

Well 13/4W-11F1

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

Quaternary System:			
Recent and Pleistocene Series:			
Dirt-----	7	7	
Mississippian System:			
Meramec Series:			
Limestone, hard-----	168	175	
Osage Series:			
Limestone, soft-----	20	195	
Shale, hard, blue-----	305	500	W. B.?

Well 13/4W-12D1

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

Quaternary System:			
Recent and Pleistocene Series:			
Dirt-----	32.5	32.5	
Mississippian System:			
Meramec Series:			
Limestone-----	25.5	58	
Gravel-----	4	62	W. B.; solution cavity?

Well 13/4W-14J1

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

Quaternary System:			
Recent and Pleistocene Series:			
Loam and clay-----	5	5	
Mississippian System:			
Meramec Series:			
Limestone, shelly, broken-----	11	16	
Limestone, white-----	24	40	
Limestone, softer, white and gray-----	33	73	W. B. at 40 and 65 ft

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 13/4W-20C1

Type of record: Driller's log. Altitude: About 630 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, sandy, gravelly-----	6	6	
Sand and gravel-----	19	25	W. B.
Sand, gravel, and clay-----	3.5	28.5	W. B.
Mississippian System:			
Meramec Series:			
Limestone-----	4.5	33	

Well 13/4W-20C3

Type of record: Driller's log. Altitude: About 627 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, sandy-----	6	6	
Sand, gravel, and some clay-----	15	21	W. B.
Clay, gravelly-----	5	26	
Mississippian System:			
Meramec Series:			
Limestone-----	2	28	

Well 13/4W-20D1

Type of record: Driller's log. Altitude: About 628 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, sandy-----	6	6	
Sand and gravel-----	15	21	W. B.
Clay-----	9	30	

Well 13/4W-20D3

Type of record: Driller's log. Altitude: About 627 feet.

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	6	6	
Clay, gravelly-----	4	10	
Sand and gravel-----	17	27	W. B.
Clay, gravelly-----	4	31	
Mississippian System:			
Meramec Series:			
Limestone-----	2	33	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 13/4W-34R1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	18	18	
Clay, blue-----	9	27	
Sand and blue clay-----	8	35	
Clay, blue-----	27	62	
Clay, yellow-----	6	68	
Clay, blue-----	12	80	
Mississippian System:			
Meramec Series:			
Limestone-----	7	87	W. B.

Well 13/4W-36J1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	13	13	
Limestone-----	4	17	Boulder?
Mud, clayey-----	5	22	
Mississippian System:			
Chester? Series:			
Bluestone; mixed with limestone--	26	48	W. B.

Well 13/4W-36J2

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Dirt-----	29	29	
Sand and gravel-----	26	55	
Mississippian System:			
Meramec Series:			
Limestone-----	15	70	W. B.

Well 13/4W-36J4

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface and pan-----	9	9	
Mississippian System:			
Meramec Series:			
Limestone-----	13	22	
Silt, soft, brown-----	1.5	23.5	W. B. at 22 ft; solution cavity
Limestone-----	14.5	38	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 13/4W-36J8

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	3	3	
Clay, red-----	8	11	
Hardpan, gray-----	17	28	
Sand, dirty, brown-----	10	38	
Mississippian System:			
Meramec Series:			
Limestone, gray-----	20	58	
Limestone, gray, and white soft limestone; mixed-----	13	71	W. B. at 60 ft

Well 13/5W-1A1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, red-----	9	9	
Mississippian System:			
Meramec Series:			
Limestone, hard, broken with crevices-----	7	16	
Limestone, white-----	15	31	
Limestone, gray-----	29	60	
Limestone, blue-gray-----	10	70	W. B. at 60 or 62 ft

Well 13/5W-1H2

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Dirt-----	18	18	
Mississippian System:			
Chester? Series:			
Sandstone-----	29	47	
Gravel-----	3	50	W. B.; con- glomerate?

Well 13/5W-1H3

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Dirt-----	22	22	
Mississippian System:			
Chester? Series:			
Sandstone-----	23	45	
Shale-----	15	60	W. B.

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 13/5W-19J1

Type of record: Driller's log.

Altitude: About 630 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	3	3	
Clay, yellow-----	4	7	
Hardpan-----	42	49	
Mississippian System:			
Meramec Series:			
Limestone, white-----	12	61	
Limestone, soft, gray, and brown sandstone; mixed-----	39	100	W. B. at 82 ft

Well 13/5W-20H1

Type of record: Driller's log.

Altitude: About 615 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	15	15	
Mississippian System:			
Meramec Series:			
Limestone, white-----	25	40	
Limestone, gray-----	20	60	W. B.

Well 13/5W-20J2

Type of record: Driller's log.

Altitude: About 605 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface soil and sand-----	10	10	
Wash, clayey, dark-----	14	24	
Gravel-----	1	25	W. B.
Wash, dark-----	1	26	
Sand and gravel, gray-----	6	32	W. B.
Sand and gravel, coarse-grained--	4	36	W. B.

Well 13/5W-20K1

Type of record: Driller's log.

Altitude: About 605 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	17	17	
Pan and gravel-----	13	30	
Mississippian System:			
Meramec Series:			
Limestone-----	--	30	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 13/5W-20P1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	2	2	
Clay, sandy-----	12	14	
Gravel, medium, and sandstone slab-----	41	55	W. B.
Sand, medium-----	10.5	65.5	W. B.
Mississippian System:			
Meramec Series:			
Limestone-----	--	65.5	

Well 13/5W-20Q1

Type of record: Driller's log. Altitude: About 612 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	15	15	
Gravel, yellow-----	4	19	W. B.
Softpan-----	2	21	
Gravel, gray-----	39	60	W. B.
Mississippian System:			
Meramec Series:			
Limestone-----	--	60	

Well 13/5W-20Q2

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	2	2	
Clay, sandy-----	10	12	
Gravel, medium, and sand-----	14	26	W. B. 18 to 56 ft
Gravel, sand, and limestone-----	4	30	
Gravel, medium, and sand-----	26	56	
Mississippian System:			
Meramec Series:			
Limestone-----	--	56	

Well 13/5W-21B1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	16	16	
Hardpan-----	7	23	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 13/5W-21K1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	17	17	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone, brown-----	25	42	
Mississippian System:			
Chester Series:			
Shale, limy, soft-----	1	43	
Shale, limy-----	15	58	
Limestone and shale bands-----	10	68	
Sandstone and shale bands-----	7	75	W. B.
Shale, dark-----	1	76	

Well 13/5W-22M1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	18	18	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Slate, soft, blue-----	4	22	
Coal, trace-----	--	22	
Fire clay-----	3	25	
White top-----	5	30	
Mississippian System:			
Chester? Series:			
Shale, light-gray-----	11	41	
Shale, gray-----	39	80	
Meramec Series:			
Limestone-----	12	92	

Well 13/5W-23B1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	8	8	
Sand-----	18	26	
Hardpan-----	24	50	
Gravel-----	17	67	W. B.

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 13/5W-23P1

Type of record: Driller's log.

Altitude: About 665 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	15	15	
Sand, dirty, yellow-----	32	47	
Hardpan-----	26	73	
Sand and gravel-----	44	117	W. B.

Well 13/5W-24C1

Type of record: Driller's log.

Altitude: About 680 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	15	15	
Softpan-----	27	42	
Mississippian System:			
Meramec Series:			
Limestone-----	15	57	W. B.

Well 13/5W-24D1

Type of record: Driller's log.

Altitude: About 680 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	10	10	
Mississippian System:			
Meramec Series:			
Rock, broken-----	12	22	W. B.; lime- stone?
Limestone, hard-----	23	45	

Well 13/5W-24E1

Type of record: Driller's log.

Altitude: About 670 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	23	23	
Mississippian System:			
Meramec Series:			
Limestone-----	27	50	
Cave, muddy, soft-----	2	52	W. B.
Limestone-----	83	135	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 13/5W-24M1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	8	8	
Sand-----	27	35	W. B.
Gravel-----	3	38	W. B.
Mississippian System:			
Meramec Series:			
Limestone-----	9	47	

Well 13/5W-29C1

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

Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel-----	20	20	W. B. 16 to 50.5 ft
Gravel, medium, and sand-----	24	44	
Sand, coarse, gravel, and boulders-----	6.5	50.5	
Mississippian System:			
Meramec Series:			
Limestone-----	--	50.5	

Well 13/5W-29C2

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

Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	2	2	W. B. 16 to 62 ft
Sand, medium, and gravel-----	18	20	
Sand, coarse, gravel, and boulders-----	42	62	
Mississippian System:			
Meramec Series:			
Limestone-----	--	62	

Well 13/5W-31K1

Type of record: Driller's log. Altitude: About 675 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	15	15	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Shale, soft, gray-----	10	25	
Clay-----	5	30	
Shale, gray-----	17	47	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 14/3W-16P2

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Loam, sandy-----	11	11	
Hardpan, gray-----	17	28	
Sand, dirty-----	22	50	
Mississippian System:			
Meramec Series:			
Sandstone, soft-----	4	54	
Limestone, gray-----	28	80	
Osage? Series:			
Limestone, blue-gray-----	10	90	W. B. at 82 ft

Well 14/3W-17K1

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

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	25	25	
Clay, gray, with streaks of hardpan-----	60	85	
Clay, yellow-----	3	88	
Mississippian System:			
Osage Series:			
Bluestone-----	12	100	W. B.

Well 14/3W-17K2

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

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	40	40	
Clay, gray-----	50	90	
Mississippian System:			
Osage Series:			
Bluestone with streaks of limestone-----	10	100	W. B.

Well 14/3W-34G1

Type of record: Driller's log. Altitude: About 830 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	8	8	
Silt-----	12	20	
Hardpan, gray-----	42	62	
Mississippian System:			
Meramec? Series:			
Limestone, gray-----	11	73	W. B. at 65 ft

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 14/3W-36N1

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

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Dirt-----	27	27	
Mississippian System:			
Meramec Series:			
Limestone, white-----	8	35	
Limestone, blue-----	28	63	W. B.

Well 14/4W-9F1

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

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil and sand-----	4	4	
Sand, coarse, gravel, and boulders-----	12	16	W. B. 8 to 54 ft
Sand, medium, and gravel-----	9	25	
Sand, coarse, and medium gravel--	10	35	
Sand, medium, and gravel-----	19	54	
Mississippian System:			
Osage Series:			
Shale, sandy, blue-----	1.5	55.5	

Well 14/4W-9M2

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

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	2	2	
Sand and clay-----	6	8	
Gravel, coarse, and sand-----	8	16	W. B. 12 to 54 ft
Sand, medium, and gravel-----	38	54	
Mississippian System:			
Osage Series:			
Shale, green-----	--	54	

Well 14/4W-9M6

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

Material	Thick-ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Sand-----	11	11	
Sand and rocks-----	4	15	W. B. 12 to 54 ft
Gravel, dirty-----	15	30	
Gravel, yellow-----	5	35	
Gravel, blue-----	19	54	
Mississippian System:			
Osage Series:			
Shale-----	.5	54.5	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 14/4W-12P1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	18	18	
Clay, gray-----	6	24	
Mississippian System:			
Meramec Series:			
Limestone-----	26	50	W. B.

Well 14/4W-14D1

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

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	20	20	
Muck, gray-----	23	43	
Mississippian System:			
Meramec Series:			
Limestone, shelly, gray-----	3	46	
Osage? Series:			
Limestone, gray, with a trace of bluestone-----	11	57	W. B.

Well 14/4W-15E2

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

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	25	25	
Clay, gray-----	9	34	
Mississippian System:			
Meramec Series:			
Limestone, gray-----	16	50	W. B.

Well 14/4W-17A1

Type of record: Driller's log. Altitude: About 675 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Sand and gravel-----	37	37	
Mississippian System:			
Meramec Series:			
Limestone, hard, white-----	33	70	
Slate, blue-----	4	74	
Limestone, dark-----	22	96	
Limestone, sandy, blue-----	42	138	
Shale, blue-----	24	162	T. D. 1,987 ft

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 14/4W-19C1

Type of record: Driller's log.

Altitude: About 745 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	14	14	
Pan-----	40	54	
Drift-----	4	58	
Pan-----	10	68	
Mississippian System:			
Meramec Series:			
Shale, limy-----	3	71	
Limestone-----	1	72	W. B.

Well 14/4W-21A1

Type of record: Driller's log.

Altitude: About 865 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Drift-----	45	45	
Mississippian System:			
Meramec Series:			
Limestone-----	130	175	W. B.
Osage Series:			
Bluestone-----	25	200	
Limestone-----	2	202	
Bluestone-----	198	400	

Well 14/4W-21R1

Type of record: Driller's log.

Altitude: About 840 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	32	32	
Mississippian System:			
Meramec Series:			
Limestone-----	60	92	
Shale, limy, gray-----	2	94	
Limestone-----	16	110	
Shale, limy, gray-----	10	120	
Limestone-----	12	132	
Shale, limy, gray-----	8	140	
Limestone-----	120	260	
Osage? Series:			
Shale, sandy, gray-----	3	263	
Sandstone, gray-----	6	269	
Shale, sandy, gray-----	621	890	T. D. 1,128 ft

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 14/4W-24H1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	3	3	
Hardpan-----	68	71	
Clay, gummy, yellowish-red-----	5	76	
Mississippian System:			
Meramec Series:			
Bluestone, sandy, soft-----	8	84	
Limestone, blue-gray-----	42	126	W. B.

Well 14/4W-25Q2

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Dirt-----	20	20	
Sand-----	20	40	
Sand and gravel-----	25	65	
Clay, red-----	7	72	
Mississippian System:			
Osage? Series:			
Bluestone-----	26	98	W. B.

Well 14/4W-27L1

Type of record: Driller's log. Altitude: About 830 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	18	18	
Clay, gray-----	22	40	
Mississippian System:			
Meramec Series:			
Limestone, gray-----	24	64	W. B.

Well 14/4W-27P1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, red-----	8	8	
Hardpan, gray-----	12	20	
Mississippian System:			
Meramec Series:			
Limestone, soft, gray-----	20	40	W. B. at 32 ft

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 14/4W-30R1

Type of record: Driller's log. Altitude: About 735 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System: Recent and Pleistocene Series: Clay, yellow-----	32	32	
Mississippian System: Meramec Series: Limestone, gray, with cracks and crevices, with a trace of clay-----	18	50	W. B.

Well 14/4W-34B1

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

Quaternary System: Recent and Pleistocene Series: Drift-----	78	78	
Mississippian System: Meramec Series: Limestone-----	72	150	W. B.
Osage Series: Sandstone and limestone-----	25	175	W. B.

Well 14/4W-34R2

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

Quaternary System: Recent and Pleistocene Series: Dirt-----	20	20	
Mud, blue-----	15	35	
Gravel-----	7	42	
Mississippian System: Meramec Series: Limestone-----	14	56	W. B.

Well 14/5W-12B1

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

Quaternary System: Recent and Pleistocene Series: Dirt-----	20	20	
Mud, blue-----	30	50	
Mississippian System: Meramec Series: Limestone-----	12	62	W. B.

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 14/5W-20E1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Drift-----	22	22	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone-----	24	46	
Bluestone-----	17	63	W. B.

Well 14/5W-31B1

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

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	20	20	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone, brown-----	12	32	
Sandstone, white-----	20	52	
Sandstone, coral-----	12	64	
Sandstone, brown-----	12	76	
Sandstone, dark-brown-----	8	84	
Shale-----	28	112	
Shale, black-----	8	120	

Well 14/5W-31G1

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

Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	7	7	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone-----	9	16	
Shale, sandy-----	6	22	
Shale, dark-gray-----	42	64	
Sandstone-----	1.5	65.5	
Shale, sandy, light-gray-----	20.5	86	
Mississippian System:			
Meramec Series:			
Limestone-----	1	87	

Well 14/5W-31H2

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

Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	4	4	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 14/5W-31H2--Continued

Material	Thick- ness (feet)	Depth (feet)	Remarks
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone-----	4	8	
Shale, sandy, gray-----	77	85	
Mississippian System:			
Meramec Series:			
Limestone-----	2	87	
Shale, gray-----	3	90	
Limestone-----	43	133	W. B.

Well 14/5W-34M1

Type of record: Driller's log.		Altitude: About 690 feet.	
Quaternary System:			
Recent and Pleistocene Series:			
Surface-----	32	32	
Pennsylvanian System:			
Lower? Series:			
Sandstone-----	28	60	
Mississippian System:			
Meramec Series:			
Limestone-----	74	134	W. B.

Well 14/5W-34M2

Type of record: Driller's log.		Altitude: About 705 feet.	
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	12	12	
Sand, yellow-----	1	13	
Clay, gray, and hardpan-----	33	46	
Mississippian System:			
Meramec Series:			
Limestone, gray-----	5	51	
Mud seam-----	11	62	
Shale, soft, muddy, blue-----	12	74	
Limestone, gray-----	51	125	W. B.

Well 14/5W-35R1

Type of record: Driller's log.		Altitude: About 720 feet.	
Quaternary System:			
Recent and Pleistocene Series:			
Drift-----	24	24	
Mississippian System:			
Meramec Series:			
Limestone ledges and mud seams---	26	50	
Limestone, solid-----	174	224	W. B.

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 15/3W-2P1

Type of record: Driller's log. Altitude: About 875 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	3	3	
Clay, yellow-----	8	11	
Hardpan-----	111	122	
Sand-----	26	148	W. B.
Mississippian System:			
Osage Series:			
Bluestone-----	22	170	W. B. at 160 ft

Well 15/3W-9M1

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

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	23	23	
Clay, gray, and hardpan-----	107	130	
Mud, sandy, gray-----	20	150	
Clay, sandy, gray-----	20	170	
Sand, muddy-----	8	178	
Mississippian System:			
Osage Series:			
Bluestone-----	17	195	W. B.

Well 15/3W-22B1

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

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	18	18	
Clay, gray-----	19	37	
Mississippian System:			
Osage Series:			
Bluestone-----	28	65	W. B.

Well 15/3W-29M1

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

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	8	8	
Gravel, yellow, mixed with clay--	10	18	
Hardpan, gray-----	3	21	
Sand and gravel, gray-----	1	22	W. B.

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 15/3W-31J1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	23	23	
Clay, gray-----	24	47	
Limestone, gray-----	3	50	Boulder?
Clay, sandy, yellow-----	10	60	
Clay, gray, and hardpan-----	52	112	
Sand, fine, dirty, gray-----	1	113	
Mississippian System:			
Osage Series:			
Bluestone-----	37	150	W. B.

Well 15/3W-33P2

Type of record: Driller's log. Altitude: About 910 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	8	8	
Mississippian System:			
Osage Series:			
Limestone, gray-----	19	27	
Limestone, gray, with bluestone--	48	75	
Sandstone, yellow, with bluestone-----	5	80	W. B. at 80 ft
Limestone, gray and blue-----	12	92	
Shale, blue-----	12	104	
Bluestone-----	86	190	
Bluestone, hard, dark-----	15	205	W. B.
Bluestone-----	185	390	
Bluestone, hard, dark, with a trace of shale-----	25	415	

Well 15/4W-2J1

Type of record: Driller's log. Altitude: About 950 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	15	15	
Clay, gray-----	47	62	
Mississippian System:			
Osage Series:			
Limestone with bluestone-----	12	74	
Limestone, gray-----	11	85	W. B.

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 15/4W-10N1

Type of record: Driller's log. Altitude: About 950 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Drift-----	25	25	
Mississippian System:			
Osage Series:			
Limestone, hard-----	15	40	
Sandstone, honey-combed-----	20	60	W. B.
Bluestone-----	--	60	

Well 15/4W-11A2

Type of record: Driller's log. Altitude: About 910 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Drift-----	97	97	
Mississippian System:			
Osage Series:			
Limestone-----	1	98	
Bluestone-----	88	186	W. B.

Well 15/4W-11A4

Type of record: Driller's log. Altitude: About 930 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	10	10	
Clay, gray-----	13	23	
Muck, sandy, gray-----	25	48	
Hardpan, mixed streaks of yellow and gray-----	11	59	
Record missing-----	25	84	
Mississippian System:			
Osage Series:			
Limestone, gray-----	14	98	
Sandstone, yellow-----	3	101	W. B.
Limestone-----	11	112	
Bluestone-----	18	130	
Shale, blue-----	2	132	
Limestone, speckled blue and white-----	3	135	
Bluestone-----	37	172	
Sandstone, hard, blue-----	4	176	
Bluestone-----	24	200	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 15/4W-11H1

Type of record: Driller's log. Altitude: About 920 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Subsoil-----	10	10	
Hardpan-----	26	36	
Sand-----	7	43	
Hardpan-----	36	79	
Sand-----	1	80	
Mississippian System:			
Osage Series:			
Limestone-----	30	110	W. B.
Sandstone, blue-----	35.5	145.5	W. B.

Well 15/4W-12A1

Type of record: Driller's log. Altitude: About 900 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	15	15	
Clay, gray-----	45	60	
Hardpan, gray-----	20	80	
Sand, gray, and gravel-----	2	82	W. B.

Well 15/4W-12C1

Type of record: Driller's log. Altitude: About 905 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	7	7	
Clay, gray-----	25	32	
Mississippian System:			
Osage? Series:			
Limestone, gray-----	10	42	W. B.

Well 15/4W-17H1

Type of record: Driller's log. Altitude: About 910 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Drift-----	45	45	
Mississippian System:			
Meramec Series:			
Limestone ledges and mud-----	67	112	
Osage Series:			
Sandstone, shaly, blue-----	18	130	W. B.

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 15/4W-20J1

Type of record: Driller's log. Altitude: About 870 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	20	20	W. B.
Clay, gray-----	19	39	
Sand-----	1	40	
Clay, gray-----	50	90	
Mississippian System:			
Meramec Series:			
Limestone-----	3	93	W. B.
Clay-----	2	95	
Limestone-----	15	110	

Well 15/4W-26J1

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

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	17	17	W. B.
Clay, gray-----	63	80	
Sand and gravel, dirty-----	2	82	
Gravel, clean-----	2	84	

Well 15/5W-19H1

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

Quaternary System:			
Recent and Pleistocene Series:			
Gravel and sand-----	32	32	Gravelly clay?
Grit, gray-----	20	52	
Mud-----	6	58	
Pennsylvanian System:			
Lower Pennsylvanian Series:			
Sandstone, hard, bright-red-----	31	89	
Rock and shale-----	11	100	
Black borings (coal or black shale)-----	3	103	
Shale-----	1	104	

Well 15/5W-34K1

Type of record: Driller's log. Altitude: About 735 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	25	25	
Clay, gray-----	25	50	
Hardpan-----	8	58	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 15/5W-34K1--Continued

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System: Recent and Pleistocene Series: Limestone, shelly, mixed with hardpan and sand-----	4	62	W. B., limestone boulders?
Mississippian System: Meramec Series: Limestone-----	98	160	Dry

Well 16/3W-10Q1

Type of record: Driller's log. Altitude: About 905 feet.

Quaternary System: Recent and Pleistocene Series: Top soil-----	3	3	
Hardpan, gray-----	87	90	
Sand-----	18	108	
Mississippian System: Osage Series: Sandstone, blue-----	44	152	W. B.

Well 16/3W-13N1

Type of record: Driller's log. Altitude: About 920 feet.

Quaternary System: Recent and Pleistocene Series: Clay, gray-----	120	120	
Sand, trace-----	---	120	
Clay, gray-----	40	160	
Mississippian System: Osage Series: Sandstone, brown-----	14	174	
Sandstone, blue-----	44	218	W. B.

Well 16/3W-14A2

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

Quaternary System: Recent and Pleistocene Series: Clay, silty, moist, compact, brown-----	8	8	
Sand, fine, moist, with brown moist clay-----	7	15	
Sand, moist, with brown wet clay--	5	20	
Sand, moist, with gray wet clay--	20	40	

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 16/3W-15B1

Type of record: Driller's log.

Altitude: About 905 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	3	3	
Hardpan, gray-----	50	53	
Mississippian System:			
Osage Series:			
Sandstone, blue-----	92	145	W. B.

Well 16/3W-16M1

Type of record: Driller's log.

Altitude: About 885 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	2	2	
Clay, yellow and gray-----	128	130	
Sand and clay streaks-----	11	141	W. B.

Well 16/3W-20F1

Type of record: Driller's log.

Altitude: About 880 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	3	3	
Clay, yellow-----	7	10	
Hardpan, gray-----	31	41	
Sand, dirty-----	15	56	Dry
Sand-----	6	62	W. B.
Mississippian System:			
Osage Series:			
Bluestone, soft, with streaks of gray sandstone-----	78	140	W. B. at 100 ft

Well 16/3W-34B1

Type of record: Driller's log.

Altitude: About 925 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	2	2	
Clay, yellow-----	6	8	
Hardpan-----	16	24	
Mississippian System:			
Osage Series:			
Bluestone with streaks of sandstone-----	33	57	W. B. at 42 ft

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 16/4W-1P2

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Soil and clay-----	16	16	
Gravel, fine-----	2	18	
Clay-----	18	36	
Mississippian System:			
Osage Series:			
Shale-----	8	44	
Limestone-----	3	47	
Shale, sandy-----	116	163	W. B.

Well 16/4W-33G1

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

Quaternary System:			
Recent and Pleistocene Series:			
Clay, very-sandy, yellow-----	8	8	
Muck, gray-----	5	13	
Mississippian System:			
Osage Series:			
Bluestone-----	2	15	
Muck, gray-----	5	20	
Bluestone-----	15	35	W. B.

Well 16/4W-33H1

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

Quaternary System:			
Recent and Pleistocene Series:			
Hardpan-----	60	60	
Mississippian System:			
Osage Series:			
Limestone-----	5	65	W. B.
Sandstone-----	15	80	W. B.

Well 16/4W-34J1

Type of record: Driller's log. Altitude: About 890 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Drift-----	49	49	
Limestone-----	3	52	Boulder?
Dirt, mucky-----	103	155	
Mississippian System:			
Osage Series:			
Bluestone-----	86	241	W. B.

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 16/4W-34N1

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

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Drift-----	117	117	
Mississippian System:			
Osage Series:			
Limestone-----	3	120	
Bluestone-----	93	213	W. B.

Well 16/5W-2H1

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

Quaternary System:			
Recent and Pleistocene Series:			
Top soil-----	6	6	
Clay, yellow-----	8	14	
Hardpan, sandy-----	16	30	
Sand and gravel-----	8	38	Dry
Hardpan, sandy-----	82	120	
Gravel, gray-----	2	122	W. B.

Well 16/5W-5Q1

Type of record: Driller's log. Altitude: About 835 feet.

Quaternary System:			
Recent and Pleistocene Series:			
Clay-----	65	65	
Mississippian System:			
Meramec? Series:			
Limestone-----	50	115	
Osage Series:			
Shale-----	35	150	

Well 16/5W-5R1

Quaternary System:			
Recent and Pleistocene Series:			
Drift-----	58	58	
Mississippian System:			
Meramec Series:			
Limestone, hard-----	60	118	
Osage? Series:			
Limestone, soft-----	17	135	W. B.

Table 4.--Selected well logs, Putnam County, Indiana--Continued

Well 16/5W-7F1

Type of record: Driller's log.

Altitude: About 790 feet.

Material	Thick- ness (feet)	Depth (feet)	Remarks
Quaternary System:			
Recent and Pleistocene Series:			
Clay, yellow-----	16	16	
Clay, gray, hardpan and sand-----	8	24	
Sand-----	1	25	
Clay, gray, and hardpan-----	15	40	
Hardpan, sandy, yellow-----	3	43	
Hardpan, sandy, gray-----	7	50	
Mud and sand-----	10	60	
Hardpan, sandy, gray-----	39	99	
Gravel-----	1	100	W. B.

Table 5. --Field chemical analyses of water from wells, Putnam County, Indiana

(Results in parts per million)

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

Geologic age: P1, Pleistocene; P, Pennsylvanian; M, Mississippian.

Material: G, Gravel; Ls, limestone; S, sand; Sh, shale; Sh-ss, shaly sandstone; Sls, siltstone; Ss, sandstone.

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
12/3W-3D1	G	P1	1-11-60	56	1.2	381	10	14	228	
3N1	Ls	M	2-21-61	52	4.0	512	19	10	384	
4N1	Ls	M	1-11-60	56	1.5	439	12	12	316	
5A1	Ls	M	1-11-60	54	3.0	444	11	10	312	
5J1	Ls	M	1-11-60	54	.5	508	13	18	388	
6P1	Ls	M	2-21-61	--	.1	346	55	62	376	
10R1	S,G	P1	2-21-61	--	.5	376	18	8	296	
13A1	Ls	M	1-11-60	54	.2	342	31	22	312	
14R1	G	P1	1-14-60	54	.1	405	22	12	364	
12/4W-5M1	Ls	M	2-21-61	--	.1	283	150	12	356	
10A1	Ls	M	1-11-60	55	1.3	342	10	4	220	
10A2	G	P1	1-11-60	56	1.5	351	6	6	212	
10N1	Ls	M	2-21-61	--	.5	488	38	16	424	
12M1	Ls	M	1-11-60	54	.5	356	110	46	420	
16A1	Ls	M	1-11-60	54	1.0	454	46	14	368	
12/5W-3A1	Ls	M	5-28-58	--	.2	346	---	2	256	
3G1	Ls	M	3-28-60	52	1.0	429	15	14	308	
7R1	S,G	P1	2-21-61	52	3.0	327	12	8	236	
13P1	Ls	M	11-16-60	56	1.0	327	34	10	292	
15M1	Ss,Sh	M	3-28-60	55	1.5	78	55	206	184	
13/2W-7J1	Ls	M	1-12-60	54	4.0	488	12	18	292	
13/3W-2D1	Ls,Sls	M	2-22-61	--	3.0	517	17	12	424	
2H1	Ls	M	1-12-60	53	4.0	512	13	20	396	
8H1	Ls?	M	4-20-61	57	5.0	395	10	8	292	
9F1	Ls	M	2-22-61	56	5.0	495	13	4	344	

Table 5.--Field chemical analyses of water from wells, Putnam County, Indiana--Continued

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)	Remarks
13/3W-10M1	Ls	M	1-12-60	55	5.0	468	9	6	312	
11G1	Ls	M	2-22-61	--	3.0	468	13	4	332	
12M1	S1s	M	1-13-60	56	.3	517	20	8	392	
12N1	G	P1	2-22-61	54	>7.5	512	12	8	384	
12Q1	Ls,S1s	M	2-22-61	--	.5	351	20	8	296	
13D1	Ss	M	1- -60	--	5.0	434	45	14	336	
13D2	S1s	M	1-14-60	55	2.0	473	7	6	252	
18Q1	Ls	M	1-13-60	52	---	395	36	12	352	Silty
19A1	Ls	M	3- 8-61	54	.1	454	11	12	364	
21M1	Ls	M	4-20-61	54	.1	420	18	10	352	
22P1	G	P1	1-14-60	58	5.0	439	8	4	320	
24E1	S1s	M	6- 3-58	54	2.5	527	--	4	336	
24L1	S1s	M	2-22-61	--	.5	468	9	10	304	
25K1	Ss	M	1-13-60	54	.8	459	22	6	348	
25P1	Ls	M	1-14-60	55	1.5	473	17	8	364	
26B1	Ls	M	1-12-60	54	2.0	434	27	8	344	
27H1	Ls	M	3-22-61	--	.1	342	16	18	328	
28N1	Ls	M	1-12-60	56	1.5	444	11	10	336	
31L2	Ls	M	3-22-61	--	.1	371	14	28	300	Gas trace of oil
31P1	Ls	M	1-12-60	54	.3	283	8	4	216	
31P2	Ls	M	2-22-61	--	.1	332	13	10	252	
32C1	S	P1	1-12-60	54	3.0	429	12	4	324	
33L1	Ls	M	2-22-61	58	5.0	376	13	12	272	
34D1	G	P1	1-13-60	54	4.0	425	12	4	308	
34P1	G	P1	2-22-61	57	4.0	493	15	6	352	
35M1	G	P1	2-22-61	--	1.0	454	15	10	340	
13/4W-1Q1	Ls	M	4-20-61	--	.2	332	20	16	280	
2E1	Ls	M	3- 8-61	56	.1	429	15	14	360	

Table 5.--Field chemical analyses of water from wells, Putnam 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
14/3W-9B3	Sls	M	2-10-60	52	1.0	449	12	8	316	
9E1	Ls	M	2-10-60	55	3.0	425	8	6	280	
9F1	Ls	M	3-10-61	--	1.0	459	11	8	316	
9K1	Sls	M	2-10-60	54	1.0	434	11	4	216	
9K2	G	P1	3-10-61	57	.5	503	10	14	376	
10A1	Sls	M	2- 1-60	55	1.0	425	58	12	364	
16C1	Sls	M	2- 1-60	56	1.0	478	10	6	296	
16P2	Ls	M	3-10-61	--	.3	429	37	10	368	Gas
17K1	Sls	M	3-10-61	56	5.0	512	11	8	384	Gas
20L1	Ls	M	2- 1-60	--	2.0	459	13	32	380	
24R1	Sls	M	2- 1-60	54	3.0	478	9	22	356	
25C1	Sls	M	2- 1-60	58	1.5	449	90	58	456	
31J1	Ss	M	3-10-61	57	7.5	439	17	8	356	
33D1	Ls	M	3-10-61	--	.5	390	40	14	368	Gas
33Q1	Ls	M	1-15-60	56	5.0	420	10	4	312	Gas
34G1	Ls	M	3-10-61	--	1.5	434	10	8	256	Gas
34H1	Ls	M	3-10-61	--	.3	332	12	6	192	Gas
35P2	Ss	M	3-10-61	56	1.5	547	15	10	428	
35R1	Ls	M	3-10-61	55	.1	405	26	10	348	Silty
36N1	Ls	M	3-10-61	56	.3	478	38	16	372	
14/4W-3M1	G	P1	3- 9-61	--	2.0	493	23	28	348	
5H2	Ls	M	3- 9-61	--	.1	468	16	16	396	
7Q1	Ls	M	2-18-60	52	.5	400	120	8	412	
11P1	Ls	M	3-24-61	--	.1	444	15	8	364	
12B1	Ls	M	2-10-60	54	1.5	517	9	6	384	
12F1	Ls	M	2-10-60	56	.5	429	27	6	340	
12P1	Ls	M	2-10-60	52	5.0	449	17	6	348	Gas
14J1	Ls	M	3- 9-61	57	.1	322	25	14	264	

14/4W-15E1	G	P1	2-10-60	52	0.5	278	100	10	296
19C1	Ls	M	3- 9-61	--	1.5	488	8	6	356
21C1	Ls	M	2-18-60	58	.3	351	135	74	372
22A1	Ls	M	2- 5-60	54	.5	361	95	16	368
24H1	Ls	M	2-10-60	52	1.0	464	14	4	336
27E1	Ls	M	1-15-60	58	.3	488	20	6	376
27P1	Ls	M	4-20-61	57	.1	273	42	20	300
29P1	Ls	M	2-17-60	54	2.0	342	90	28	320
31K1	Ls	M	3- 9-61	56	1.0	410	10	10	164
34J1	Ls	M	1-15-60	58	.3	400	81	14	212
35G1	Ls	M	3- 9-61	--	.3	371	16	10	316
35M1	Ls	M	2-18-60	58	1.0	488	38	14	392
14/5W- 2K1	Ls	M	2-16-60	50	2.5	459	32	6	352
4M1	Sh, Ss	P	2-16-60	50	5.0	361	11	6	268
6J1	Sh, Ss	P	2-17-60	54	.3	361	15	12	272
7P1	G	P1	2-16-60	50	6.0	425	12	6	316
9R1	Ss	P	3- 9-61	--	.5	88	11	8	28
10B1	Ss	P	2-16-60	50	.5	303	12	6	224
10J1	Ls	M	2-18-60	58	1.0	439	8	6	312
12H1	Sh	M	2- 4-60	54	.8	449	30	8	300
20H1	Ss	P	3- 9-61	57	7.5	322	13	8	240
25P1	Ls	M	2-19-60	54	2.0	307	55	14	264
31B1	-----	P	3- 9-61	--	.3	376	19	16	288
33A1	S1s	P?	2-17-60	52	4.0	425	12	6	288
34M1	Ls	M	2-17-60	58	.5	332	12	30	212
35R1	Ls	M	2-17-60	52	2.0	234	9	6	152
36A1	Ls	M	2-17-60	54	.3	293	22	36	300
15/3W- 2A1	Ss	M	2- 1-60	54	10.0	425	10	4	300
2L1	S1s	M	2- 1-60	54	3.0	473	19	14	320
2P1	S1s	M	4-20-61	56	1.0	390	11	8	272
10N1	Ss	M	3-17-61	54	.5	391	16	8	304
10Q1	G	P1	3-17-61	54	.5	215	35	28	208
15B1	Ss	M	3-17-61	--	.1	361	80	52	476
15Q1	S1s	M	2- 1-60	53	7.5	508	13	6	376
16P1	S1s	M	2- 1-60	54	5.0	415	31	6	328

Table 5.--Field chemical analyses of water from wells, Putnam County, Indiana--Continued

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)	Remarks
15/3W-22B1	Sls	M	3-17-61	--	5.0	498	15	6	376	
28H1	Sls	M	2- 1-60	58	4.0	551	11	180	272	
29M1	S,G	Pl	3-16-61	53	1.5	332	34	10	304	
33P1	Sls	M	2- 1-60	54	1.0	454	110	16	484	
33P2	Ss,Sls	M	3-11-61	--	.1	151	75	20	324	
33Q1	Ls	M	2- 1-60	54	.4	415	80	20	436	
15/4W- 2J1	Ls	M	3-21-61	--	.1	371	80	26	376	
2Q1	Ss	M	3-21-61	--	2.0	488	14	8	340	
8B1	Ss	M	2- 4-60	54	.5	322	12	6	220	
10K1	Ls	M	3-21-61	53	2.0	522	11	8	404	
10N1	Ss	M	2- 1-60	54	.6	283	98	42	372	
12A1	S,G	Pl	3-21-60	--	3.0	459	12	6	332	
12G1	Ls	M	3-21-60	--	2.0	405	10	20	288	
17H1	Sh-ss	M	2- 2-60	56	1.0	434	26	10	324	
20J1	Ls	M	3-24-61	--	3.0	425	11	6	312	
21H1	Ls	M	12- 2-60	50	2.0	468	13	6	308	
22R1	Ls	M	2- 2-60	54	1.0	439	46	14	368	
24M1	Sh	M	3-21-61	--	.1	390	24	18	380	
26J1	G	Pl	3-24-61	--	7.5	537	12	6	368	
32H1	Ls	M	2- 2-60	54	2.5	464	10	6	336	
34G1	Ls	M	2- 2-60	54	1.0	512	19	6	380	
15/5W-11D1	Ls	M	3-21-61	56	1.5	459	15	14	368	
11D2	Ls	M	3-21-61	--	.1	449	23	14	380	
15J1	G	Pl	3-21-61	52	3.0	439	10	8	332	
17C1	Ss	P	2-16-60	50	.5	376	63	18	324	
18P1	Sh	P	3-21-61	--	.1	371	120	44	416	
24B1	Ls	M	2- 4-60	54	.8	415	90	6	400	
26L1	Ls	M	2- 4-60	53	2.5	454	16	6	336	Water turbid

Well	Interval	Depth	Formation	Core	Grain Size	Porosity	Permeability	Gas	Notes	
15/SW-27G1 35R1	M	2- 4-60	Ls	54	0.5	312	33	6	248	
		M	2-16-60	Ls	52	.5	478	15	20	384
	16/3W-	P1	1- -60	G	47	3.0	337	15	4	164
			M	1- -60	Sls	54	.1	307	12	4
		P1	2- 5-60	G	58	10.0	639	14	4	348
			M	1- -60	Sls?	48	1.5	439	11	6
		M	3-20-61	Ss	--	.3	434	12	6	320
			M	3-20-61	Ss	--	1.5	425	11	6
		M	3-17-61	Ss	--	.1	498	10	8	300
			M	1- -60	Ss	58	1.5	322	26	38
P1	3-20-61	S	--	.1	351	34	12	12	264	
	M	4-20-61	Sls, Ss	54	.3	351	11	8	268	
16/4W- 4G1	M	1- -60	Sls	54	5.0	322	14	6	228	
		M	1- -60	Sls	55	5.0	415	14	4	208
	M	1- -60	Sls	47	2.5	356	8	6	232	
		M	2-16-60	Sls	50	5.0	493	9	10	352
	M	1- -60	Sls	54	4.0	322	12	6	224	
		M	1- -60	Sls	50	2.5	210	12	138	308
	M	2-19-60	Ss	52	2.0	498	11	24	336	
		M	3-20-61	Ss	--	5.0	556	9	6	400
	M	1- -60	Sh	60	4.0	376	18	6	184	
		P1	1- -60	G	58	3.0	322	14	10	240
P1	3-21-61	G	--	.5	493	8	6	356		
	P1	1- -60	G	54	5.0	298	10	6	192	
M	2-19-60	Sls	52	4.0	415	11	4	292		
	P1	2-19-60	G	56	4.0	512	12	8	388	
16/5W- 1G1 1H1	P1	2-19-60	G	50	1.5	547	8	6	380	
		M	1- -60	Sls	48	4.0	390	9	8	228
	M	1- -60	Sls	48	4.0	229	9	100	284	
		M	3-21-61	Ls, Ss	56	.1	600	27	10	516
	M	1- -60	Sls	47	1.5	439	12	28	152	
		M	1- -60	Sls	48	4.0	346	13	16	256
	P1	3-20-61	G	--	1.0	468	12	32	368	
		M	3-20-61	Ss	55	.1	405	14	12	328

Table 5.--Field chemical analyses of water from wells, Putnam County, Indiana--Continued

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)	Remarks
16/5W-2H1	G	P1	3-20-61	--	0.8	483	11	8	352	
5G1	Ls	M	1- -60	54	2.5	283	34	12	220	
5R1	Ls	M	1- -60	55	.5	327	17	8	228	
7F1	G	P1	3-21-61	56	.5	444	10	10	308	
11N1	S,G	P1	3-21-61	56	1.0	498	14	6	380	
13N1	S,G	P1	3-28-60	50	3.0	415	135	16	424	
22E1	Sh	M	1- -60	54	5.0	288	11	24	156	

Table 6. --Records of springs, Putnam County, Indiana

Spring number: See text for well-numbering system.
 Altitude: Altitude of land-surface datum from topographic map.
 Water-bearing material: Ls, limestone; Ss, sandstone; T, till.
 Geologic age: M, Mississippian; Pl, Pleistocene.

Flow: e, estimated; m, measured.
 Use: D, domestic; N, not used.
 Field chemical analyses: In parts per million; water samples collected on date of measurement.

Spring	Owner	Altitude (feet)	Water-bearing material	Geologic age	Flow (gpm)	Date of measurement	Use	Temperature (F°)	Field chemical analyses					Remarks
									Iron (Fe)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Hardness as CaCO ₃ (Calcium, magnesium)	
13/SW-22L1	F. Aker	640	Ss	M?	5e	4-11-61	N	48	0.1	132	24	10	108	Spring from fracture zone
14/3W-15R1	A. G. Bryan	865	T	Pl	15e	4-26-61	N	50	<.1	210	18	10	200	
14/4W- 2G1	M. Reeves	710	Ls	M	15e	4-26-61	N	51	<.1	317	21	8	280	Spring from solution opening
17P1	C. L. Smith	710	Ls	M	15e	4-14-61	D	50	.1	337	75	42	364	Do
17Q1	E. Hamilton	720	Ls	M	5e	4-14-61	D	--	--	--	--	--	--	Do
27M1	C. E. Stevens	830	Ls	M	15e	4-28-61	D	50	<.1	298	40	12	304	Do
15/3W-30K1	L. F. Alter	730	T	Pl	.2e	4-26-61	N	50	<.1	410	53	12	382	
16/4W-33H2	F. Tate	830	Ls	M	5e	5-15-61	N	56	.1	337	28	0	300	Spring from solution opening
16/5W-10H1	F. Dahlgren	790	Ls	M	40m	4-27-61	N	49	<.1	288	23	12	280	Do

Table 7.--Field chemical analyses of water from streams, Putnam County, Indiana

(Results in parts per million)

Name	Location	Date of Collection	Temperature (°F)	Iron (Fe)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Hardness as CaCO ₃ (calcium, magnesium)	Remarks
T. 12 N., R. 3 W.									
Mill Creek	NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 2	10-3-60	58	0.2	307	25	12	284	Sample taken at bridge on county road
T. 12 N., R. 5 W.									
Deer Creek	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 2	10-3-60	60	.2	215	17	16	208	Do
Mill Creek	SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 10	10-3-60	61	.2	220	16	10	200	Do
Croys Creek	NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 17	10-3-60	57	.2	239	46	10	224	Do
T. 13 N., R. 3 W.									
Vermillion Branch	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 35	10-3-60	58	.3	312	17	14	284	Do
T. 13 N., R. 4 W.									
Deer Creek	SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 10	10-5-60	59	.1	307	55	14	264	Do
T. 13 N., R. 5 W.									
Deweese Creek	SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 23	10-5-60	57	.2	259	21	12	232	Sample taken at bridge on federal highway
Big Walnut Creek	NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 29	10-3-60	61	.2	176	30	22	232	Sample taken at bridge on county road
T. 14 N., R. 3 W.									
Deer Creek	SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 16	10-5-60	58	.1	356	24	8	324	Do
T. 14 N., R. 4 W.									
Big Walnut Creek	NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 1	10-5-60	59	.2	327	31	12	308	Do

T. 14 N., R. 5 W.

Jones Creek	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 2	10-4-60	68	0.1	278	26	8	252	Do
Long Branch	NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 21	10-4-60	61	.1	273	14	8	228	Do
Little Walnut Creek	NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 23	10-4-60	62	.1	288	18	10	280	Do
Big Walnut Creek	SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 25	10-4-60	62	.2	337	34	30	328	Do

T. 15 N., R. 3 W.

Do	NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 6	10-5-60	57	.2	312	35	12	304	Do
Plum Creek	SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 17	10-5-60	60	.1	327	30	12	308	Do
Clear Creek	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 28	10-5-60	59	.1	361	34	10	352	Do
Miller Creek	SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 34	10-5-60	59	.2	332	44	16	340	Do

T. 15 N., R. 5 W.

Owl Creek	SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 27	10-4-60	65	.1	312	21	10	280	Do
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T. 16 N., R. 3 W.

Big Walnut Creek	NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 13	10-5-60	57	.2	327	43	14	320	Do
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T. 16 N., R. 4 W.

Lick Creek	NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 1	10-5-60	57	.2	327	36	26	336	Do
Raccoon Creek	SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 6	10-5-60	55	.2	342	26	12	320	Sample taken at bridge on federal highway

T. 16 N., R. 5 W.

Ramp Creek	NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 25	10-5-60	55	.1	351	32	14	336	Sample taken at bridge on county road
Raccoon Creek	NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 33	10-5-60	57	.2	351	24	12	324	Do

Table 8.--Water levels in observation wells in Putnam County, Indiana
(In feet below land-surface datum. Water level:
e, estimated; h, tape measurement)

Putnam 1. (14/5W-14Q1). Paul McMahan. Greencastle. SW $\frac{1}{2}$ SE $\frac{1}{4}$, sec. 14, T. 14 N., R. 5 W. Dug artesian well in sand and gravel, diameter 36 inches, depth 18.6 feet. Land-surface datum is about 665 feet above msl. Highest water level is 1.48 below 1sd, June 17, 1945; lowest 7.43 below 1sd, Sept. 19, 1945. Records available: 1945-46.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1945		Aug. 6	5.02	Jan. 28	2.70	May 6	2.78
		13	5.08	Feb. 4	2.65	14	1.75
June 14	2.28	22	5.34	11	2.20	22	4.69
17	1.48	27	5.59	18	1.77	July 29	5.03
25	2.48	Sept. 12	6.73	26	1.98	Aug. 19	4.50
July 2	2.85	19	7.43	Mar. 11	2.55	27	5.22
9	3.60	Oct. 29	5.04	Apr. 15	3.24	Sept. 8	5.88
16	4.16			22	3.86		
23	4.58	1946		28	4.17		
30	4.63	Jan. 21	2.15				

Putnam 2. (12/4W-9M2). W. W. Coffman. Cloverdale. NW $\frac{1}{2}$ SW $\frac{1}{4}$ sec. 9, T. 12 N., R. 4 W. Drilled unused well in limestone, diameter 6 inches, depth 202 feet. Land-surface datum is above 850 feet above msl. Highest water level is 20.83 below 1sd, April 19, 1952; lowest 132.21 below 1sd, Nov. 30, 1952. Records available: 1949-53.

1949		Sept. 4	124.43	Jan. 16	63.62	May 7	108.69
		11	127.78	18	69.53	14	110.55
Apr. 1	129.89	18	126.35	20	70.63	21	111.10
10	127.60	25	125.55	23	79.30	28	110.55
21	118.22	Oct. 3	128.47	24	69.09	June 4	109.57
22	118.25	9	127.78	26	64.00	11	109.54
30	119.60	16	119.64	28	69.59	17	106.53
May 8	125.21	23	116.50	30	70.90	25	101.91
15	127.23	30	118.45	Feb. 2	70.53	July 2	106.78
22	124.00	Nov. 6	121.22	4	77.80	9	107.40
29	124.61	13	124.04	5	79.40	15	109.75
June 5	127.24	20	127.30	12	70.25	23	110.15
12	127.60	27	128.62	19	72.02	30	110.83
19	127.21	Dec. 4	129.70	26	72.14	Aug. 6	114.79
26	127.31	11	118.90	Mar. 5	81.00	13	116.24
July 3	125.17	18	117.80	12	81.74	20	115.68
10	124.50	25	116.70	19	88.12	27	117.41
17	127.87			26	78.26	Sept. 3	113.43
24	129.55	1950		Apr. 2	86.95	10	115.28
31	129.47	Jan. 1	98.38	9	85.74	16	117.65
Aug. 7	128.71	8	91.09	16	90.82	24	115.13
14	128.61	11	71.70	23	103.53	Oct. 1	117.54
21	125.28	13	66.70	30	104.22	8	111.08
28	124.80						

Table 8.--Water levels in observation wells in Putnam County--Continued

Putnam 2--Continued

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1950		June 10	115.00	Mar. 1	79.59	1953	
		17	109.15	8	81.99		
Oct. 15	113.46	24	109.80	15	73.65	Jan. 10	128.85
22	113.08	July 1	109.90	22	66.74	24	122.05
29	118.03	8	110.16	29	67.59	Feb. 1	117.84
Nov. 5	119.09	15	111.43	Apr. 4	35.93	8	129.75
12	123.65	25	110.94	19	20.83	15	112.81
19	110.99	29	110.52	27	39.98	22	125.83
26	111.65	Aug. 5	111.06	May 4	61.87	Mar. 8	115.83
Dec. 3	104.66	12	114.77	11	86.54	15	107.84
10	106.44	19	116.82	19	59.84	22	99.85
17	106.53	27	117.99	24	63.57	29	92.84
24	109.75	Sept. 2	118.54	June 1	103.81	Apr. 5	97.79
31	110.03	23	124.91	7	75.21	13	97.43
		30	126.09	14	107.00	19	106.84
1951		Oct. 14	124.10	21	102.71	26	92.72
		20	126.87	28	102.93	May 3	111.09
Jan. 7	112.72	27	117.93	July 6	111.38	10	104.75
14	113.86	Nov. 4	120.22	12	114.68	17	111.72
20	62.00	11	112.36	19	109.69	24	110.75
29	85.22	17	113.69	26	113.88	31	91.84
Feb. 4	96.63	25	106.77	Aug. 4	126.37	June 14	101.66
11	95.53	Dec. 1	104.36	10	122.64	21	116.84
18	85.65	9	71.66	Sept. 18	124.77	30	111.64
25	84.48	15	101.90	27	126.57	July 8	116.72
Mar. 4	94.06	22	82.76	Oct. 5	97.07	14	116.72
11	95.48	29	71.23	11	131.80	19	110.78
18	44.74			20	114.76	26	119.15
25	60.75	1952		26	129.00	Aug. 3	117.81
Apr. 4	61.43	Jan. 6	49.27	Nov. 9	131.05	9	114.79
8	58.36	12	53.87	15	132.07	16	121.72
16	62.43	19	98.81	22	131.73	23	118.82
22	57.49	26	108.00	30	132.21	30	124.65
29	71.10	Feb. 2	95.54	Dec. 7	127.46	Sept. 6	121.81
May 8	86.60	9	30.69	13	131.63	13	120.75
14	89.58	16	44.09	21	119.87	20	120.89
26	108.05	24	58.30	28	127.24		
		27	68.40				

Table 8.--Water levels in observation wells in Putnam County--Continued

Putnam 3. (12/4W-17J1). Fredric A. Danforth. Cloverdale. NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 17, T. 12 N., R. 4 W. Drilled unused well in rock, diameter 6 inches, depth 157 feet. Land-surface datum is about 810 feet above msl. Highest water level is 93.68 below lsd, April 12, 1952; lowest 134.85 below lsd, Oct. 26, 1952. Records available: 1946-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1946		July 9	131.36	Aug. 24	132.01	Oct. 23	130.96
		15	131.34	31	132.02	30	131.10
Sept. 10	131.82	27	131.34	Sept. 6	131.98	Nov. 6	131.20
17	131.45	29	131.30	Oct. 2	131.74	13	131.10
24	131.32	Aug. 5	131.45	12	130.98	20	130.98
Oct. 1	131.41	13	131.45	27	130.97	27	131.19
8	131.26	20	131.35	Nov. 27	130.72	Dec. 4	130.90
15	131.30	Sept. 9	131.41	Dec. 11	130.90	11	131.22
22	131.42	19	131.50	14	130.90	18	131.10
29	132.21	23	131.50	30	131.43	25	131.36
Nov. 5	131.44	Oct. 2	131.68				
12	131.41	14	131.55	1949		1950	
19	131.48	22	131.45	Feb. 21	130.98	Jan. 1	131.36
26	131.37	30	131.00	Mar. 2	130.97	11	124.66
Dec. 3	131.51	Nov. 3	131.27	15	131.03	13	127.00
12	131.34	25	131.35	27	130.97	16	127.80
17	131.41	Dec. 16	131.40	Apr. 3	130.97	18	129.70
24	131.72	23	131.40	30	131.04	20	126.86
31	131.52			May 8	131.14	23	129.10
		1948		15	130.50	24	124.49
1947		Feb. 17	125.24	22	131.10	28	126.49
		24	125.01	29	131.15	30	126.89
Jan. 7	131.51	Mar. 2	124.33	June 5	131.28	Feb. 2	129.52
14	131.44	9	124.29	12	131.24	4	130.43
21	131.38	30	131.37	19	131.21	5	129.52
28	131.36	Apr. 7	132.10	26	131.29	12	129.31
Feb. 4	131.42	20	131.66	July 3	131.20	19	129.41
10	131.47	30	131.40	10	130.60	26	129.68
18	131.48	May 7	131.20	17	131.30	Mar. 5	129.76
25	131.43	11	131.20	24	131.37	12	130.84
Mar. 4	131.40	18	130.90	31	131.40	19	129.80
25	131.40	25	131.20	Aug. 7	131.50	26	129.95
Apr. 7	131.43	June 1	130.96	14	131.49	Apr. 2	129.75
29	131.45	21	131.39	21	131.40	9	129.83
May 9	131.35	25	131.41	28	130.70	16	129.83
13	131.34	29	131.31	Sept. 4	131.65	23	129.85
20	131.21	July 6	131.52	11	130.64	30	129.81
27	130.38	14	131.37	18	124.90	May 7	129.89
June 3	131.25	26	131.37	25	130.85	14	129.90
10	131.19	Aug. 3	131.41	Oct. 3	130.97	21	129.97
20	131.09	10	131.41	9	130.98	28	130.03
24	131.15	17	131.93	16	130.98	June 4	130.00
July 1	131.19						

Table 8.--Water levels in observation wells in Putnam County--Continued

Putnam 3--Continued

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1950		Feb. 4	129.82	Dec. 1	130.00	Aug. 10	128.41
		11	129.65	9	129.56	17	129.99
June 11	130.07	18	131.06	15	130.14	24	129.49
17	130.06	25	130.19	22	130.19	Sept. 11	115.81
25	130.03	Mar. 4	130.17	29	130.19	18	130.03
July 2	129.58	11	130.22			27	125.03
9	130.19	18	130.43	1952		Oct. 5	121.99
15	130.85	25	130.29			11	116.70
23	130.36	Apr. 4	130.10	Jan. 6	123.06	20	115.88
30	130.40	8	130.10	12	117.15	26	134.85
Aug. 6	130.40	16	130.04	19	117.14	Nov. 9	118.03
13	130.48	22	129.94	26	114.13	15	127.77
20	130.24	29	130.08	Feb. 2	118.86	22	120.00
27	130.25	May 8	130.13	9	130.64	30	120.60
Sept. 3	129.93	14	130.10	16	133.96	Dec. 7	114.71
10	130.22	26	130.10	27	134.30	13	115.98
16	130.24	June 10	130.10	Mar. 1	133.93	21	107.87
24	130.26	17	129.95	8	129.63	28	114.30
Oct. 1	129.93	24	130.02	15	121.69		
8	129.73	July 1	130.17	22	117.11	1953	
15	130.31	8	130.12	29	114.93		
22	130.21	15	129.47	Apr. 4	102.99	Jan. 10	115.04
29	130.38	25	130.69	12	93.68	24	121.68
Nov. 5	130.61	29	129.73	19	102.14	Feb. 1	99.03
12	130.36	Aug. 5	130.24	27	131.74	8	111.96
19	130.30	12	130.25	May 4	121.93	15	108.61
26	129.74	19	130.36	11	129.66	22	112.69
Dec. 3	130.96	27	130.48	19	113.21	July 8	130.87
10	132.06	Sept. 2	130.31	24	124.32	14	129.72
17	132.12	9	130.35	27	130.55	19	131.65
24	130.87	16	130.31	June 1	121.76	26	128.74
31	130.92	23	130.30	7	104.47	Aug. 3	131.81
		30	130.32	14	107.86	9	128.89
1951		Oct. 14	130.36	21	130.34	16	130.93
		20	130.43	28	106.32	23	130.93
Jan. 7	131.20	27	130.17	July 6	105.27	30	131.75
14	131.32	Nov. 4	130.38	12	110.40	Sept. 6	126.73
20	130.17	11	130.48	19	110.66	13	130.36
29	130.03	17	130.03	26	116.87	20	132.85
		25	130.32	Aug. 4	122.31	Nov. 3	131.32

Table 8.--Water levels in observation wells in Putnam County--Continued

Putnam 4. (13/5W-20Q1). Brazil Water Works. Reelsville. SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 20, T. 13 N., R. 5 W. Drilled unused water table well in sand and gravel, diameter 10 inches, depth 60 feet. Land-surface datum is 611.7 feet above msl. Recording gage installed July 8, 1957. Highest water level is 1.65 below lsd, June 24, 1960; lowest 17.30 below lsd, Aug. 24, 25, 1959. Records available: 1957-60. Affected by nearby pumping and Big Walnut Creek.

(Daily highest water level from recorder graph, 1957)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1957		Aug. 21	14.95	Oct. 20	15.50	Dec. 5	14.65
		22	15.05	21	15.55	6	14.45
July 9	12.22	23	15.20	23	14.25	7	12.70
10	12.22	24	15.25	24	13.90	8	12.60
11	12.80	25	15.25	25	13.85	24	h11.07
12	13.15	26	15.20	29	15.05		
13	e11.84	28	14.65	30	15.20		
17	13.07	29	14.55	31	15.30		
18	13.23	30	14.65				
19	13.60			Nov. 1	15.35		
20	13.85	Sept. 3	15.15	2	15.40		
		4	15.20	3	15.40		
21	13.95	5	15.25	5	15.25		
22	14.10	6	15.30	6	15.30		
23	14.20	7	15.30	7	14.35		
24	14.20	10	15.40	8	14.20		
25	14.25	11	15.45	9	14.15		
26	14.30	12	15.45				
27	14.45	13	15.45	12	14.75		
28	14.55	16	15.35	13	14.65		
30	14.70			14	9.75		
31	14.80	Oct. 1	15.60	15	11.25		
		2	15.65	16	11.85		
Aug. 1	14.90	3	15.65	19	11.15		
2	14.75	4	15.70	20	11.70		
3	14.85	5	15.70				
4	14.25	6	15.70	21	12.65		
5	14.60	7	e15.75	22	13.05		
6	14.75	8	15.70	23	13.30		
7	14.90	9	15.70	24	13.50		
8	14.95	10	15.70	25	13.75		
9	15.00			26	13.90		
10	15.10	11	15.70	27	14.05		
		12	15.70	28	14.10		
13	14.45	13	15.70	29	14.20		
14	14.75	14	15.70	30	14.35		
16	13.55	15	15.75				
17	13.55	16	15.75	Dec. 1	14.45		
18	14.30	17	15.55	2	14.50		
19	14.60	18	15.45	3	14.55		
20	14.80	19	15.45	4	14.60		

Table 8.--Water levels in observation wells in Putnam County--Continued

Putnam 4--Continued

(Daily highest water level from recorder graph, 1958)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	-----	14.30	14.95	14.70	14.85	15.05	14.55	4.85	-----	15.85	16.15	14.75
2	-----	14.35	14.95	14.75	15.00	14.95	14.65	8.25	-----	15.95	16.10	14.95
3	-----	14.50	15.00	14.85	14.65	15.00	14.75	10.85	-----	16.00	16.10	15.05
4	-----	14.60	15.10	14.90	13.30	15.15	14.90	11.40	-----	15.95	16.15	14.95
5	-----	14.60	15.15	14.90	12.60	15.30	14.95	12.25	-----	15.95	16.20	14.80
6	-----	14.60	15.25	14.70	12.45	15.45	14.50	-----	-----	15.95	16.20	14.80
7	-----	14.60	15.25	14.65	12.50	15.50	14.50	-----	-----	16.05	16.20	14.90
8	-----	14.65	15.20	14.60	13.00	15.50	14.75	-----	-----	16.10	16.25	15.00
9	-----	14.65	15.15	14.70	13.35	14.75	14.95	-----	-----	15.90	16.20	15.10
10	-----	14.70	15.15	14.75	13.60	12.25	14.75	-----	-----	15.45	16.15	15.05
11	-----	14.75	15.20	14.85	13.85	4.70	14.05	14.40	15.60	15.45	16.20	15.00
12	-----	14.95	15.25	14.90	14.00	-----	13.70	14.20	15.70	15.45	16.20	15.05
13	-----	15.10	15.25	14.90	14.25	8.95	13.60	14.10	15.75	15.50	16.25	15.10
14	-----	15.30	15.30	14.95	14.40	8.95	13.70	14.25	15.75	15.65	16.30	15.05
15	-----	15.30	15.30	15.00	14.55	9.85	14.15	13.40	15.75	15.75	16.10	15.05
16	-----	15.25	15.30	15.05	14.45	10.80	14.30	13.20	14.55	15.75	15.75	15.20
17	-----	15.30	15.25	15.10	15.25	11.90	14.60	13.40	14.85	15.80	14.65	15.15
18	-----	15.65	15.30	15.15	14.25	12.60	14.80	13.70	14.85	15.85	14.40	15.35
19	-----	15.40	15.35	15.15	14.35	12.45	14.95	14.10	15.00	15.85	14.40	15.35
20	-----	15.35	15.40	15.20	14.35	-----	14.00	14.45	16.20	15.80	14.55	15.40
21	-----	15.30	15.45	14.95	14.50	12.45	13.65	14.60	15.25	15.90	14.80	15.40
22	-----	15.15	15.45	14.95	14.65	12.73	13.65	14.65	15.40	15.95	15.05	15.40
23	13.65	15.05	15.40	14.95	14.45	13.15	13.95	14.75	15.55	15.95	15.25	15.50
24	13.60	-----	14.95	14.95	14.35	13.45	14.25	14.80	15.60	16.00	15.35	15.50
25	14.10	-----	14.30	15.00	14.40	13.70	14.50	14.90	15.75	16.05	15.10	15.55
26	14.00	15.20	14.20	15.05	14.60	13.65	14.75	15.00	15.75	16.05	14.15	15.55
27	13.95	15.20	14.25	14.95	14.80	13.85	14.90	15.25	15.80	16.05	14.05	15.50
28	14.00	15.05	14.35	14.85	14.90	14.10	14.55	15.30	15.75	16.10	14.20	15.70
29	14.10	-----	14.45	14.80	15.00	14.25	14.45	-----	15.80	16.10	14.50	15.70
30	14.20	-----	14.50	14.80	15.10	14.35	14.65	-----	15.90	16.15	14.70	15.80
31	14.25	-----	14.60	-----	15.15	-----	5.50	-----	-----	16.15	-----	15.80

(Daily highest water level from recorder graph, 1959)

1	15.65	-----	13.35	13.40	13.65	-----	16.30	16.30	16.75	-----	16.55	16.40
2	15.55	-----	13.25	12.55	13.95	-----	16.06	16.35	16.70	17.00	16.50	16.45
3	15.60	-----	13.50	12.55	14.15	-----	16.15	16.40	16.75	17.00	16.60	16.45
4	15.70	-----	14.00	12.70	14.30	-----	-----	15.25	16.80	16.95	16.45	16.45
5	15.70	-----	14.25	13.05	14.50	-----	-----	15.15	16.85	16.90	16.30	16.50
6	15.55	-----	13.90	13.40	14.70	-----	16.40	15.45	16.85	16.95	16.25	16.40
7	15.55	-----	13.80	13.45	14.75	-----	15.90	15.70	16.85	16.95	16.25	16.35
8	15.55	-----	13.90	13.85	14.85	-----	15.90	15.90	16.85	16.95	16.25	16.40
9	15.65	-----	13.70	13.75	14.95	15.80	15.95	16.00	16.90	17.00	16.25	16.45
10	15.90	-----	13.60	13.75	14.75	15.80	16.05	16.10	16.95	16.95	16.35	16.50

Table 8.--Water levels in observation wells in Putnam County--Continued

Putnam 4--Continued

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
11	15.95	-----	13.65	13.85	14.65	14.90	16.20	16.15	16.90	16.10	16.35	16.40
12	16.00	-----	13.65	13.95	14.50	14.80	16.25	16.25	16.95	16.05	16.35	15.30
13	16.05	-----	13.35	14.05	14.45	14.80	16.25	16.30	16.90	16.20	16.40	14.80
14	16.20	-----	12.80	14.20	14.45	14.95	16.35	16.45	16.85	16.35	15.90	14.75
15	15.90	-----	11.85	14.30	14.55	15.15	16.45	16.50	16.90	16.45	15.65	14.95
16	15.90	-----	11.95	14.45	14.70	15.40	16.45	16.45	16.95	16.55	15.65	15.10
17	15.75	11.80	12.75	14.55	14.80	15.50	16.50	16.05	16.95	16.60	15.70	15.20
18	14.55	12.05	13.25	14.60	14.85	15.60	16.55	15.95	17.00	16.95	16.00	15.35
19	14.50	12.35	13.60	14.35	14.95	15.70	16.45	16.05	16.95	16.55	16.00	15.45
20	14.15	12.80	13.60	14.15	14.95	15.80	16.45	16.25	16.95	16.65	16.15	15.50
21	6.95	13.15	13.85	14.10	14.95	15.85	16.60	16.30	16.90	16.65	16.10	15.50
22	6.45	13.30	14.10	14.25	14.00	15.85	16.60	16.40	17.00	16.70	16.15	15.55
23	9.40	13.15	14.25	14.40	13.85	15.95	16.60	16.40	17.00	16.75	16.10	-----
24	11.55	13.00	14.50	14.50	14.00	16.05	16.50	16.45	17.00	16.55	16.20	15.80
25	12.05	13.05	14.70	14.65	14.30	16.10	16.15	16.15	17.05	16.45	16.25	15.75
26	12.25	13.25	14.70	14.70	14.60	16.15	16.05	16.65	17.00	16.35	16.25	15.75
27	13.00	13.35	14.60	13.70	14.75	16.05	16.10	16.65	16.85	16.40	16.30	15.70
28	13.65	13.45	14.45	13.05	14.75	16.15	16.00	16.65	16.80	16.45	16.30	15.50
29	14.10	-----	14.50	13.05	14.90	16.15	16.00	16.70	-----	16.50	16.35	15.25
30	-----	-----	14.85	13.35	15.05	16.25	16.05	16.70	-----	16.55	16.35	15.15
31	-----	-----	14.90	-----	-----	-----	16.05	16.65	-----	16.60	-----	15.15

(Daily highest water level from recorder graph, 1960)

1	15.25	14.45	-----	12.95	14.85	13.50	13.45	15.80	16.50	16.75	16.65	16.65
2	15.25	14.55	-----	13.35	14.85	14.15	13.75	16.00	16.50	16.70	16.70	16.70
3	15.05	14.70	-----	13.65	15.00	14.50	13.95	16.05	16.55	16.70	16.75	16.65
4	15.00	14.80	-----	13.85	15.15	14.70	14.10	15.90	16.55	16.70	16.70	16.60
5	15.05	13.25	-----	14.05	15.25	14.90	14.35	15.95	16.50	16.75	16.70	16.55
6	15.20	11.10	-----	14.25	15.35	15.05	14.50	15.95	16.55	16.75	16.70	16.60
7	15.25	11.15	-----	14.40	15.10	15.25	14.60	16.00	16.60	16.75	16.65	16.45
8	15.35	11.95	-----	14.55	15.05	15.35	14.75	16.05	16.65	16.80	16.70	16.45
9	15.45	12.10	-----	14.70	15.10	15.50	14.80	16.15	16.65	16.75	16.70	16.40
10	15.45	8.65	-----	14.80	15.15	15.60	14.85	16.20	16.60	16.75	16.75	16.45
11	15.45	8.95	-----	14.85	15.10	15.65	14.90	16.25	16.60	16.80	16.75	16.45
12	15.40	10.75	-----	14.95	15.20	15.65	-----	16.25	16.60	16.80	16.75	16.40
13	14.50	11.85	-----	15.00	15.25	15.60	-----	16.30	16.65	16.80	16.75	16.45
14	14.25	12.45	-----	15.10	15.30	-----	14.45	16.30	16.65	16.80	16.65	16.35
15	13.50	12.90	-----	15.10	15.35	-----	14.35	16.30	16.65	16.80	16.65	16.50
16	13.45	13.30	15.35	15.10	15.40	15.75	14.50	16.35	16.65	16.80	16.55	16.45
17	13.65	13.45	15.25	15.15	15.35	15.75	14.75	16.35	16.70	16.80	16.50	16.40
18	13.90	13.65	15.20	15.15	15.40	15.80	14.85	16.40	16.65	16.85	16.45	16.40
19	14.05	13.80	15.20	15.20	15.45	15.85	15.10	16.40	16.55	16.85	16.50	16.55
20	14.30	14.00	15.05	15.25	15.50	15.90	15.20	16.15	16.50	16.85	16.50	16.65

Table 8.--Water levels in observation wells in Putnam County--Continued

Putnam 4--Continued

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21	14.50	-----	15.00	15.30	15.45	15.75	15.35	16.15	16.50	16.80	16.50	16.60
22	14.70	-----	14.90	15.35	15.15	15.70	15.45	16.20	16.50	16.80	16.60	16.55
23	14.70	-----	14.85	15.40	15.10	1.85	15.55	16.35	16.55	16.75	16.60	16.50
24	14.65	-----	14.85	15.45	15.20	1.65	15.60	16.35	-----	16.75	16.65	16.55
25	14.65	-----	14.95	15.45	15.30	8.00	15.65	16.40	-----	16.80	16.65	-----
26	14.75	-----	14.95	15.50	15.15	10.50	15.75	16.45	-----	16.80	16.70	-----
27	14.35	-----	14.25	15.45	15.10	11.55	15.70	16.45	-----	16.65	16.70	-----
28	14.20	-----	12.95	15.45	15.15	11.95	15.75	16.50	-----	16.70	16.65	16.45
29	14.20	-----	12.70	15.55	15.30	12.55	15.80	16.50	16.70	16.70	16.65	16.45
30	14.30	-----	12.80	15.00	12.60	13.10	15.85	16.50	16.70	16.65	16.60	16.45
31	14.40	-----	12.70	-----	12.70	-----	15.90	16.45	-----	16.60	-----	16.50

Putnam 5. (12/4W-1A1). Town of Cloverdale. Cloverdale. NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 1, T. 12 N., R. 4 W. Drilled unused artesian well in shale and siltstone, diameter 8 inches, depth 410 feet. Land-surface datum is 763.1 feet above msl. Recording gage installed Aug. 19, 1957. Highest water level is 12.18 below lsd, Mar. 15, 1959; lowest 15.52 below lsd, July 30, 1959. Records available: 1957-60. Affected by fluctuations in barometric pressure.

(Daily highest water level from recorder graph, 1957)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1957		Sept. 8	14.89	Oct. 14	h15.09	Nov. 19	e13.27
		10	14.92	19	15.08	20	13.27
Aug. 20	14.32	11	14.93	20	15.07	21	13.25
21	14.38	12	14.92	21	15.00	22	13.31
22	14.47	13	14.96	22	14.92	23	13.14
23	14.41	14	15.04	23	14.51	24	13.14
24	14.38	15	14.90	24	14.51	25	13.23
25	14.40	16	14.94	25	14.56	26	13.28
26	14.54	24	14.98	26	14.54	27	13.26
27	14.62	25	14.96	27	e14.50	28	13.25
28	14.61	26	14.96	28	14.43	29	13.30
29	14.61	27	15.08	29	14.24	30	13.31
30	14.66	28	15.05	30	14.22		
31	14.69			31	14.27	Dec. 1	13.39
		Oct. 2	15.02			2	13.44
Sept. 1	14.68	3	15.04	Nov. 1	14.35	16	13.24
2	14.64	4	15.07	2	14.34	24	12.88
3	14.64	7	15.12	3	14.35	25	12.56
4	14.70	8	15.16	5	14.42	26	12.56
5	14.87	9	15.21	6	14.44	27	12.53
6	14.85	10	15.26	7	14.16	28	e12.52
7	14.85	11	15.29	13	13.77	31	12.78

Table 8.--Water levels in observation wells in Putnam County--Continued

Putnam 5--Continued

(Daily highest water level from recorder graph, 1958)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	12.80	13.34	-----	-----	-----	14.32	13.38	13.63	-----	-----	13.99	-----
2	12.90	13.42	-----	14.00	-----	14.39	13.42	13.61	-----	-----	13.99	-----
3	12.98	13.44	14.62	13.97	-----	14.49	13.49	-----	14.18	-----	14.07	-----
4	13.10	13.38	14.70	13.98	-----	14.55	13.56	13.46	14.19	-----	14.01	12.97
5	13.00	13.42	-----	13.81e	13.53	14.55	13.63	13.47	14.16	-----	14.00	13.03
6	12.88	13.51	-----	13.81	-----	14.62	-----	13.47	14.15	o	14.13	13.15
7	-----	e13.64	-----	13.89	-----	14.57	-----	-----	14.15	-----	14.14	13.18
8	-----	13.73	-----	13.96	-----	14.57	-----	-----	14.19	-----	14.00	13.05
9	-----	-----	-----	13.85	-----	14.58	13.98	-----	14.21	-----	13.97	13.16
10	-----	13.71	-----	13.75	-----	14.47	13.93	-----	14.21	-----	14.16	13.29
11	-----	13.73	14.78	13.77	-----	-----	13.73	13.39	14.36	-----	14.23	13.18
12	-----	13.80	14.68	13.87	-----	-----	13.70	13.41	14.37	-----	14.24	13.19
13	13.37	13.85	14.59	13.92	13.70	-----	13.68	13.50	14.38	-----	14.18	13.33
14	13.37	13.85	14.67	13.88	13.74	-----	13.68	13.58	14.40	-----	14.15	13.49
15	13.51	13.86	14.68	13.87	13.75	-----	13.67	13.51	14.40	13.79	14.04	13.50
16	13.59	-----	14.66	13.94	13.78	13.73	13.70	13.41	-----	13.79	14.06	13.49
17	13.61	-----	14.70	13.99	13.80	13.70	13.71	13.42	-----	13.79	-----	13.49
18	13.67	-----	14.72	13.97	13.82	13.70	13.70	-----	-----	13.81	-----	13.59
19	-----	-----	14.71	13.98	13.95	13.69	13.71	13.50	-----	13.79	-----	13.56
20	-----	-----	14.68	-----	14.01	13.60	13.73	13.52	-----	13.79	-----	13.78
21	-----	-----	-----	-----	14.03	13.56	13.72	13.52	-----	13.83	-----	13.92
22	13.38	-----	-----	13.97	13.99	-----	13.73	13.57	-----	13.83	-----	13.85
23	13.42	-----	-----	13.86	14.09h	13.52	13.74	13.62	-----	13.84	-----	13.82
24	13.55	13.50	-----	13.86	14.10	-----	13.74	-----	14.00	13.86	-----	13.93
25	-----	-----	14.44	14.16	14.10	-----	13.74	13.74	14.01	13.91	-----	14.09
26	-----	-----	14.29	14.04	14.19	-----	13.81	13.76	14.03	13.94	-----	14.04
27	13.33	-----	14.23	13.93	14.20	-----	13.89	13.80	14.01	13.96	-----	14.03
28	13.28	-----	14.21	13.93	14.22	-----	13.92	13.82	-----	14.00	-----	14.04
29	13.65	-----	-----	13.79	14.36	-----	13.88	13.87	-----	14.03	-----	14.10
30	13.17	-----	-----	13.77	14.35	13.38	13.88	13.88	-----	14.09	-----	14.22
31	13.22	-----	-----	-----	14.32	-----	13.84	-----	-----	14.99	-----	14.00

(Daily highest water level from recorder graph, 1959)

1	13.92	13.66	-----	12.73	13.43	13.89	14.58	15.39	14.90	-----	13.90	13.28
2	13.97	-----	-----	12.50	13.47	13.97	14.70	15.42	14.96	14.79	13.76	13.30
3	13.99	-----	-----	12.50	13.48	14.06	14.80	15.36	14.93	14.79	13.76	13.30
4	14.04	-----	-----	12.72	13.50	14.11	14.74	15.20	14.88	14.84	13.79	13.26
5	14.28	-----	-----	12.72	13.52	14.11	14.74	15.08	14.87	14.79	13.84	13.28
6	14.08	-----	-----	12.88	13.58	14.18	14.80	15.00	14.89	14.75	13.78	13.26
7	14.06	-----	-----	12.84	13.70	-----	14.94	14.96	14.92	14.72	13.69	13.27
8	14.10	-----	-----	12.90	13.82	-----	14.93	14.95	14.87	14.65	13.57	13.28
9	14.25	-----	-----	12.94	13.71	14.38	14.95	14.95	14.86	14.73	13.57	13.42
10	14.27	-----	-----	13.05	13.71	14.37	14.99	14.95	14.78	14.65	13.63	13.38

Table 8.--Water levels in observation wells in Putnam County--Continued

Putnam 5--Continued

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
11	14.27	-----	12.59	13.07	13.75	-----	14.99	14.97	14.71	14.63	13.43	13.15
12	14.25	-----	12.56	13.09	13.71	-----	15.02	15.01	14.63	14.51	13.42	13.05
13	14.25	-----	12.40	13.09	13.62	-----	15.12	14.92	14.55	-----	13.30	13.12
14	14.02	-----	12.22	13.10	13.63	-----	15.17	14.85	14.53	-----	13.20	13.09
15	14.01	-----	12.18	13.18	13.63	-----	15.17	-----	14.57	-----	13.20	13.02
16	14.00	-----	12.52	13.19	13.63	-----	15.17	-----	14.72	-----	13.13	12.99
17	14.01	12.77	12.52	13.24	13.61	-----	15.15	-----	14.75	-----	13.12	12.99
18	13.89	12.77	12.72	13.27	13.58	-----	15.13	-----	14.73	-----	13.07	12.99
19	13.88	12.91	12.65	13.28	13.59	-----	15.14	-----	14.70	-----	13.05	13.01
20	13.75	12.98	12.66	13.29	13.67	-----	15.21	-----	14.69	-----	13.06	13.00
21	13.55	13.02	12.67	13.42	13.67	-----	15.26	-----	14.70	-----	13.05	13.00
22	13.81	-----	12.82	13.42	13.68	-----	15.28	-----	14.75	-----	12.93	13.03
23	13.73	-----	12.81	13.42	13.70	14.22	15.23	-----	14.80	-----	12.96	13.00
24	13.56	-----	12.82	13.42	13.75	14.24	15.24	-----	14.78	-----	13.15	13.01
25	13.55	-----	12.85	13.42	13.72	14.28	15.28	-----	14.69	-----	-----	13.02
26	13.55	-----	12.77	13.47	13.73	14.33	15.33	-----	14.70	-----	-----	12.99
27	13.55	-----	12.78	13.35	13.82	14.40	15.31	14.91	14.78	-----	13.24	12.85
28	13.54	-----	12.98	13.30	13.81	14.44	15.31	14.89	-----	14.11	13.29	12.85
29	13.47	-----	12.96	13.38	13.82	14.52	15.32	14.91	-----	13.98	13.31	12.85
30	13.50	-----	12.87	13.38	13.85	14.56	15.35	14.94	-----	13.92	13.29	12.92
31	13.65	-----	12.88	-----	13.84	-----	15.37	14.90	-----	13.92	-----	12.98

(Daily highest water level from recorder graph, 1960)

1	12.92	12.99	-----	-----	13.41	12.56	12.62	-----	14.06	14.39	14.47	14.31
2	12.89	12.99	-----	-----	13.35	12.56	12.56	-----	14.06	14.37	14.52	14.27
3	12.89	12.99	-----	-----	13.32	12.61	12.56	14.06	14.03	14.48	14.69	14.22
4	12.91	12.95	-----	-----	13.30	12.69	12.66	14.06	13.99	14.47	14.67	14.21
5	12.89	-----	-----	-----	13.17	12.78	12.73	14.08	13.99	14.40	14.65	14.20
6	12.89	-----	-----	-----	13.14	12.97	12.85	14.04	14.02	14.41	14.55	14.20
7	12.89	-----	-----	-----	13.18	12.99	12.90	13.98	14.06	14.50	14.69	14.01
8	12.92	-----	-----	-----	13.19	13.07	12.95	13.98	14.09	14.46	14.64	14.01
9	12.98	-----	-----	-----	13.15	13.16	12.99	13.99	14.12	14.46	14.60	13.87
10	12.98	-----	-----	-----	13.18	13.22	13.01	14.01	14.12	14.56	14.69	13.79
11	12.99	-----	-----	-----	13.21	13.26	13.02	14.07	14.09	14.55	14.61	13.62
12	12.94	-----	-----	-----	13.26	13.28	13.10	14.08	14.08	14.56	14.58	13.70
13	12.96	-----	-----	13.16	13.32	-----	13.12	14.09	14.13	14.57	14.58	13.62
14	12.80	-----	-----	13.18	13.32	-----	13.22	14.12	14.21	14.57	14.56	13.47
15	12.80	-----	-----	13.18	13.39	-----	13.31	14.22	14.23	14.61	14.38	13.44
16	12.87	-----	-----	13.18	13.33	13.16	13.33	14.26	14.31	14.67	14.38	13.52
17	12.83	-----	-----	13.17	13.33	13.20	13.33	14.27	14.31	14.62	-----	13.52
18	12.83	-----	-----	13.42	13.31	13.41	13.35	14.24	14.28	14.66	-----	13.58
19	12.89	-----	-----	13.44	13.26	13.44	13.41	14.21	14.25	14.61	-----	13.61
20	12.84	-----	-----	13.36	13.16	13.44	13.53	14.18	14.30	14.69	-----	13.48

Table 8.--Water levels in observation wells in Putnam County--Continued

Putnam 5--Continued

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21	12.86	-----	-----	13.36	13.11	13.45	13.65	14.15	14.28	14.67	-----	13.50
22	12.88	-----	-----	13.48	13.05	13.38	13.68	14.14	14.26	14.53	-----	13.58
23	12.93	-----	-----	13.53	12.96	13.07	13.70	14.15	14.26	14.53	-----	13.60
24	12.93	-----	-----	13.51	12.90	13.07	-----	14.19	14.25	14.60	14.10	13.60
25	12.91	-----	-----	13.51	12.87	13.00	-----	14.18	14.32	14.64	14.10	13.60
26	12.99	-----	-----	13.55	12.80	12.94	-----	14.21	14.34	14.56	14.09	-----
27	12.98	-----	-----	e13.60	12.74	12.84	-----	14.22	14.32	14.61	14.09	13.83
28	13.01	-----	-----	13.53	12.74	12.66	-----	14.23	14.29	14.64	14.01	13.67
29	13.02	-----	-----	13.45	12.69	12.66	-----	14.27	14.29	14.62	14.09	-----
30	13.00	-----	-----	13.36	12.69	12.64	-----	14.20	14.31	14.49	14.19	-----
31	12.99	-----	-----	-----	12.65	-----	-----	14.09	-----	14.42	-----	-----

Putnam 6. (16/4W-8Q1). Ohio Oil Co. Roachdale. SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 8, T. 16 N., R. 4 W. Drilled unused artesian well in sand and gravel, diameter 6 inches, reported depth 172 feet. Land-surface datum is about 800 feet above msl. Recording gage installed June 26, 1958. Highest water level is 18.65 below lsd, Mar. 15, 1959; lowest 25.08 below lsd, Dec. 1, 2, 1960. Records available: 1958-60. Affected by fluctuations in barometric pressure.

(Daily highest water level from recorder graph, 1958)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1958		July 27	20.94	Aug. 19	19.63	Oct. 27	21.55
		28	20.77	20	19.76	28	21.60
June 27	20.58	29	e20.55	21	19.81	29	21.66
28	20.64	30	20.45	22	19.81	30	21.70
29	20.72	31	e20.15	23	19.91	31	21.72
30	20.73	Aug. 1	19.85	24	20.00	Nov. 1	21.68
July 1	20.78	2	19.73	Sept. 10	h20.67	2	21.64
2	20.82	3	19.65	Oct. 7	21.15	3	21.64
3	20.86	4	19.65	13	21.43	4	21.67
4	20.87	5	19.65	14	21.43	5	21.61
5	20.87	6	19.68	15	21.38	6	21.68
6	20.96	7	19.68	16	21.33		
7	21.00	8	19.68	17	21.33	7	21.77
8	21.05	9	19.72	18	21.43	8	21.70
9	21.15	10	19.74	19	21.44	9	21.66
10	21.15			20	21.43	10	21.72
		11	19.77			11	21.86
11	21.03	12	19.85	21	21.45	12	21.97
22	20.86	13	19.86	22	21.45	13	21.94
23	20.86	14	19.90	23	21.48	14	21.90
24	20.89	15	19.33	24	21.48	15	21.87
25	20.92	17	19.54	25	21.49	16	21.84
26	20.92	18	19.63	26	21.53	17	21.62

Table 8.--Water levels in observation wells in Putnam County--Continued

Putnam 6--Continued

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 18	21.60	Nov. 20	21.40	Dec. 4	20.19	Dec. 19	20.57
19	21.48	Dec. 3	20.25	18	20.54	20	20.55

(Daily highest water level from recorder graph, 1959)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	-----	21.33	19.58	19.06	19.05	20.21	-----	22.43	22.93	24.01	23.88	23.05
2	-----	21.34	19.50	18.83	19.12	20.25	-----	22.45	22.94	24.05	23.88	23.07
3	-----	21.08	19.47	18.81	19.15	20.32	-----	22.48	23.04	24.05	23.88	23.08
4	-----	21.01	19.53	18.82	19.26	20.40	-----	22.13	23.18	24.06	23.73	23.03
5	-----	21.04	19.31	18.80	19.30	20.45	-----	22.39	23.22	24.10	23.66	23.03
6	-----	21.22	19.29	18.84	19.36	20.47	-----	22.44	23.23	24.10	23.69	22.99
7	-----	21.32	19.35	18.89	19.43	-----	21.48	22.42	23.25	24.10	23.74	22.99
8	-----	21.21	19.33	18.90	19.57	-----	21.54	22.42	23.33	24.10	23.73	23.00
9	-----	-----	19.26	18.91	19.62	20.68	21.57	22.43	23.38	24.10	23.64	23.11
10	-----	-----	19.26	18.99	19.50	20.61	21.62	22.50	23.36	24.08	23.57	23.13
11	-----	-----	19.21	18.99	19.51	20.55	21.64	22.56	23.44	24.08	23.53	22.95
12	-----	-----	19.19	19.00	19.60	20.48	21.64	22.61	23.55	24.13	23.53	22.79
13	-----	-----	19.06	19.01	19.62	20.48	21.75	22.74	23.59	24.05	23.40	22.74
14	21.30	-----	18.77	19.01	19.62	20.48	21.81	22.78	23.57	24.03	23.35	22.62
15	21.23	-----	18.65	19.06	19.64	20.52	21.84	22.79	23.53	24.03	23.26	22.50
16	21.23	20.20	18.68	19.08	19.69	20.52	21.89	22.59	23.58	23.99	23.15	22.42
17	21.23	20.02	18.75	19.14	19.72	20.52	21.90	22.66	23.65	23.99	23.17	22.34
18	21.26	19.93	18.80	19.21	19.69	20.55	21.85	22.66	23.72	24.00	23.15	22.33
19	21.26	20.04	18.79	19.18	19.69	20.65	21.85	22.67	23.78	24.00	23.12	22.35
20	21.15	20.06	18.79	19.18	19.77	20.65	21.90	22.67	23.83	24.00	23.04	22.32
21	21.01	20.09	18.80	19.22	19.80	20.65	22.00	22.68	23.80	24.00	22.98	22.30
22	-----	19.97	18.86	19.24	19.84	20.67	22.09	22.68	23.80	24.03	22.94	22.30
23	-----	19.87	18.94	19.25	19.86	20.71	22.13	22.69	23.81	23.84	22.83	-----
24	-----	19.91	18.95	19.25	19.95	20.79	22.13	22.79	23.86	23.75	22.79	-----
25	-----	19.88	19.00	19.27	19.99	20.83	22.17	22.81	23.90	23.73	22.80	-----
26	21.15	19.79	19.00	19.29	20.02	20.85	22.28	22.81	23.79	23.76	22.87	-----
27	21.18	19.74	19.00	19.20	20.04	20.89	22.17	22.83	23.79	23.77	22.95	-----
28	21.20	19.69	19.16	19.08	20.10	20.97	22.25	22.86	23.84	23.92	23.02	-----
29	21.08	-----	19.25	19.06	20.13	21.00	22.30	22.89	-----	23.99	23.06	-----
30	21.15	-----	19.21	19.05	20.15	-----	22.34	22.93	24.01	23.99	23.07	-----
31	21.26	-----	19.21	-----	20.19	-----	22.40	22.93	-----	23.94	-----	-----

Table 8.--Water levels in observation wells in Putnam County--Continued

Putnam 6--Continued

(Daily highest water level from recorder graph, 1960)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	-----	20.61	19.60	19.76	20.66	20.72	19.99	21.09	22.61	23.67	24.27	25.00
2	-----	20.61	19.58	19.73	20.80	20.64	20.02	21.14	22.62	23.69	24.35	25.05
3	-----	20.58	19.56	19.66	20.80	20.63	20.02	21.16	22.71	23.71	24.47	25.02
4	-----	20.50	19.60	19.62	20.80	20.63	20.07	21.16	22.76	23.79	24.59	24.97
5	-----	19.79	19.71	19.61	20.76	20.63	20.15	21.17	22.84	23.77	24.63	24.92
6	-----	19.79	19.83	19.55	20.65	20.66	20.24	21.22	22.84	23.77	24.61	24.87
7	-----	19.92	19.89	19.56	20.65	20.72	20.35	21.28	22.90	23.85	24.68	24.89
8	-----	19.60	19.95	19.62	20.67	20.83	20.39	21.32	22.93	23.88	24.72	24.89
9	-----	-----	19.88	19.68	20.67	20.85	20.46	21.40	22.97	23.88	24.72	24.86
10	-----	-----	19.89	19.83	20.65	20.88	20.41	21.41	23.05	23.92	24.73	24.79
11	-----	-----	19.97	19.87	20.68	20.88	20.42	21.48	23.05	23.95	24.83	24.66
12	-----	-----	20.03	19.90	20.78	20.83	20.46	21.57	23.04	23.97	24.81	24.67
13	-----	-----	20.15	19.05	20.80	-----	20.50	21.59	23.07	24.01	24.81	24.77
14	-----	-----	20.20	19.99	20.81	-----	20.47	21.60	23.13	24.02	24.83	24.65
15	-----	-----	20.13	20.04	20.83	-----	20.44	21.66	23.17	24.04	24.66	24.60
16	-----	18.66	20.04	20.02	20.83	-----	20.42	21.78	23.30	24.13	24.66	24.63
17	-----	18.66	20.04	20.00	20.83	20.91	20.39	21.84	23.34	24.15	24.73	24.68
18	-----	18.70	20.08	20.14	20.86	21.05	20.35	21.90	23.36	24.15	24.81	24.76
19	-----	18.76	20.11	20.30	20.95	21.13	20.35	21.88	23.30	24.18	24.86	24.80
20	20.67	18.95	20.18	20.30	20.96	21.18	20.38	21.88	23.30	24.20	24.87	24.73
21	20.67	18.96	20.27	20.27	20.93	21.14	20.51	21.90	23.36	24.25	24.91	24.73
22	20.67	18.96	20.25	20.31	20.93	21.02	20.56	22.02	23.38	24.25	24.87	24.76
23	20.70	19.08	20.32	20.40	20.97	19.99	20.59	22.08	23.38	24.20	24.87	24.81
24	20.72	19.20	20.30	20.47	21.00	20.28	20.65	22.15	23.41	24.22	24.93	-----
25	20.67	19.05	20.34	20.48	21.01	20.22	20.68	22.24	23.45	24.35	24.93	-----
26	20.69	19.09	20.13	20.48	21.04	20.15	20.68	22.30	23.50	24.27	24.93	-----
27	20.58	19.28	19.94	20.58	21.00	20.04	20.70	22.39	23.51	24.27	24.93	-----
28	20.65	19.39	19.92	20.67	21.00	19.99	20.83	22.45	23.55	24.34	24.84	24.87
29	20.65	19.45	-----	20.67	21.00	19.99	20.88	22.46	23.55	24.35	24.86	24.80
30	20.65	-----	-----	20.61	21.00	19.99	20.89	22.49	23.55	24.33	24.93	24.80
31	20.61	-----	-----	-----	20.83	-----	20.96	22.58	-----	24.27	-----	24.69

PUBLICATIONS OF COOPERATIVE GROUND-WATER PROGRAM

Report

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

Bulletins

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

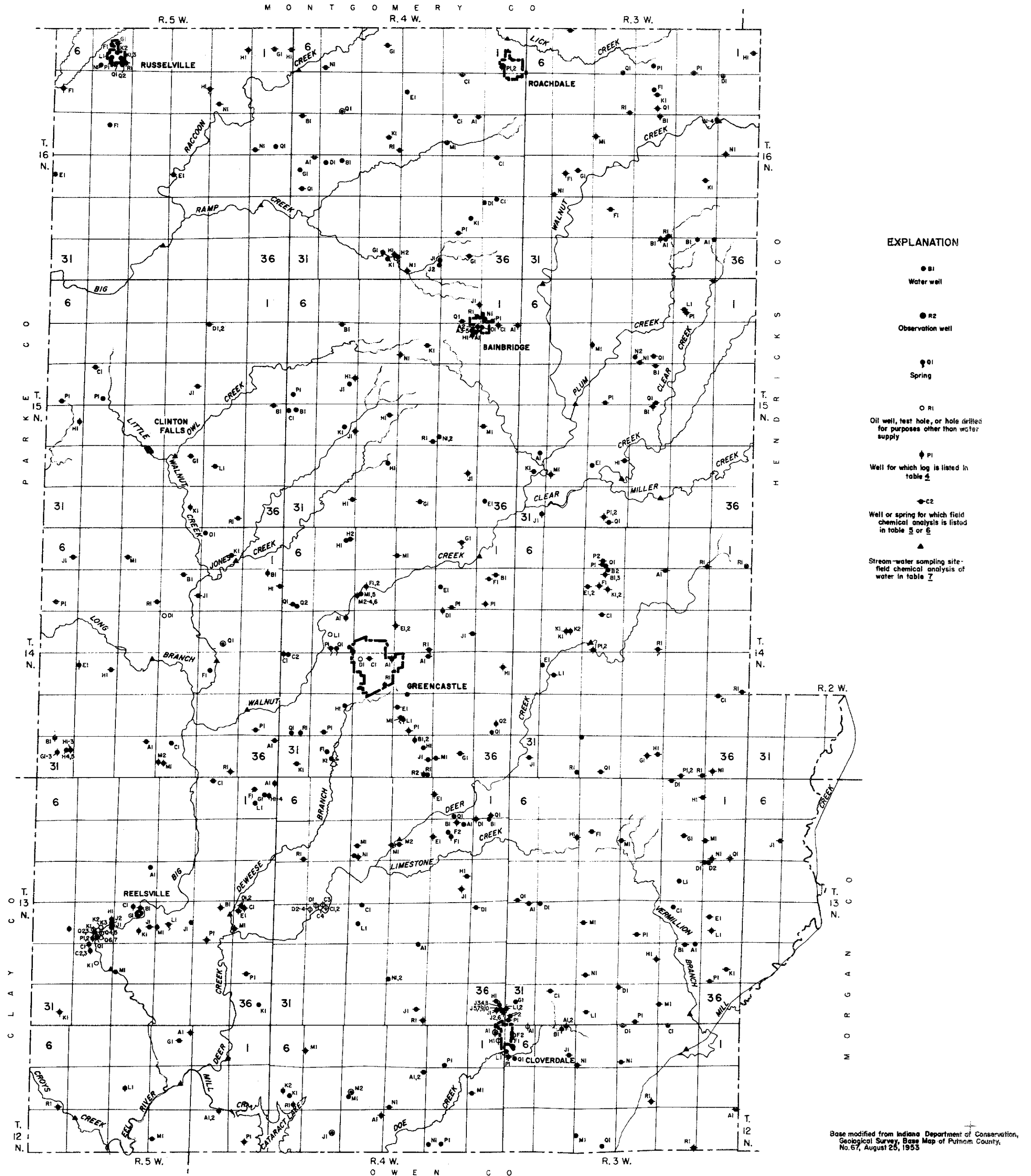
Publications of cooperative ground-water programs--Continued

Bulletins--Continued

- 12 Ground-water resources of northwestern Indiana. Preliminary Report: Porter County. J. S. Rosenshein. Indiana Department of Conservation, Division of Water Resources. 1962.
- 13 Ground-water resources of northwestern Indiana. Preliminary Report: La Porte County. J. S. Rosenshein and J. D. Hunn. Indiana Department of Conservation, Division of Water Resources. 1962.
- 14 Ground-water resources of west-central Indiana. Preliminary Report: Sullivan County. F. A. Watkins, Jr., and D. G. Jordan. Indiana Department of Conservation, Division of Water Resources. 1962.
- 15 Ground-water resources of northwestern Indiana. Preliminary Report: St. Joseph County. J. S. Rosenshein and J. D. Hunn. Indiana Department of Conservation, Division of Water Resources. 1962.
- 16 Ground-water resources of west-central Indiana. Preliminary Report: Clay County. F. A. Watkins, Jr., and D. G. Jordan. Indiana Department of Conservation, Division of Water Resources. 1962.
- 17 Ground-water resources of west-central Indiana. Preliminary Report: Vigo County. F. A. Watkins, Jr., and D. G. Jordan. Indiana Department of Conservation, Division of Water Resources. 1963.
- 18 Ground-water resources of west-central Indiana. Preliminary Report: Owen County. F. A. Watkins, Jr., and D. G. Jordan. Indiana Department of Conservation, Division of Water Resources. 1963.
- 19 Ground-water resources of northwestern Indiana. Preliminary Report: Marshall County. J. S. Rosenshein and J. D. Hunn. Indiana Department of Conservation, Division of Water Resources. 1964.
- 20 Ground-water resources of northwestern Indiana. Preliminary Report: Fulton County. J. S. Rosenshein and J. D. Hunn. Indiana Department of Conservation, Division of Water Resources. 1964.
- 21 Ground-water resources of west-central Indiana. Preliminary Report: Putnam County. F. A. Watkins, Jr., and D. G. Jordan. Indiana Department of Conservation, Division of Water Resources. 1964.

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EXPLANATION

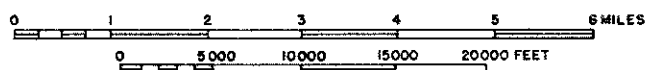
- B1 Water well
- R2 Observation well
- O1 Spring
- R1 Oil well, test hole, or hole drilled for purposes other than water supply
- ◆ P1 Well for which log is listed in table 4
- ◆ C2 Well or spring for which field chemical analysis is listed in table 5 or 6
- ▲ Stream-water sampling site—field chemical analysis of water in table 7

Base modified from Indiana Department of Conservation, Geological Survey, Base Map of Putnam County, No. 67, August 25, 1953

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

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

DIAGRAM OF TOWNSHIP



BY F. A. WATKINS, JR. AND D. G. JORDAN
1961

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

SECTION LETTER SYMBOLS IN WELL-NUMBERING SYSTEM

M O N T G O M E R Y C O

R. 5 W.

R. 4 W.

R. 3 W.

EXPLANATION

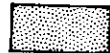
Production from sand and gravel



Water from sand and gravel of Pleistocene age overlain by Recent alluvium. Well depths range from 30 to 70 feet. Yields more than adequate for domestic and stock use. Area of municipal pumpage and relatively large yields.



Water from sand and gravel of Pleistocene age overlain by till. Well depths range from 90 to 170 feet. Yields more than adequate for domestic and stock use. Area in which large yields may be possible.



Water from sand and gravel lenses and stringers interbedded with till or overlain by recent alluvium. Well depths range from 20 to 130 feet. Yields more than adequate for domestic and stock use. Some wells cased through the sand and gravel and tap the underlying bedrock.

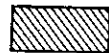


Water from sand and gravel lenses and stringers interbedded with lake sediments. Well depths range from 50 to 120 feet. Yields adequate for domestic and stock use. Area in which large yields may be possible from sand and gravel underlying lake sediments.

Production from bedrock



Water predominately from sandstone of Pennsylvanian age. Well depths range from 40 to 120 feet. Yields generally adequate for domestic and stock use.



Water from limestone, sandstone, and siltstone of Mississippian age. Well depths range from 25 to 500 feet. Yields erratic, range from inadequate for domestic and stock use to adequate for industrial and municipal use.

Boundary approximate

-?-?-?
Boundary uncertain

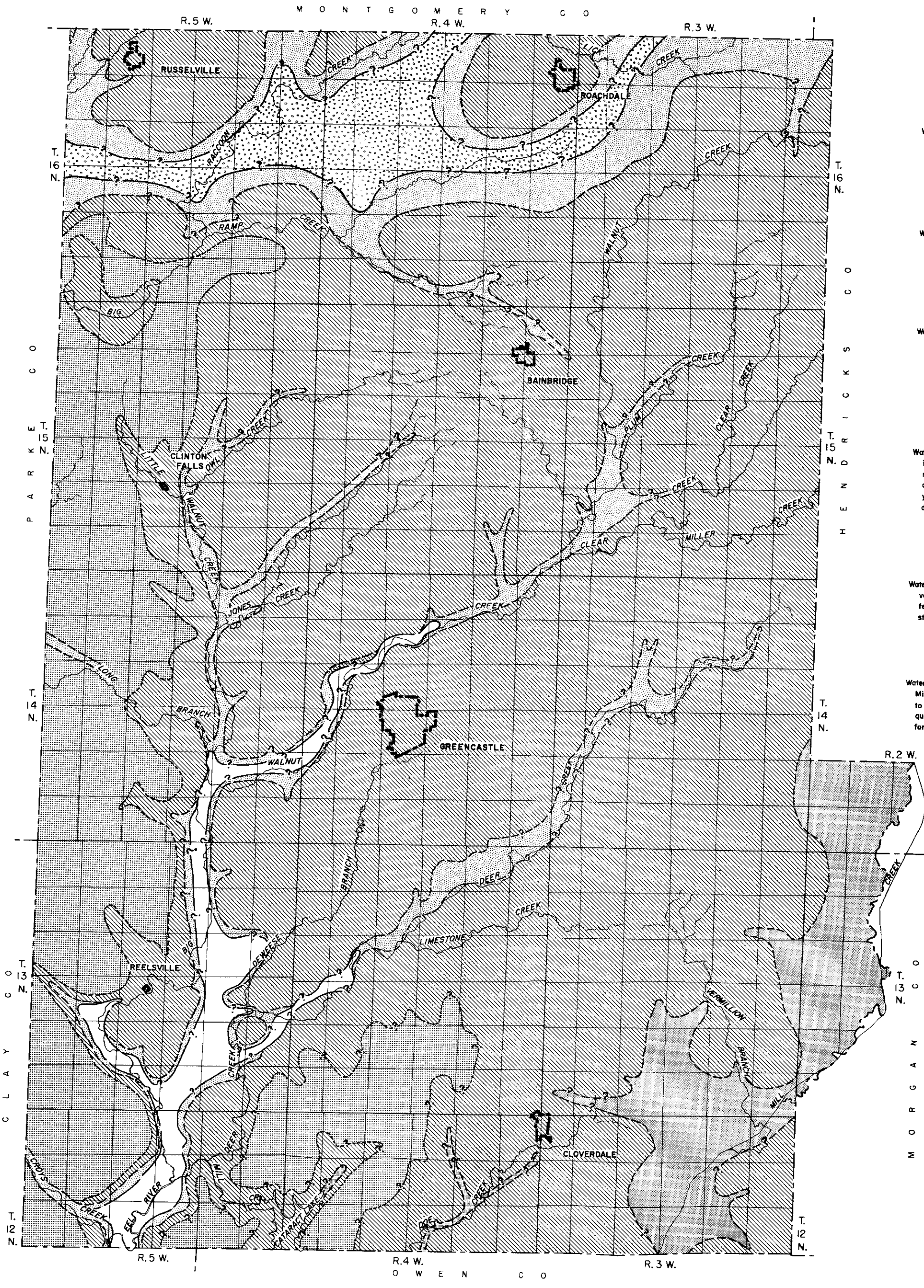
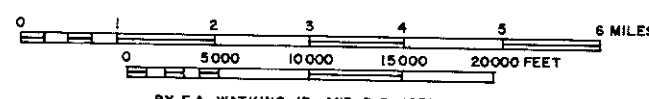


DIAGRAM OF TOWNSHIP

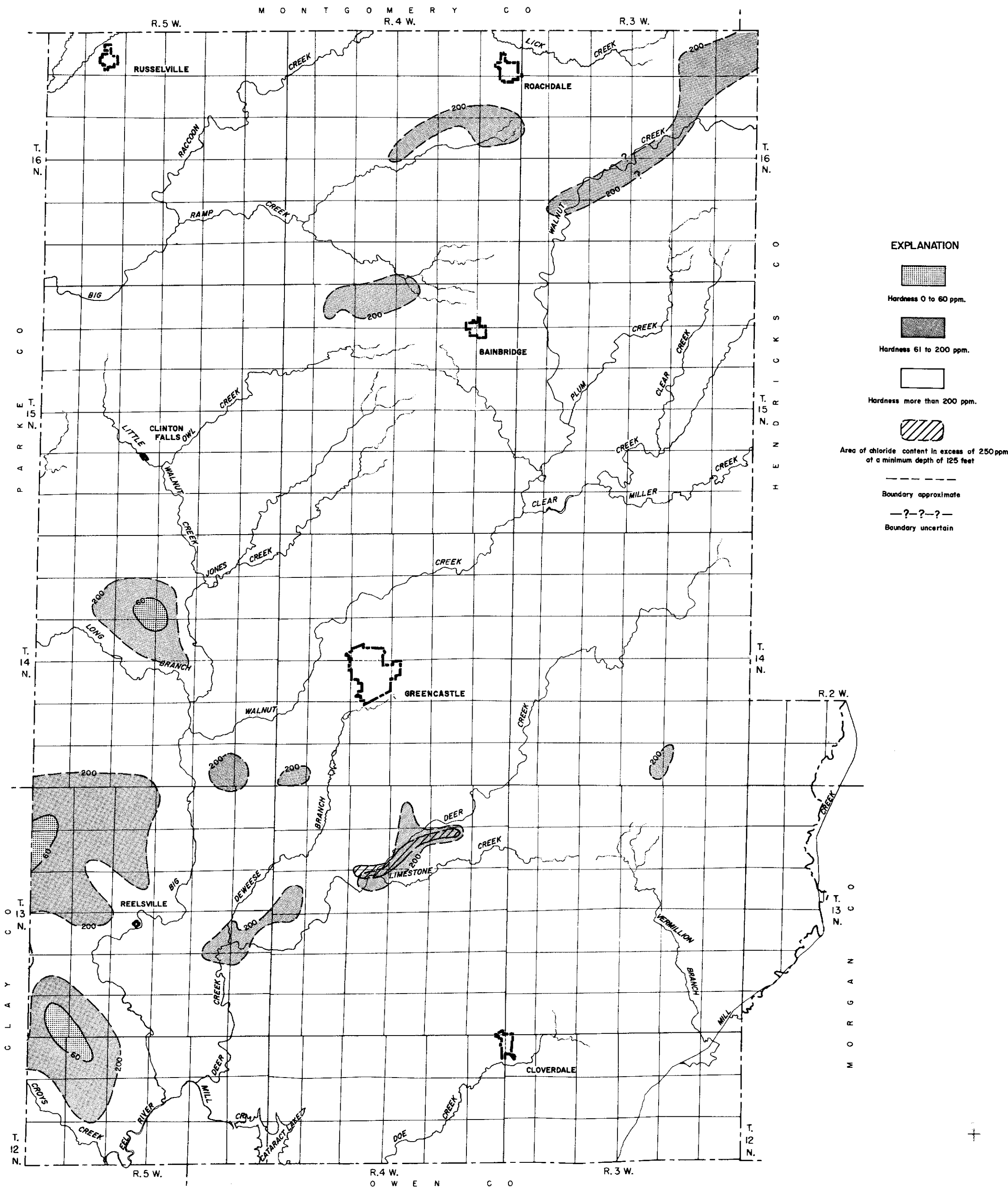
6	5	4	3	2	1
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

MAP OF PUTNAM COUNTY, INDIANA SHOWING
AVAILABILITY OF GROUND WATER



BY F. A. WATKINS, JR. AND D. G. JORDAN
1961

Base modified from Indiana Department of Conservation, Geological Survey, Base Map of Putnam County, No. 67 August 25, 1953



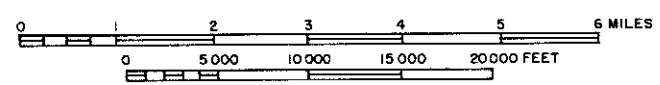
EXPLANATION

- Hardness 0 to 60 ppm.
- Hardness 61 to 200 ppm.
- Hardness more than 200 ppm.
- Area of chloride content in excess of 250 ppm of a minimum depth of 125 feet
- Boundary approximate
- Boundary uncertain

MAP OF PUTNAM COUNTY, INDIANA SHOWING
HARDNESS OF GROUND WATER

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



BY F.A. WATKINS, JR. AND D.G. JORDAN
1961

Base modified from Indiana Department of Conservation, Geological Survey, Base Map of Putnam County, No. 67 August 25, 1953